ENVIRONMENTAL SPATIAL PLANNING: ACHIEVING SUSTAINABALE DEVELOPMENT IN SENSITIVE AREAS

By

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‘When asked if I am pessimistic or optimistic about the future, my answer is always the same: if you look at the science about what is happening on earth and aren't pessimistic, you don't understand the data. But if you meet the people who are working to restore this earth and the lives of the poor, and you aren't optimistic, you haven't got a pulse.’

Martin Keogh *Hope Beneath Our Feet:*
Restoring Our Place in the Natural World (2010) 4.

DECLARATION

I, **LOUIS GERHARDUS SNYMAN**, declare that this thesis is my own unaided work. It is submitted in fulfilment of the requirements of the degree of Doctor of Philosophy (PhD) in the Faculty of Commerce, Law and Management at the University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination in this or any other university.

…….

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This study commenced in 2015 and wherever possible the law is stated as at 31 October 2018. The citation conventions of the South African Journal on Human Rights (SAJHR) were used.

ABSTRACT

South Africa is at a crossroads. Near stagnant economic growth and rising levels of poverty are at the top of the political agenda. In response, the state has adopted a rapid developmental growth strategy in an attempt to build an efficient economy that makes inroads into reversing a legacy of social and economic marginalisation. In a rural context, this includes supporting large industrial developments which include extractives-related activities that exploit precious natural resources.

The status quo has positioned many state-sanctioned development plans on a collision course with the sustainable utilisation of sensitive natural landscapes. It is thus vital to investigate how planners and decision-makers appropriately reconcile the seemingly conflicting environmental, social and economic considerations that constitute 'sustainable development'. This fine balancing exercise requires tough compromises to create harmony between imperatives deeply embedded in the language of rights. The two intersectional areas of law at the centre of this debate are environmental management and spatial planning; each of which prescribe numerous tools that attempt to operationalise the balancing of the often conflicting imperatives within ecologically and culturally sensitive areas.

The difficulty in managing development in sensitive areas is the application of interconnecting, yet often conflicting, legislative and governance systems. Therefore, the key research questions are: How are spatial planning and environmental management paradigms being applied in sensitive areas in South Africa? Moreover, what are the chief factors inhibiting or promoting the effective use of spatial planning and environmental management to achieve a reconciliation between development and conservation in sensitive areas? Lastly, what are the legal dimensions of these questions, if any?

The purpose of this study is thus to suggest ways in which spatial planning and environmental management can be better integrated to achieve the desired outcome of sustainable development in sensitive areas. Although this is a pressing issue, little empirical research has been conducted in this specific area and previous work has failed to address the specific legal, institutional and operational obstacles that exist in creating a cohesive and inclusive system.

The elements of the 'landscape approach' form the foundation for a unifying theory, establishing spatial understanding and reasoning as key components in the balancing of conservation and developmental imperatives. The landscape approach requires specific attention and strengthening if it is to harness the state's role as the custodian of natural resources to unlock ecologically-centred sustainable development in sensitive areas. Environmental Spatial Planning (ESP) is postulated as a newly adapted approach to formalising this trend toward a more integrated formulation of environmental management and spatial planning. ESP seeks to achieve this by realising sustainable development through the provision of distinct parameters and elements in the management and development of sensitive areas, such as in the identified case study area of the Mapungubwe National Park and World Heritage Site.

A descriptive and interpretive case study analysis methodology is adopted, applying qualitative methods through a constructivist approach. The methodological approach employed uses an in-depth empirical case study to produce thematic findings which lead and reinforce the stated hypothesis. The study entails a detailed interview and data collection phase, followed by a thorough desktop assessment of the environmental management and spatial planning legal framework within South Africa, as well as those specifically in force over the case study area. Utilising this methodology, the study conceptually explores the suggested approach of ESP and its possible applications in the management and development of sensitive areas.

The key impact of this study is thus to identify the challenges that exist in the management of development in sensitive areas and to furthermore assess the specifically instituted tools that have been produced to operationalise the foundational principles of environmental management and spatial planning. A primary conclusion is that these tools have the potential to form the basis for inclusive and sustainable growth in sensitive areas by using early identification and spatial mapping of sensitive ecosystems and important resources in an effort to pre-empt and manage land-use conflicts. Yet, these tools require improved status, reinforcement and alignment with ESP principles in order to overcome the above-mentioned obstacles that are inhibiting their desired impact.

Keywords: 'environmental management', 'spatial planning', 'law', 'sensitive areas', 'sustainable development', 'landscape approach', 'environmental spatial planning'.

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LIST OF ABBREVIATIONS AND ACRONYMS

Abbreviations

C-Plan	Conservation Plan
EIA Regulations	Environmental Impact Assessment Regulations
Ethics Committee	University Ethics Committee for Non-Medical Research
Mapungubwe	Mapungubwe National Park and World Heritage Site
SANParks	South African National Parks
Vele EMC	Vele Colliery Environmental Management Committee

Acronyms

ANC	African National Congress
ASAPA	Association of Southern African Professional Archaeologists
AWARD	Association for Water and Rural Development
CALS	Centre for Applied Legal Studies
CBA	Critical Biodiversity Area
CBD	Convention on Biological Diversity
CBO	Community Based Organisation
CCM	Constant Comparative Method
CDF	Conservation Development Framework
CMA	Catchment Management Agencies
CoAL	Coal of Africa Limited
DDPF	District Development Planning Forum
DEA	Department of Environmental Affairs
DFA	Development Facilitation Act
DMR	Department of Mineral Resources
DRDLR	Department of Rural Development and Land Reform
DWS	Department of Water and Sanitation
EA	Environmental Authorisation
EAP	Environmental Assessment Practitioner
ECA	Environment Conservation Act
EIA	Environmental Impact Assessment
EMF	Environmental Management Framework
EMP	Environmental Management Plan
EMZ	Environmental Management Zone
EPWP	Extended Public Works Programme
ESA	Ecologically Sensitive Area
ESER	Ecological Socio-Economic Relationship
ESP	Environmental Spatial Planning
EWT	Endangered Wildlife Trust
GCP	Global Canopy Programme
GG	Government Gazette
GIS	Geographical Information System
GMTFCA	Greater Mapungubwe Transfrontier Conservation Area
GN	Government Notice
HMP	Heritage Management Plan
I&AP	Interested and Affected Party
IDA	Infrastructure Development Act

IDP	Integrated Development Plan
IEM	Integrated Environmental Management
IEMP	Integrated Environmental Management Plans
IGRFA	Intergovernmental Relations Framework Act
IUCN	International Union for Conservation of Nature
IWULA	Integrated Water Use Licence Application
LDP	Limpopo Development Plan
LEDET	Limpopo Department of Economic Development, Environment and Tourism
LHRA	Limpopo Heritage Resources Agency
LPAES	Limpopo Protected Area Expansion Strategy
MAB	Man and Biodiversity Programme
MDGs	Millennium Development Goals
MEC	Member of Executive Council
MoU	Memorandum of Understanding
MPRDA	Mineral and Petroleum Resources Development Act
MSA	Municipal Systems Act
NBA	National Biodiversity Assessment
NBF	National Biodiversity Framework
NBSAP	National Biodiversity Strategy and Action Plan
NDP	National Development Plan
NEMA	National Environmental Management Act
NEMA: BA	National Environmental Management: Biodiversity Act
NEM: PAA	National Environmental Management: Protected Areas Act
NFEPA	National Freshwater Ecosystem Priority Area
NGO	Non-Governmental Organisation
NHRA	National Heritage Resources Act
NPAES	National Protected Areas Expansion Strategy
NSBA	National Spatial Biodiversity Assessment
NSDP	National Spatial Development Perspective
NSSP	National Strategy for Sustainable Development and Action Plan
NWA	National Water Act
NWRS	National Water Resource Strategy
OUV	Outstanding Universal Value
PDPF	Provincial Development Planning Forum
PGDS	Provincial Growth and Development Strategy
PIPF	Provincial Integrated Planning Framework
RDP	Reconstruction and Development Programme
SADC	Southern African Development Community
SAHRA	South African Heritage Resources Agency
SANBI	South African National Biodiversity Institute
SAVE	Save Mapungubwe Action Group
SDF	Spatial Development Framework
SEA	Strategic Environmental Assessment
SEMP	Strategic Environmental Management Plan
SEZ	Special Economic Zone
SLP	Social and Labour Plan
SPLUMA	Spatial Planning and Land Use Management Act
TPC	Thresholds of Potential Concern

TTC	Trilateral Technical Committee
UN	United Nations
UNDP	United Nations Development Programme
UNESCO	United Nations Educational, Scientific and Cultural Organisation
VBR	Vhembe Biosphere Reserve
WCED	World Commission on Environment and Development
WHS	World Heritage Site
WMA	Water Management Area
WWF-SA	World Wildlife Fund South Africa

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CHAPTER ONE: PERSONAL STATEMENT

I have always been fascinated by my natural surroundings. Growing up in Swaziland, I was captivated by the beauty and complexity that naturally occurred around me. My first encounters with law ignited my interest in environmental justice and, in particular, the challenge of balancing ecological and developmental objectives. This led me to believe that life is about equilibrium and that harmonising an extensive range of needs, rights and imperatives is fundamental to a flourishing society.[1] My work as an attorney in the Environmental Justice and Mining Programme at the Centre for Applied Legal Studies (CALS) has reinforced this belief and spurred on my goal of changing the way development is undertaken in South Africa.

I feel strongly that South Africa is fast approaching an environmental point of no return or 'tipping point' where we will be unable to undo the damage inflicted on sensitive ecosystems, leading to the permanent loss of important sensitive areas.[2] The adoption of the aspirational objectives set out in the accelerated development model has added to the skewed balancing of environmental and developmental rights. This can be evidenced by the prevalence and upsurge of land-use conflicts in rural-based sensitive areas.[3] Based on this, I believe that South Africa needs a strong policy and regulatory shift in order to pre-empt these conflicts and protect the sensitive natural landscapes. I believe people need to value the utility and benefits provided by stable ecosystems and consider these as a major factor in the cost-benefit analysis for any proposed future activity.[4]

As an environmental justice attorney, I deal with the protection of sensitive areas which are very special to me. I have witnessed the priority that is given to development over preserving our sensitive ecosystems and cultural resources. With the state's clear prioritisation of economic development and the constant threats to already vulnerable ecosystems, I believe

[1] L G Snyman 'Environmental Management Frameworks: Balancing Environmental and Developmental Imperatives in Sensitive areas' (2017) 117 *Journal of the Southern African Institute of Mining and Metallurgy* 19.

[2] 'An environmental tipping point is a part of the human-environment system that can lever far-reaching change in the ecological system, setting in motion mutually reinforcing feedback loops that propel the system on a completely new course.' See G Marten 'Environmental Tipping Points: A New Paradigm for Restoring Ecological Security' (2005) 20 *Journal of Policy Studies* 75.

[3] Some examples of sensitive areas that have been subject to unconsidered planning are the Mapungubwe World Heritage Site, the Blyde River Canyon Nature Reserve, Imfolozi Game Reserve, and the Mtunzini Conservancy.

[4] 'The human environment and the natural environment deteriorate together; we cannot adequately combat environmental degradation unless we attend to causes related to human and social degradation.' See the Encyclical Letter Laudato Si' of The Holy Father Francis 'Care for Our Common Home' (24 May 2015) 48.

the only hope for conserving our country's natural wealth lies in pro-active ecologically-focused spatial planning.

I have been the attorney of record for the Save Mapungubwe Coalition for over 6 years now, striving to assist the members in their collective mandate to protect the Mapungubwe National Park and World Heritage Site (Mapungubwe) from invasive developments, in particular, extractive industries. Due to the area's significance and natural resource potential, regulators have developed creative ways to manage the area, including buffer zones, bioregional plans, biosphere reserves and environmental management frameworks (EMFs). Through my involvement in these processes I have observed several successes and failures of a system designed to ensure ecologically-based and spatially conscious sustainable development. The overriding opinion I have formed is that the system has much potential, and with some modifications the system can be an important part of the developmental landscape, ensuring not only nature conservation but opportunity.

I want to advance knowledge in this area to ultimately make a better theoretical and, more importantly, practical system of implementing the core principles of sustainable development. I believe there is immense scope for studying the intersection of environmental and spatial planning law, and I am passionate about adding to the discourse which best protects and sustainably utilises our country's natural resources and sensitive areas.

CHAPTER TWO: AREA OF CONCERN

2.1 *Research problem*

As South Africa's developmental needs expand and the appetite for raw materials intensifies, it becomes ever more critical to support environmental rights and realise sustainable development through innovative methods.[5] The pressures between industrial expansion and environmental sustainability are threatening valuable sensitive areas. An example of this rising pressure is the demand for new mineral grounds, which has seen a notable increase in land-use conflicts within previously untransformed areas. Sensitive areas are critical for our environmental and cultural wellbeing, yet they are continuously under threat as the balance of power favours more invasive, short-term, incompatible, high-profit ventures that are pushing these areas toward environmental tipping points.

Considering this rapidly escalating entry into rural environs, an investigation is vital into how decision-makers are balancing the myriad of interrelated human rights in an attempt to realise sustainable development.[6] With specific reference to the case study area of Mapungubwe, such an investigation must include an assessment of how such authorities balance the imperatives of conservation with the need to develop employment opportunities and poverty alleviation in a region which has material problems with ingrained societal imbalances.

The difficulty with managing this increased development in sensitive areas is the application of two intersecting, yet often conflicting, legislative and governance regimes. The first is the regime for 'environmental management', a post-apartheid democratic system focused on scientific study, human rights and environmental protection. The second regime is 'spatial planning', although in transition remains rooted in the pre-democratic regime and focuses on unscientifically delineated boundaries formed to promote economic development and serve political needs. The reality is that precedence is often given to spatial planning that can be socially and environmentally unintegrated, driving the economic priority over other human rights-based imperatives.[7]

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[5] South Africa is committed to mineral extraction as it permeates major manufacturing sectors and contributes considerably to the country's gross domestic product. See B Fine & Z Rustomjee '*The Political Economy of South Africa: from Minerals-Energy Complex to industrialisation'* (1996) 8. Also see Snyman (note 1 above).

[6] For the purposes of this study 'decision-making' will be considered as the thought process of selecting a logical choice from the available options made by a designated official with the requisite authority. See F Uzonwanne *Global Encyclopedia of Public Administration, Public Policy, and Governance* (2016) 1.

[7] The planning system is currently under reform, culminating in the move to a constitutionally supported system under the Spatial Planning and Land Use Management Act No.16 of 2013 (SPLUMA), which is yet to be fully tested against the system regulated by the National Environmental Management Act No.107 of 1998 (NEMA).

Both regimes are characterised by a plethora of laws and a lack of sectoral synchronisation, resulting in inadequate resource allocation and the failure to link conservation imperatives with local community needs.[8] The status quo has led to both legal frameworks suffering from misalignment and duplication, often facilitating unintegrated decision-making processes. These governance difficulties have, in turn, permitted high impact development to persist in a fashion which does not support the principles of sustainable development.

In this vein, the state has rightly recognised that not all land is equal and special mechanisms are required to manage areas with ingrained competing developmental imperatives. Such special mechanisms have the potential to guide the sustainable use of ecosystem goods and services to facilitate positive growth.[9] However, these tools are still in their relative infancy and have specific challenges in both their design and implementation.[10]

2.2 ***Hypothesis***

The challenges cited above undermine the effective functioning and management of South Africa's sensitive areas regime.[11] There is, therefore, a need to advance steps to develop regulatory frameworks that are integrated, consistent and robust enough to practically realise the right to environmental health and wellbeing in section 24 of the Constitution of the Republic of South Africa Act 108 of 1996.[12] To achieve this and promote the realisation of practical sustainable development, while also overcoming the current institutional and legislative fragmentation, development initiatives must be integrated and aligned both in their principles and processes. A clear, cohesive regulatory approach toward environmentally-based spatial planning is important to manage areas of value and heightened sensitivity.

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[8] These issues are identified in M Kumleben, S Sangweni & J Ledger '*Board of Investigation into the Institutional Arrangements for Nature Conservation in South Africa'* (1998) Report to the Minister for Environmental Affairs and Tourism 9.

[9] South Africa, unlike the majority of other jurisdictions, has legally adopted environmentally-focused planning tools, such as environmental management frameworks, buffer zones, biosphere reserves, bio-regional plans and catchment management areas. See W French & L Natarajan '*Self-diagnostic Assessments of the Capacity for Planning Worldwide: Key Finding Report'* (2008) Global Planners Network. Also see Snyman (note 1 above) 20.

[10] Examples of challenges include the ambiguous mandates within departments and spheres of government, including contradictory notions of development and a confusion of status which undermine these tools as integrated vehicles for co-ordination and co-operation.

[11] A Paterson 'Legal Framework for Protected Areas: South Africa' (2009) 81 *IUCN Environmental Policy and Law* 7.

[12] S24 of the Constitution of the Republic of South Africa Act No. 108 of 1996.

Environmentally-focused spatial planning tools[13] attempt to bridge the gap between environmental management and spatial planning. These tools provide a clearer, more predictable base for development planning in sensitive areas. This is especially true in areas that have prospective invasive developments on the horizon where numerous stakeholder interests and environmental sensitivities will be affected.[14] Moreover, these tools have the potential to lay the foundation for considered growth by using early identification and spatial mapping of sensitive ecosystems and resources to pre-empt potential land-use conflicts, while reacting to ecosystem and stakeholder needs.[15]

While South Africa does not have specifically assigned environmentally-focused spatial planning legislation, there are provisions in national conservation and land-use planning legislation that provide for legal tools that realise the concept.[16] Due to their distorted legal standing, their status remains contentious, making it important to extend and strengthen their position to secure the considered management of sensitive areas.

An environmentally-focused spatial planning approach supports a considered long-term methodology, where scientific assessment and planning form the basis for developmental decision-making and additional weight is afforded to ecological stability. Such an approach relies on anticipating impacts and designing tools that enable a proactive integration of environmental management and developmental needs. This hypothesis is supported by the unifying theory of the 'landscape approach', the elements of which form the foundation of the postulated theory of Environmental Spatial Planning (ESP). The landscape approach serves as the established theory, used as a base for developing the theory of ESP in this thesis. The intent behind the formulation of ESP is to create an inclusive and cohesive approach that unifies environmental management and spatial planning, thus expanding the landscape approach.

[13] Such as EMFs and bioregional plans are firmly rooted in integrated environmental management, while basing the process and outcomes in spatial planning. See S24(4) (b)(vi) of NEMA.

[14] 'Stakeholders are individuals with an interest in the system being addressed; they can include landowners, concerned citizens, representatives of citizen groups, local government, and state agencies.' See J Pasquero 'Supraorganizational collaboration: The Canadian environmental experiment' (1991) 27 *Journal of Applied Behavioral Science* 38. Also see M Dowie *Conservation Refugees: The Hundred-Year Conflict between Global Conservation and Native Peoples* (2009).

[15] R Slootweg et al '*Biodiversity in Environmental Assessment: Enhancing ecosystem services for human wellbeing'* (2012) 30.

[16] See S16 of SPLUMA and S24(3) of NEMA for examples of provisions for SDFs and EMFs that contain elements of environmentally-focused spatial planning.

2.3 ***Research questions***

The primary research questions that this study endeavours to address are divided into three distinct yet interrelated sections. The first focusses on the South African legal regime, questioning the relationship between conservation and development from a planning perspective. This is followed by an investigation into the effective use and integration of environmental management and spatial planning. The final question addresses the implementation and development of the tools designed to practically realise the core principle of sustainable development. The specific research questions are as follows:

2.3.1 *Development and conservation paradigms*

What range of planning paradigms underlie the reconciliation of development and conservation in sensitive areas in South African law? Are they coherent or divergent in their underlying principles and regulatory design?

2.3.2 *Environmental planning framework*

How are spatial planning and environmental management paradigms being applied in sensitive areas in South Africa? What are the chief factors inhibiting or promoting the effective use of spatial planning and environmental management to achieve a reconciliation of development and conservation in sensitive areas?

2.3.3 *Environmental management planning instruments*

Can spatial planning and environmental management be integrated under the banner of ESP to better reconcile development and conservation in sensitive areas and create true sustainable development? What would be the underlying principles and regulatory design of an integrated environmental and spatial planning paradigm?

CHAPTER THREE: RESEARCH DESIGN AND METHODOLOGY

3.1 *Positioning the Researcher*

It is generally accepted that inherent bias exists when undertaking qualitative research, especially where the researcher is collecting and interpreting data personally. Bias exists due to the strong subjective nature of a qualitative study which unquestionably influences the final research product. The researcher and the findings are inextricably linked, with the researcher acting as a conduit for all information collection, application and analysis. Yet, arguably, this does not diminish the credibility of the research, but rather adds valuable dimensions to the findings provided the 'biases, motivations, interests and perspectives' of the researcher are stated and expounded transparently.[17] Formal legal research does not customarily involve an analysis of subjective biases as the research is often primarily concerned with legally supported reasoning and opinions, however, due to the multi-method qualitative nature of this study a more appropriate social science approach is adopted in order to enhance research credibility.[18]

I am first and foremost an attorney, and my education and training up until this point has been focused on formal substantive and procedural legality and, ultimately, respect for the rule of law. Yet, my role as a human rights lawyer and activist has fundamentally broadened my understanding of justice and assisted me in applying law, strategic research and advocacy in an effort to achieve a more holistic understanding of constitutionalism. That being said, I am aware that my ideals and perception of the world will impact my understanding and presentation of the issues. On a daily basis I deal with the marginalisation of the disenfranchised populace, seeking justice and redress for fundamental rights violations from a powerful state and private actors. I would not say that this has tainted my perception but rather given me insight into the 'real world' impacts of invasive developments on people and the receiving environment, as well as insight into the mechanics of governance in South Africa.

I have learnt that power is central to all oppressive acts and those who possess it will always exercise this power at the expense of those who do not. The only manner of stifling this dynamic is to use law to regulate and manage the negative impacts in an effort to create more

[17] Y S Lincoln & E G Guba *Naturalistic inquiry* (1985) 290.
[18] J A Maxwell *Qualitative Research Design: An Interactive Approach* (1996) 5.

equality of arms amongst stakeholders through appropriate checks, balances and participation.

The law inspires me and is intertwined with my emotions, but I understand that it has limitations. I remain hopeful of its potential to deliver justice, but have no misconceptions of its application. I am aware of my 'justice seeking' mentality, an approach driven by my leftist ideology that believes there is a particular kind of good associated with law which possibly blinds me to others. I have made a conscious effort to pull myself towards the 'centre' to be more objective in the interpretation of the data, but I remain aware of the indivisibility of perception and opinion.

My previous studies and work experiences have all involved a diverse selection of research projects, most of which relied on varied degrees of stakeholder engagement.[19] The aim of using stakeholder engagement as the primary or secondary evidentiary collection method is its usefulness in uncovering the systemic design and implementation challenges of a particular legal system. Through the voices of those most impacted, a researcher can begin to truly tell their story and offer viable practical and legal recommendations and alternatives in order to address the pertinent issues. My involvement in these studies has significantly built on my knowledge, constantly challenging me to refine my processes and understanding of appropriate methodologies and paradigms. These experiences have reaffirmed my faith in law as a viable tool in the pursuit of justice and redressing inequality, while also making me aware of the need for a clear, cohesive, integrated and responsive legal regime.

3.2 ***Research paradigm***

A 'paradigm' is somewhat of an elusive concept, but the common understanding is that it describes a collection of substantive concepts, beliefs and values that are interrelated and give content to a theoretical perspective, directly informing a worldview.[20] The analysis of a

[19] During my LLM degree I co-led a study which focused on the environmental harms experienced by the community members residing in the Zamdela Township next to Sasol's operations in Sasolburg, Free State. Stakeholder engagement was also central to addressing the prevalence of illegal sand mining when working with the Association for Water and Rural Development (AWARD) in Bushbuckridge, Limpopo. The project which had the greatest influence on my understanding of the research methodology was the four year Social and Labour Plan (SLP) Project at CALS which focused on systemic design and implementation challenges of the system.

[20] TS Kuhn *The Structure of Scientific Revolutions* 2 ed (1970) 43. Also see P Lather 'Research as Praxis' (1986) 56 *Harvard Educational Review* 257.

paradigm is critical to establishing a research position, grouping similar literary and philosophical views through the recognition of patterns, academic ideas, and assumptions.[21]

The research paradigm can be broken down into three separate but interrelated concepts: ontology, epistemology and methodology.[22] Ontology interrogates the assumptions of the nature of reality. In the case of this study the ontological approach is one of constructionism, due to the subjective nature of the study. Ontology is a critical consideration when selecting an appropriate methodology, assessing the researcher's personal opinions, attitudes, beliefs and connection to the area under examination.[23] Closely linked to ontology is epistemology which questions how the researcher came to know or understand this reality, more specifically how knowledge is produced. This study uses the epistemological orientation of interpretivism as the development of knowledge occurs through various influences and points of view that establish the researcher's reality.[24] Lastly, methodology investigates how the study approaches data collection, applicable ethical considerations and analysis of what is learnt about the reality.[25]

Mark Saunders, a leading research methodology scholar, divides research paradigms into positivism, interpretivism and critical postmodernism, each associated with differing philosophical traditions and applications.[26] Due to its inherently social nature, an interpretivist paradigm is closely associated and applied to this qualitative study. The subjectivity of observation and interpretation is central, as information is collected from and interpreted by humans.[27] The interpretivist approach is practically realised through naturalistic collection methods of participation and collaboration focused on engagement,[28] such as interviews and analysis of texts. The approach is driven by the understanding that knowledge is created by drawing inferences and examining the relationship between the data to identify patterns.[29]

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[21]ME Olsen, DG Lodwick & R E Dunlop *Viewing the World Ecologically* 6 ed (1992) 16.
[22] M Terre Blanche & K Durrheim *Research in Practice: Applied Methods for The Social Sciences* (2008) 6.
[23] N K Denzin & Y S Lincoln 'Introduction: Entering the Field of Qualitative Research' In NK Denzin and YS Lincoln (eds) *Handbook of Qualitative Research* (1994) 1.
[24] P Eriksson et al *Qualitative Methods in Business Research* (2008) 14.
[25] E G Guba & Y S Lincoln 'Competing paradigms in qualitative research' In N K Denzin & Y S Lincoln (eds) *Handbook of Qualitative Research* (1994) 105.
[26] M Saunders et al *Research Methods for Business Students* 5 ed (2009) 135.
[27] T C Reeves & J G Hedberg *Interactive Learning Systems Evaluation* (2003) 32.
[28] Denzin (note 23 above) 105.
[29] G S Aikenhead *Teachers, Teaching Strategies, and Culture* (1997) 133. Also see E Henning, W van Rensburg & B Smit *Finding Your Way in Qualitative Research* (2004) 179.

When considering how the researcher interprets this data it is important to provide for the underlying philosophical orientation and models of interpretation in qualitative study. This requires an understanding of hermeneutics and phenomenology.[30] Hermeneutics is a theoretical grounding and methodology of interpretation, which puts forward that 'all human understanding is achieved by iterating between considering the interdependent meaning of parts and the whole that they form'.[31] Phenomenology identifies the appearance and meaning that things have in our experience, examining the contents of consciousness or 'phenomena'.[32] Phenomenology challenges structural or normative assumptions by extracting personal experiences and perceptions of participants through observation and interviews.[33]

A case study methodology is based on a 'constructivist paradigm, understanding that truth is relative and dependent on perspective'.[34] Constructivism falls within the subjectivist interpretivist tradition,[35] viewing a social phenomenon and its meaning as being constantly under construction and revision.[36] Constructivism recognises the role the researcher plays as a conduit of qualitative data between the collection and interpretation, influencing the knowledge and understanding of the researcher. The constructivist conception of this single-site case study is consistent with the constructivist epistemological and ontological paradigms that assert knowledge as a social construction of reality.[37] This approach allows the robust cooperation between researcher and participant, understanding the interviewees individual position.[38]

This study, although qualitative in nature, is equally rooted in an analysis and interpretation of law and its application on the management of sensitive areas. The typical methodological approach in legal research is the 'finding, interpretation, application and critique of law and

[30] R Boland 'Phenomenology: A Preferred Approach to Research in Information Systems' in E Mumford et al (eds) *Research Methods in Information Systems* (1985) 193.
[31] H K Klein & M D Myers 'A Set of Principles for Conducting and Evaluating Interpretive Field Studies in Information Systems' 23 (1999) *Management Information Systems Quarterly* 67, 72.
[32] R Sokolowski *Introduction to Phenomenology* 8 ed (2000) 13.
[33] S Lester *An Introduction to Phenomenological Research* (1999) 1.
[34] P Baxter & S Jack 'Qualitative Case Study Methodology: Study Design and Implementation for Novice Researchers' (2008) 13 *The Qualitative Report* 544, 545.
[35] E G Guba & Y S Lincoln 'Competing Paradigms in Qualitative Research' in N K Denzin & Y. S. Lincoln (eds), *The landscape of qualitative research: Theories and issues* (1998) 195, 220
[36] A Bryman, 'Of methods and methodology' (2008) 3 *Qualitative Research in Organizations and Management: An International Journal* 159, 168.
[37] Baxter (note 34 above) 545.
[38] Y Karagiorgi and L Symeou 'Translating Constructivism into Instructional Design: Potential and Limitations' (2005) 8 *Journal of Educational Technology & Society* 17, 18

legal rules'.[39] This study is therefore unique as it utilises a case study methodology to give a rich layer-driven context, providing examples that can be drawn on when studying the application of the assessed legal and policy frameworks, with specific reference to how the role-players interact with a legal system. This study will involve a description and commentary on legal rules, using a qualitative case study method to bolster validity through practical comparisons of the impact of the law in sensitive areas.

The methodology builds on empirical law studies, utilising case studies to provide a depth through field examples to support findings through the application of the law in practice. This approach aims to understand the practical impact of law, particularly on those it endeavours to serve. Legal methodology is a 'scientific discipline dealing with methods of discerning law and legal phenomena,'[40] therefore the law is a hermeneutic and professional discipline.[41]

The study therefore incorporates elements from a variety of approaches, adding a richness to the study. This is necessitated by the complexity of the study area. The study recognises these intricacies and responds to them honestly, focusing on credibility, while remaining flexible.

3.3 ***Research design***

A well-constructed research design validates a research study by creating an integrated framework for managing its creation and functioning,[42] incorporating the established theoretical positions and methods of data collection.[43] Research design makes deliberate connections between the research questions and conclusions through systematic processes during data collection and analysis.[44] This is a descriptive and interpretive case study that adopts a qualitative methodology, utilising an interpretivist constructivist approach rooted in Yin's 'six stage' case study approach.[45] The mutually reinforcing nature of this design model seems appropriate to frame the design and embolden trust in the findings of this study.

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[39] I Kroeze 'Legal Research Methodology and The Dream of Interdisciplinarity' (2013) 16 *Potchefstroom Electronic Law Journal* 41, 49.
[40] M Jovanovid 'Legal Methodology & Legal Research and Writing: A Very Short Introduction' (undated). Available at: http://pogestei.ius.bg.ac.rs/docs/Legal%20methodology%20and%20legal%20research%20and%20writing.pdf.
[41] Kroeze (note 39 above).
[42] J Mouton & H C Marais *Basic Concepts in the Methodology of the Social Sciences* 5 ed (1996) 175.
[43] J Maxwell *Qualitative Research Design* 2 ed (2004) 2.
[44] S Baskarada 'Qualitative Case Study Guidelines' (2014) 19 *The Qualitative Report* 5.
[45] R K Yin *Case Study Research: Design and Methods* 5 ed (2014) 27.

One of the primary objectives of this study is to uncover the fundamental and underlying reasons for invasive development threatening sensitive areas, despite layers of environmental and spatial planning mechanisms and legislation.[46] A case study approach is utilised to answer the area-specific questions and consider a diversity of perceptions related to the phenomenon.[47] This is best achieved through a qualitative study, defining and clarifying a justifiable configuration of connections through identifying conceptually specified thematic groupings or categories.[48] This process is thus inductive, requiring the researcher to identify categories through line by line descriptive coding. This practically requires categorisation, grouping and the writing of memo's to elucidate important points.[49]

This case study is regarded as empirical in nature as it examines a particular phenomenon, within a particular context, aiming to appreciate the perspectives and realities of interviewees.[50] As a single-case study, the research should represent the case and not create an impression that the particular case represents other cases but rather that it exemplifies a particular issue.[51]

Twenty-two individual interviewees participated in the study, forming a representative sample of the relevant area-specific stakeholders. These interviews helped to identify what issues exist and created a sharpened understanding of the reasons behind their existence.[52] In order to gain the most accurate data from the process it must remain ethical yet flexible, adapting to the changing landscape and to decisions that best serve the studies' integrity. Apart from the data captured from the interviewees, other primary sources of information assessed include the applicable legislation as well as the environmental and spatial planning tools relevant to the case study area. These multiple sources aim to create a more comprehensive reference base in order to create a broad spectrum of data sets that could feed into and corroborate findings.

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[46] See 2.2 and 2.1 above.
[47] J Ritchie & J Lewis (eds) *Qualitative Research Practice: A Guide for Social Science Students and Researchers* (2003) 4.
[48] E G Mishler 'Validation in Inquiry-Guided Research: The Role of Exemplars in Narrative Studies' (1990) 60 *Harvard Educational Review* 415, 425.
[49] U Flick *Introduction to Qualitative Research* (2009) 425, 435.
[50] R K Yin 2014 (note 45 above).
[51] R K Yin 'The Case Study as a Serious Research Strategy' (1981) 3 *Knowledge: Creation, Diffusion, Utilization* 97, 107.
[52] D M Mertens *Research Methods in Education and Psychology: Integrating Diversity with Quantitative and Qualitative Approaches* (1998) 145.

Taking the above into consideration, a single-site case study approach seemed the most suitable approach in revealing the detail of the interviewees' unique perceptions and contexts.[53] Each of the above-mentioned data sources added to the researcher's appreciation of the phenomenon, braiding together findings to stimulate a deeper understanding of the subject area.[54] The single-site case study approach allowed the linking of practical examples to clarify the legal issues that obstruct the operationalisation of sustainable development in sensitive areas.

Robert Yin, a leading case study methodology scholar, describes the case study process as comprising of six mutually supporting stages. Namely, planning, design, preparation, collection, analysis and sharing.[55] The first stage is the planning stage which establishes a well-developed framework of the study. This stage focuses on identifying the research questions, objectives, strengths and weaknesses as well as the rationale for doing the case study.[56]

The second design stage concentrates on outlining the 'unit of analysis', the prospective areas of study, as well as the identified participants.[57] Design analysis is a complex process involving both practical and theoretical design related questions, while also identifying design procedures and issues underlying the study.[58] The nature of the data shapes the selection of the appropriate amount of pertinent information that must be gathered. In addition to the scope, identifying parameters for a study should include the time and place boundaries to ensure the study is achievable.[59] The selection of a case study design is thus steered by its primary intention. Yin classifies case studies as 'explanatory, exploratory, or descriptive', further differentiating between single, holistic case studies and multiple-case studies.[60] This study is categorised as a descriptive single case study, as it describes a phenomenon and the real-life context.

The preparation stage focuses on developing a case study protocol and gaining any relevant approvals.[61] Preparation should also include identifying and addressing any relevant issues in

[53] R K Yin *Case Study Research: Design and Methods* 3 ed (2003) 47. Also see Baxter (note 34 above) 559.
[54] Baxter (note 34 above) 554.
[55] S M Ravitch & M Riggan *Reason & Rigor: How Conceptual Frameworks Guide Research* (2011) xiv.
[56] R K Yin 1981 (note 51 above) 19.
[57] Baskarada (note 44 above).
[58] Design also involves validity and legitimacy; this will be discussed under methodological issues. See Yin 1981 (note 51 above) 21.
[59] J W Creswell *Research design: qualitative, quantitative, and mixed method approaches* 2 ed (2003) 150.
[60] R K Yin 1981 (note 51 above) 97, 98
[61] Ibid 57.

the case study before commencing with the data collection stage. The researcher should be adequately acquainted with the relevant content area to appreciate the leading theories and operational concerns appropriate to the study, understanding the reason for the initiation of the study and the type of data required.

The collection phase guides the data collection from multiple data sources by detailing how they will be used and how data credibility is to be ensured.[62] Credible research data facilitates a comprehensive appreciation of the content area and identification of the phenomenon through a transparent analysis process.[63] Theoretical sampling does not undertake to achieve a 'representative capture of all possible variations' but rather aims to create a more profound understanding of the issues in an attempt to develop original conclusions.[64]

The analysis stage is seen as the most challenging and uncodified stage of the multiple participant case study process as it attempts to create order from somewhat amorphous data.[65] Approaches such as the Constant Comparative Method (CCM) can be used in association with theoretical sampling to give much needed structure by inductively identifying patterns and sequences in the data and grouping them appropriately in order to establish evidence.[66] Yin explains this eloquently when he says the data analysis phase 'consists of examining, categorising and recombining evidence to draw empirically based conclusions'.[67] Patterns are identified through the practice of coding where the data is deconstructed into more practical pieces which can be more easily handled. This process serves an additional purpose, as the researcher rebuilds the data to construct the particular reality. Coding is an iterative and incremental process broken up into descriptive, topic and analytical coding.[68] This process involves 'reading the interview transcripts, observational notes, and any other relevant documents' in the formulation of categories and themes.[69]

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[62] Ibid 83.
[63] K Yilmaz 'Comparison of Quantitative and Qualitative Research Traditions: epistemological, theoretical, and methodological differences' (2013) 48 *European Journal of Education* 313.
[64] Baskarada (note 44 above) 7. Also see B G Glaser & A L Strauss *The discovery of grounded theory: Strategies for qualitative research* (1967) 45.
[65] R K Yin 1981 (note 51 above) 106. Also see K M Eisenhardt 'Building theories from case study research' (1989) 14 *Academy of Management Review* 532, 539.
[66] B G Glaser 'Constructivist Grounded Theory?' (2002) 3 *Journal for Qualitative Social Research* 3. Also see H Boeije 'A Purposeful Approach to the Constant Comparative Method in the Analysis of Qualitative Interviews' (2002) 36 *Quality & Quantity* 391.
[67] R K Yin *Case Study Research: Design and Methods* 5 ed (2009) 126.
[68] J Morse & L Richards *Readme first for a User's Guide to Qualitative Methods* (2002).
[69] Ibid.

The share stage defines the audience and displays sufficient confirmation for the reader to come to their own personal deductions.[70] The final study, in particular the presented findings, should be reviewed by colleagues which are familiar with the area of study, this need not be in the exact same discipline as the researcher but the reader should possess a certain expertise or specific knowledge. An important pre-finalisation consultative group would be the case study participants themselves, as they are in a good position to corroborate key facts and findings.[71]

As the practical steps outlined above have been applied to the study, the thesis adopts a qualitative case study methodology rooted in an empirical legal analysis. This legal analysis aims to uncover the operation of the environmental management and spatial planning legal frameworks, as well as their associated tools. The legal analysis portion of the study is a desktop study, focusing on the legislation, regulations and guidelines that have been published. Findings from the qualitative case study interview portion of the study will be used as indicators of possible gaps or obstacles within the legal frameworks.

3.4 ***Methodological issues***

A research method is a 'strategy of enquiry which explains and justifies the underlying assumptions of the research design and data collection'.[72] Important considerations include the process and criteria for the selection of a case study which appropriately informs the context, as well as the sample size and consent procedures which inform trustworthiness. Within the context of the adopted qualitative constructivist method, the interview process is an essential yet challenging source of case study evidence.[73] Interviews can be structured, semi-structured, or unstructured. Semi-structured interviews, as adopted in this study, allowed for a better understanding of the interviewees perspectives. This type of interview allowed the researcher to steer the interview process through directing logical and appropriate follow-up questions, certain interesting responses and points were also probed further for more content.[74] Therefore, although interviewing in a semi-structured fashion is anchored in pre-constructed formulated questions, it remained flexible to participants' natural reactions. Once this element of the interview process was completed the answers were then coded to

[70] R K Yin 2009 (note 67 above) 176.
[71] Ibid.
[72] Yilmaz (note 63 above) 311.
[73] D Silverman *Qualitative research: Theory, method, practice* (1997) 113.
[74] C Daymon & I Holloway *Qualitative research methods in public relations and marketing communications* (2002) 225.

form the thematic categories.[75] The sections below detail the particulars of the specific methodological issues as they applied to the Mapungubwe case study criteria.

3.4.1 *Case study and participant selection*

This study aimed to uncover the issues and obstacles that exist between spatial planning and environmental management through interviews with a representative sample of relevant case study stakeholders. The study investigated the environmental and developmental events that have taken place in and around Mapungubwe, assessing how the law and the mechanisms at play have influenced the current status quo. The criteria used to select this case study area included the site's international importance, developmental pressure, and the multitude of environmental and developmental planning tools in force over the area. The semi-structured interviews with major role-players in the case study area aimed to identify lessons that could be carried forward for future use in sensitive areas.

Research participants included all major role-players involved in environmental management and developmental planning in the case study area. These included the environmental and planning authorities on a local, provincial and national level; the consultants who developed the environmental and spatial planning tools; the senior officers of the companies operating in the area; and, the park management and members of the community involved in the processes.

The interview selection criteria included, first, that participants fit into one of the central stakeholders identified above. Second, that participants were either direct environmental or developmental decision-makers or commenting role-players. Third, selected participants that had used the ESP tools in the case study area. Finally, that the participants had specific knowledge of the issues that are present in the area.

The initial study involved an additional case study area, in the Cradle of Humankind World Heritage Site, however, when the data analysis for the Mapungubwe case study was completed it became clear that this was ambitious. One case study provided enough information to support the thesis, and as an additional case study would be too voluminous, it was considered unnecessary and an inefficient use of time. However, a future comparative

[75] A Fontana & J H Frey 'Interviewing: The art of science' in N K Denzin & Y S Lincoln (eds) *Handbook of qualitative research* (1994) 361, 376.

study of these two areas could be undertaken to confirm the pervasive and systemic nature of the findings.

The time parameters employed in this study is between 2009 and 2018. This period aligns with a proliferation of environmental and developmental plans over the Mapungubwe National Park and World Heritage Site (Mapungubwe). The study therefore assessed the better part of the last ten years and considerable effort was made to be as current and applicable as possible. Difficulties ranged from the documents not being public, not being readily available to contacted officials, and additionally, the mere fact that the documents did not exist either entirely or in final form.

3.4.2 *Sample size and access*

The sample size included twenty-two interviews. This was purposefully chosen, as each interview is representative of one of the major stakeholders, painting a picture of the various issues and frustrations that exist in the case study area. The interviewees represent a sample of perspectives from the local community, national government, provincial government, local government, park management and environmental consultants. Importantly, contributors of each of the twelve environmental and spatial plans that impact Mapungubwe were interviewed.

Procedurally, interviewees received an email introducing the interviewer and outlining the project. The initial correspondence requested involvement and the participation information sheet was attached. After a period of three days the email was followed up by a telephone call, a brief discussion generally ensued, and a meeting was arranged. Interviews took place at the participants' offices to reduce inconvenience and maintain a comfortable environment. The duration of the interviews was approximately sixty to ninety minutes.

3.4.3 *Interview process*

A semi-structured interview method was adopted throughout this study in order to extract the most valuable information.[76] This method used both closed and open-ended questions in order stimulate the collection of relevant information. To maintain consistency, the researcher utilised a pre-constructed questionnaire for direction and to maintain a consistency between the multitude of engagements, but these were not prescriptive.[77]

[76] J Mason *Qualitative Researching* 2 ed (2002) 62.
[77] See Annexure 12.2.

During the interview process the researcher informed the interviewee of the area of concern, aim and methodology adopted for the proposed study. The interviewer was charged with directing the engagement, prompting the interviewees where appropriate and ensuring thematic consistency, while ensuring the interviewee is given space to provide additional information. The transcribed data was then grouped into categories in order of prevalence, these formed the basis of the thematic analysis tables.[78]

3.4.4 *Consent and permissions*

As this was a qualitative study, substantial human-to-human interfacing and communication between the researcher and interviewees had to be undertaken. This process required the researcher to enter into very private spaces where values, concerns, and politics were confronted.[79] Understandably, this raised several ethical issues which created an obligation to respect the rights, needs and desires of the interviewees and their associates.[80] Important issues to consider during the extended engagement process were the potential harm and risk to participants, as well as honesty, trust and privacy.[81] Therefore, steps were followed to ensure that appropriate ethical guidelines were upheld to ensure no harm transpired and that the findings of the study were credible.

It was therefore necessary for the researcher, as per the university ethics rules, to obtain consent clearance from the University Ethics Committee for Non-Medical Research (Ethics Committee) before any formal engagement was initiated. To this end, a detailed proposal setting out the substance of the proposed research together with annexures that included a participant information sheet, formal consent form, and procedure for obtaining consent was submitted to the committee. The Ethics Committee considered the proposal and granted unconditional clearance to proceed with the study, judging that no negative impacts could flow from the engagements.[82] The Ethics Clearance Certificate Protocol Number is: H16/07/36. All interviews were conducted in English as all participants were fluent, even if it was not their first language. A copy of all the applications and permissions can be made available on request. The application included a request for audio recording during interviews.

[78] See Annexure 12.3.
[79] D Silverman Doing Qualitative Research: A Practical Handbook (2000) 201.
[80] Creswell (note 59 above) 49.
[81] M B Miles & A M Huberman Qualitative Data Analysis: An Expanded Sourcebook 3 ed (1994) 62.
[82] See Annexure 12.1.

The participant information sheet describing the object and nature of the proposed research, the methodology and data collection methods to be employed, and measures to ensure the confidentiality of the subject's inputs was made available prior to the commencement of the research. The identity of the participants remained confidential to encourage a candid exchange between the interviewer and interviewee. The participants were told that their names would not be disclosed as part of the study; additionally, all audio files generated would be destroyed after research had been completed. Notwithstanding the above-mentioned safeguards, all participants were made aware that the study was only for academic purposes and participation was voluntary.

3.4.5 *Data collection and transcription*

The data was collected through interviews from participants involving active listening; this process requires full concentration, understanding, responding and remembering important elements of the engagement.[83] This type of qualitative interviewing process was guided through the questionnaire while still remaining open-ended, unrestricted and flexible in nature.[84] The interviewer was the sole investigator interacting with participants, thus the reality remained consistent. The subsequent analysis of information was a reconstruction of the multiple realities that existed at the time of collection.

The primary forms of data collection relied upon were notes, audio-recordings and observations in the interviews. The data collection period for the interviews extended from 17 October 2016 to 21 September 2018. Admittedly, any transcription process is 'fraught with slippage' depending on the knowledgeability, skill and care of the transcribing person.[85] The principal method employed for gathering data in this study was motivated by Kathy Charmaz's notion of a concentrated, robust and semi-structured qualitative interview method.[86]

The modus operandi consisted of reading the researcher's notes, listening to the audio-recording as soon as possible after the interview and then commencing transcription. The advantage of personal transcription is an intimate familiarity with the content of the data. The written transcripts were transcribed into electronic documents before the analysis phase.

[83] G Egan *The Skilled Helper: A Problem-Management Approach to Helping* 10 ed (2010) 80.
[84] K Charmaz *Constructing Grounded Theory: A Practical Guide Through Qualitative Analysis* (2006) 25. Charmaz (2006) is primarily based on Glaser and Strauss's Grounded Theory. See B Glaser & A Strauss *The Discovery of Grounded Theory: Strategies for Qualitative Research* (1967).
[85] Miles (note 81 above) 51.
[86] Charmaz (note 84 above).

3.4.6 *Data Analysis*

Qualitative data analysis can be defined as 'working with the data, organising, and breaking into manageable units, coding, synthesising, and searching for patterns'.[87] A qualitative case study methodology requires the researcher to observe and capture data through direct engagements with the interviewees and the case study material. Through the analysis of these experiences the researcher identified patterns, concepts and themes which explained and identified causal links.[88] These phenomena are the central aim of qualitative data.

The information analysis techniques employed in this study can be classified as a constructivist interpretivist approach combining the 'explicit coding procedures of the deductive approach and the style of the inductive approach'.[89] This commenced with the election of the most suitable data-collection techniques for generating quality usable data. This entailed the adoption of a robust one-on-one interview methodology and the associated transcribed texts. Transcripts were then read repeatedly in order to become intimately familiar with the data. This process formed the basis for the conceptualisation of the underlying patterns and phenomena. Grouping of phenomena into conceptual categories is referred to as 'coding' and was then undertaken after ideas and patterns had emerged from the data.[90]

The aim of the process is to facilitate the construction of 'descriptive, multi-dimensional categories that provide a preliminary framework for analysis'.[91] The list was exhaustive and therefore the body of the information was culled by removing all irrelevant information. A literature review was then conducted and evaluated in relation to the research process and products. The notions and ideas drawn from the process then began to materialise. These new ideas were borne from this analytical process and are fundamentally 'grounded' in data.[92] The data was then processed and the new information that emerged from the process was interpreted as the results. The codes helped move the analytic story in a particular theoretical direction.[93] The foundation of these results was the connections made between the categories, which represented the core knowledge and new emerging patterns unique to the research.

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[87] R C Bogdan & S K Biklen *Qualitative Research for Education: An Introduction to Theories and Methods* 4 ed (1982) 145.
[88] U Flick *The SAGE Handbook of Qualitative Data Analysis* (2013) 5.
[89] B Glaser & A Strauss *The Discovery of Grounded Theory: Strategies for Qualitative Research* (1967) 102.
[90] A Strauss & L Corbin *Basics of Grounded Theory Methods* 4 ed (2015) 7.
[91] M K Simon 'Dissertation & Scholarly Research: Recipes for Success' (2010) 36.
[92] Charmaz (see note 84 above) 29.
[93] Ibid 63.

3.4.7 *Research credibility*

Unlike quantitative research where accuracy is more objective and absolute, qualitative studies require more justification to be considered trustworthy. Such justification is critical in achieving the desired level of credibility within an interpretivist constructivist approach to qualitative study due to the inherent bias of the researcher.[94] Credibility within the context of qualitative research is defined as 'the degree to which the data and analysis are believable and is analogous to internal validity'.[95] Strictly, research can be regarded as credible if a different researcher can achieve identical or even closely related findings through the same study, utilising the same methodology and within an equivalent context.[96] Simply put, could another person come to the same or materially similar results by undertaking an identical study?[97]

Credibility thus relied on the generality of the data and its findings, remaining cognisant of the subjective judgement of the context and phenomena.[98] Subjectivity is central to any qualitative study as people construct their own reality within different social contexts.[99] Practically, this means that there might be slight variations between people as to what can be considered important to the study. The interpretive perspective embraces this subjective reality, supporting the position that knowledge creation cannot occur without a recognition of multiple realities.

Yin provides three strategies for improving construct credibility for case studies, namely, 'using multiple sources of evidence, having key informants review the case study report, and maintaining a chain of evidence'.[100] Engaging various sources of verifiable data directly contributed to constructing credibility by providing several identified instances of the equivalent phenomenon.[101] The case study must be designed so that reviewers can verify the evidence by linking the findings directly to the primary research questions.[102] Additional strategies for assisting in achieving reliability are the creation of a case study protocol, as well as clearly detailing the research methods, contexts and assumptions relevant to the

[94] E G Guba 'Criteria for Assessing the Trustworthiness of Naturalistic Inquiries' (1981) 29 *Educational Communication and Technology Journal* 75, 80.
[95] J W Creswell Qualitative Inquiry and Research Design: Choosing Among Five Traditions (1998) 77.
[96] Selltiz et al *Research methods in Social Relations* 3 ed (1976) 182.
[97] Maxwell (note 43 above) 136.
[98] Ritchie (note 47 above) 268.
[99] P L Smith & T J Ragan 'A Framework for Instructional Strategy design' in P L Smith, & T J Ragan (eds) *Instructional Design* (2005) 19.
[100] R K Yin 2009 (note 65 above) 40.
[101] Baskarada (note 43 above) 8.
[102] R K Yin 2009 (note 65 above) 41.

study.[103] The case study protocol was a particularly useful tool as it aided in standardising the initial formulation of the case study while ensuring a consistent and continuous research approach.[104]

3.5 ***Limitations and Concluding Remarks***

This particular study does not intend to solve the complex and far-reaching challenges of legislative integration and incompatible development in sensitive areas. What this study hopes to achieve is to propose an alternate theoretical position which contains some creative practical proposals for creating parameters to assist in the development of inclusive sustainable development planning in sensitive areas. The hope is that this study positively adds to the natural resource management discourse and legal scholarship while being transparent regarding the intended narrow scope of its application. With one case study represented, the findings can only reflect the situation as it is presented in the case study site, while drawing representative and systemic conclusions where supported by additional information.

In summary, this chapter has outlined the position of the researcher, the research paradigm, research design and methodologies for the purposes of enhancing credibility and clarity.

[103] C Seale *The Quality of Qualitative Research* 2 ed (1999) 45.
[104] Ibid 79.

CHAPTER FOUR: POSITIONING ENVIRONMENTAL SPATIAL PLANNING WITHIN THE SENSITIVE AREA MANAGEMENT DISCOURSE

4.1 *Introduction*

South Africa is blessed with enormous natural wealth, yet without an integrated, holistic and functional legal framework for its sustainable use, future generations will not experience the same benefits that South Africans are privileged to enjoy today. A new investigation into the status quo of what is understood by conservation and its implementation is needed in order for the law to appropriately respond to these challenges and complexities.

This literature review grounds the chapters that follow by setting out an understanding of the links between the applicable law and sensitive area resource management. This chapter critically engages with the prominent theories within sensitive area management by creating a contextual frame from which the study positions the central thesis of Environmental Spatial Planning (ESP).

The chapter will commence with an understanding of the core concepts pertinent to the thesis. The chapter will then move to the review protocol which will categorise the review, linking the methodological approach to its construction, and expanding on general limitations and the integrity of the literary resources. The principal review section discusses prominent scholarly positions, organising the accumulated knowledge to give the required literary background to the study. The chapter concludes by summarising the central tenets of the chapter and introduces the next chapter which investigates the applicability of the postulated theory of ESP within the sensitive area management discourse.

4.2 *Core Concepts*

The following section gives context and provides a foundation to the study by briefly defining the core concepts as they are understood and will be applied. These core concepts are often understood differently within different contexts. The notable concepts and principles that will be referred to are ‘sensitive areas’, ‘sustainable development’ and ‘spatial planning’.

The first concept that needs to be defined is the geographically defined locations that are categorised as ‘sensitive areas’ that form the subject of this study. The trouble in advancing a

universally-accepted explanation of sensitivity is the interchangeability of diverse words and phrases used to describe the concept.[105] Further complexity is added as identified categorisations within the concept of sensitivity, such as 'endangered', can be measured or even calculated, while other such as 'highly valuable' are more subjective and tough to clearly delineate.[106]

Sensitive areas can be defined as, 'landscape elements or places that are vital to the long-term maintenance of biological diversity, soil, water, or other natural processes or features, both on-site and in a regional context'.[107] There are thus a variety of characteristics that give a particular area sensitivity, but what this study will be focusing on is 'environmental sensitivity'. Environmental sensitivity means that 'one or more components are vulnerable to change or to interference of any kind; this vulnerability may be caused by the component being unique or limited in number or extent, or because the system that supports that component is delicately balanced, and susceptible to imbalance'.[108] Therefore, the practical ramifications of sensitivity classification is far-reaching as the particular attributed sensitivity status is essential in triggering a particular type of declaration process, protected area status or authorisation procedure.

The core principle that will be explored within the context of sensitive areas is that of 'sustainable development'. Broadly, sustainable development refers to development that satisfies the needs of the present without negatively impacting future generations, balancing economic growth with social and environmental needs.[109] What is more specifically understood as sustainable development within the context of this study is 'ecologically-centred sustainable development' which is in line with the s24 constitutional right to environmental health and wellbeing.[110] Arguably, particularly in sensitive areas, the environmental element should have more weight during the decision-making process, as

[105] Some examples used to describe sensitivity: 'vulnerable', 'high value', 'endangered', 'quality', 'critical', 'dynamic', 'unique', and 'stressed'. See J Stacey 'Mining in Sensitive Areas' Available at: http://www.enviropaedia.com/topic/default.php?topic_id=332.
[106] Ibid.
[107] M D Jennings and J P Reganold 'A Theoretical Basis for Managing Environmentally Sensitive Areas (1991) 18 Environmental Conservation 211.
[108] Stacey (note 100 above).
[109] World Commission on Environment and Development '*Our common future'* (1987) UN Doc A/42/427 (Brundtland Report). Also see *HTF Developers (Pty) Ltd v Minister of Environmental Affairs and Tourism* (24371/05) [2006] ZAGPHC 132 (28 March 2006) para 19.
[110] S24 of the Constitution.

without a stable environment both the social and economic elements cannot be achieved.[111] Sustainable development is thus justifiably not just an aspirational principle but is infused into a binding right, in the form of s24 of the Constitution, being both vertical and horizontal in its application.[112]

Lastly, 'spatial planning', on the other hand, centres on the organisation of space. This concept refers to the public-sector activity of land-use development and planning, and its influence on future spatial distribution.[113] The purpose of spatial planning is to 'create a rational territorial organisation of land-uses and the linkages between them, to balance demands for development with the need to protect the environment, and to achieve social and economic objectives'.[114] The destruction of valuable ecosystems, land degradation and negative impacts on local population are more prominent where no land-use planning has been undertaken.[115] Therefore, spatial reasoning is core to understanding the characteristics of the receiving environment and the potential land-use compatibility in the advancement of long-term sustainable development.

The principles and concepts referred to above, namely, 'sensitive areas'; 'sustainable development'; and 'spatial planning' are intertwined in the regional growth path of ecologically vulnerable rural areas. The relationship between these core concepts forms the subject of the discussion below.

4.3 ***Review protocol***

4.3.1 *Background*

A literature review shapes the conceptual frame and grounds the study within an existing discourse, setting the foundation on which to build new knowledge.[116] In order to undertake a comprehensive literary review, it is necessary to employ a protocol that identifies the nature of the study, ensures transparency of how the review was undertaken and recognises the risks

[111] In *Fuel Retailers Association of Southern Africa v Director-General: Environmental Management, Department of Agriculture, Conservation and Environment, Mpumalanga Province* 2007 6 SA 4 (CC) para 44 it was noted that 'Development cannot subsist upon a deteriorating environmental base'.
[112] Section 8(2) of the Constitution equally makes the rights in the constitution horizontally applicable.
[113] *The Green Paper on Development and Planning* GN 626 in Government Gazette No. 20071 of 21 May 1999.
[114] S Ronchi *Ecosystem Services for Spatial Planning: Innovative Approaches to and Challenges for Practical Applications* (2018) 20.
[115] F Flintan & I Tamrat 'Spilling Blood over Water: The Case of Ethiopia' in J Lind & K Sturman (eds) *Scarcity and Surfeit: The Ecology of Africa's Conflicts.* Institute for Security Studies (2002) 270.
[116] J Webster & R T Watson 'Analyzing the Past to Prepare for the Future: Writing a Literature Review' (2002) 26 *Management Information Systems Quarterly* 13.

posed to successful completion.[117] A review protocol is important for reducing bias, providing an outline for the review process that helps with planning and anticipating challenges. Research questions assist in defining the parameters of the study, guiding the thesis construction as it unfolds. The literature review is tied to the themes of the thesis and requires a conscious and continuous effort to ensure alignment in the pursuit of answering these questions. To serve as a reminder, find the questions below:

- *What range of planning paradigms underlie the reconciliation of development and conservation in sensitive areas in South African law? Are they coherent or divergent in their underlying principles and regulatory design?*

- *How are spatial planning and environmental management paradigms being applied in sensitive areas in South Africa? What are the chief factors inhibiting or promoting the effective use of spatial planning and environmental management to achieve a reconciliation of development and conservation in sensitive areas?*

- *Can spatial planning and environmental management be integrated under the banner of Environmental Spatial Planning (ESP) to better reconcile development and conservation in sensitive areas and create true sustainable development? What would be the underlying principles and regulatory design of an integrated environmental and spatial planning paradigm?*

It is important to establish the nature of the enquiry as this strongly influences the general design of the literature review and heavily determines how a literature review is undertaken. This has been exhaustively done in the 'methodology chapter' and will therefore only be noted briefly.[118]

For a qualitative enquiry that involves empirical interpretivist methodologies, the literature review needs to focus on addressing the themes of the research questions.[119] This literature review is therefore both integrative and theoretical in nature. It is considered integrative, as past research is collated based on overall conclusions, and theoretical, as different theories are identified and critiqued to establish and explain a phenomenon.[120] Admittedly, this approach does have certain limitations, for example, certain literature advocates a particular

[117] A Butler, H Hall & B Copnell 'Guide to Writing a Qualitative Systematic Review Protocol to Enhance Evidence-Based Practice in Nursing and Health Care' (2016) 13 *Worldviews on Evidence-Based Nursing* 241.
[118] See the 'methodology chapter' in chapter three above.
[119] J Jesson *Doing Your Literature Review: Traditional and Systematic Techniques* (2011) 18.
[120] C L Russell 'An Overview of the Integrative Research Review' (2005) 15 *Progress in Transplantation* 8.

view which is only one of many in the area. To combat such a narrow influence several related positions are considered, alongside the collected data and the author's experience to construct an original theory and establish new connections.

The selection of literature also has an inherent bias, as researchers generally start with familiar authors and easily accessible literature, drawing on studies that have significant and positive findings. This inherent favouritism could be perceived as resulting in conclusions from a non-representative sample, where a representative sample is sought to ensure confidence and generalisability.[121] To allay these concerns a number of established resources were used, including accredited journals, legitimate library resources,[122] credible research portals[123] and empirical data.

4.4 ***Theoretical lens***

The prior research undertaken in the expanse of sensitive area management has been highly politicised, split predominantly between pro-environmental and pro-development schools of thought. Thus, the subject matter has differing positions within a wealth of scholarly writings on this particularly emotive and highly contentious subject. For the purposes of this study, the literature review will view ESP through a narrow lens, locating itself within the landscape approach discourse which forms the central supporting theory in this thesis.

In order to establish the thematic nature of the applicable literary resources required for a review on ESP one must identify a clear and sufficiently narrow theoretical lens. The title of the thesis suggests that ESP is the key to unlocking sustainable development in sensitive areas, adopting ESP as the bridge between spatial planning and environmental management. The lens for this enquiry will therefore focus on spatial planning and its intersection with the conservation and environmental management regime.[124] In examining this intersection it is clear that there are a number of concepts that have emerged over the last two decades that make the case for such a focus. These key contemporary and holistic approaches aim to

[121]D Polit & C Tatano-Beck 'Generalization in Quantitative and Qualitative Research: Myths and Strategies' (2010) 47 *International Journal of Nursing Studies* 1451, 1452.
[122] Examples include: http://www.law.lib.uct.ac.za/; http://libguides.wits.ac.za/law
[123]Some examples includes: 'LexisNexis Butterworths' available at: https://www.mylexisnexis.co.za/auth/SignOn.aspx 'Juta Law' available at: http://www.jutalaw.co.za/; 'West Law' available at: http://web2.westlaw.com/; 'Saflii' available at: http://www.saflii.org/.
[124] Conservation planning differs from environmental spatial planning as it implies 'working purely with the establishment or expansion of formal protected areas, rather than with influencing the way resources are used and managed throughout a landscape'. See www.sanbi.org.

reconcile the often-opposing aims of economic development and environmental sustainability that encompass sustainable development.

Many of these concepts are embedded in South Africa's conservation related domestic policies, and therefore will appropriately make up the theoretical lens against which the domestic legal and policy framework will be considered. These approaches include, most centrally, the landscape approach,[125] as well as other associated concepts such as the ecosystem approach,[126] stewardship,[127] socio-ecological systems approach[128] and resilience[129].

The landscape approach, in particular, has stimulated international and domestic conservation policy to embrace more creative and holistic environmental management processes in the pursuit of sustainable development.[130] Yet the environmental tools borne from this thinking are still relatively new, and their legal application, efficacy and ability to guarantee ecosystem-centred development remains to be fully tested.

In order for value-driven and balanced planning to take place the spatially representative characteristics, sensitivities and opportunities of a receiving area must be recognised.[131] Ideally, all land-users and decision-makers need to be conscious of these spatial characteristics, considering and allowing these priorities to directly influence developmental planning decisions. Spatial priorities are closely associated with ecological constraints and opportunities, as understanding these factors is central to integrated development planning that ensures ecologically-compatible land-use. In this vein, the landscape approach has a

[125] See section 4.8 for a breakdown of the 'Landscape Approach'.
[126] The CBD describes the ecosystem approach as 'a strategy for the integrated management of land, water and living resources that promotes conservation and sustainable use in an equitable way. It recognizes that humans, with their cultural diversity, are an integral component of ecosystems'. See CBD Guidelines, 'The Ecosystem Approach' CBD COP-5 Decision 6 UNEP/CBD/COP/5/23. Decisions adopted by the Conference of the Parties to the Convention On Biological Diversity at its Fifth Meeting, Nairobi, 15-26 May 2000.
[127] Stewardship can be defined as, 'the actions taken by individuals, groups or networks of actors, with various motivations and levels of capacity, to protect, care for or responsibly use the environment in pursuit of environmental and/or social outcomes in diverse social–ecological contexts'. See N J Bennet et.al ''Environmental Stewardship: A Conceptual Review and Analytical Framework' (2018) 61 *Environmental Management* 597.
[128] Social-ecological system can be defined as 'integrated complex adaptive systems in which social and ecological subsystems are coupled and interdependent, each a function of the other, expressed in a series of mutual feedback relationships'. See C Folke 'Resilience: The emergence of a perspective for social–ecological systems analyses' (2006) 16 *Global Environmental Change* 253, 254.
[129] See section 4.6.4 for a full breakdown of the 'Resilience'.
[130] The landscape approach has been influential in the formal adoption of environmentally focused spatial planning tools such as bioregional plans, EMFs and strategic environmental assessments as examples.
[131] Such environmental characteristics include water resources (such as wetlands, streams, rivers etc); mineral deposits and active mines; CBAs and ESAs; soil classification and protected areas.

strong spatial character, directly informing land-use decision-making through the spatial understanding of ecological sensitivities and community development priorities. Therefore, utilising the landscape approach as the lens through which this study will be undertaken seems appropriate, especially given its incorporation into the South African legal framework and its ability to bridge the sectors of environmental management and spatial planning.

The discourse of sensitive area management is one dominated by the struggle to reconcile conservation and development. An advanced solution is to apply sustainable development as the principle to reconcile these often-conflicting concepts, yet due to developmental prioritisation, its application appears to have a negative impact on sensitive areas. The next section will look at the accumulated knowledge in this area, focusing on the themes of the sensitive area discourse, theory of conservation, the landscape approach and the application of sustainable resource use.

4.5 ***Spatial character of environmental management***

4.5.1 *Introduction*

The spatial character of environmental management is captured in the South African legal frameworks and associated tools.[132] On a national level this principally includes the National Environmental Management Act No. 108 of 1996 (NEMA) which contains provisions that have formal consequences for land-use planning.[133] For instance, NEMA adopts the principle of Integrated Environmental Management (IEM), which aims to ensure that environmental concerns are present in any developmental stage that has an effect on the environment, such as land-use planning decisions.[134] Furthermore, all developmental planning applications must be assessed against the NEMA EIA listed activities that trigger environmental authorisations (EAs) where environmental impact would exceed the regulated thresholds.[135]

The aforementioned environmental framework provides for the development of various creative practical mechanisms in order to sustainably manage natural resources.[136] These

[132] J Glazewski & L du Toit *Environmental Law in South Africa* (2013) 30.
[133] Refer to S2 of NEMA; The importance of these principles was highlighted in the *Minister of Public Works and Others v Kyalami Ridge Environmental Association and Others* 2001 (3) SA 1151 (CC) at para 68. The case clarified that the S2 NEMA principles must be considered by all state institutions when preparing strategic plans, which includes Integrated Developments Plans (IDPs).
[134] S23(2) of NEMA. See J Van Wyk *Planning Law* (1999) 247.
[135] See Chapter 5 of NEMA for the empowering provisions for the EIA system. Refer to Environmental Impact Assessment Regulations 2014 GN R982-985 in GG 38282 of 4 December 2014 for listed activities.
[136] V Simeonova et al *Natura 2000 and Spatial Planning* European Commission (2017) 7,41.

tools are especially important in sensitive areas where additional protections are required to secure the longevity of such resources in the face of external pressures. These mechanisms are meant to complement the mandatory licensing application processes in order to provide an accountable and inclusive process of understanding and proactively planning for identified impacts in sensitive areas. The integration of spatial planning with environmental assessments is seen as key in the drive towards achieving sustainable development, with project-specific EIAs now being common practice in most global jurisdictions.[137]

NEMA also has a suite of environmentally-specific laws which contain planning elements,[138] such as the National Environmental Management Biodiversity Act No. 10 of 2004 (NEM: BA) and the National Environmental Management Protected Areas Act No. 50 of 2003 (NEM: PAA).[139] NEM: BA carves out specific provisions related to planning and land-use, these include the National Biodiversity Framework (NBF),[140] bioregional plans,[141] spatially mapped listed ecosystems[142] and biodiversity management plans. The content of which advocate for ecological considerations for sensitive areas and the provision of guidelines in land-use planning and decision-making. NEM: BA furthermore requires the principles related to sustainable resource and land-use be integrated into all levels of planning, therefore a cross-consultation and cross-representation process must be followed when adopting these plans.[143] These plans must be aligned and co-ordinated with all land-use plans such as IDPs and SDFs.[144]

South Africa has also promulgated a comprehensive protected areas framework which has a bearing on spatial and land-use planning,[145] for the purposes of this study, this includes the Protected Area Management Regime and the National Protected Areas Expansion Strategy (NPAES)[146] as governed within NEM: PAA. The protected area framework also requires management plans to be developed for protected areas under NEM: PAA.[147] All NEM: PAA

[137] P E Claassen 'Spatial planning with the Western Cape Province as a case study' in H A Strydom & N D King (eds) *Environmental Management in South Africa* 2 ed (2009) 923.
[138] Chapter 3 of NEM: BA.
[139] Act 50 of 2003.
[140] S38 of NEM: BA.
[141] S40 of NEM: BA.
[142] S51 of NEM: BA.
[143] S47, S99-S100 of NEM:BA. See McDiarmid 2005 (3) IMIESA 33.
[144] S48 of NEM: BA.
[145] Paterson AR 'Biodiversity, Protected Areas and Climate Change: An Assessment of the Potential of Connectivity Conservation Law in South Africa' in T Humby et al (eds*) Climate Change: Law and Governance in South Africa* (2016) 29.
[146] National Protected Areas Expansion Strategy for South Africa, Department of Environmental Affairs (2008).
[147] S37-S39 of NEM: PAA. Also see section 6.3 below.

empowered management plans must be cognisant of and aligned with all other sector and land-use plans.[148]

4.5.2 *Ecologically-centred planning*

A central feature of the South African environmental framework is that it focuses on ecosystems and how they relate to one another, as well as the vulnerable species that that are essential to their make-up. Ecosystems are appreciated within the context of the service that they perform for human evolution and development. This is dubbed the 'ecosystems-services approach', and is central in the realisation of an ecologically-centred approach to integrated developmental planning.[149] Having healthy and stable ecosystem services complements developments that strive to improve the lives of poor rural communities by 'fostering markets for the goods and services that local people produce or extract from ecosystems'.[150]

An ecologically-centred approach is important to any planning discussion as the understanding of ecosystems and valued species of a region requires significant mapping and spatial representation in order to be incorporated into developmental decision-making. This ecological emphasis is only possible due to the extensive baseline and sensitivity analysis that has preceded the development of local, provincial and national spatial assessments. The biological, heritage and riverine focused mapping that is undertaken as part of these assessments provides detailed maps of the whole of South Africa at a variety of scales.[151]

Such ecologically-centred planning includes maps displaying networks of Critical Biodiversity Areas (CBAs), Ecological Support Areas (ESAs) and regionally specific land-use guidelines. These land-use guidelines base their management objectives and associated recommendations on the regional sensitivity assessments to help ensure that compatible land-use decision-making is informed by up-to-date sensitivity analysis.[152]

Having accessible mapping instruments and associated land-use guidelines provide an opportunity to 'mainstream' and integrate biodiversity concerns across sectors. These influential set of mechanisms have the ability to act as inter-sectoral planning platforms that

[148] S39(3)-(4) of NEM: PAA.
[149] For additional reading see C I Elliff & K P Kikuchi 'The ecosystem service approach and its application as a tool for integrated coastal management' (2015) 13 *Nature and Conservation* 105, 111.
[150] W M Adams et al 'Biodiversity Conservation and The Eradication of Poverty' (2004) 306 *Science* 1146, 1148.
[151] A 1:250 000 scale is the commonly used scale.
[152] See Conservation Thresholds for Land Use Planners (2003) The Environmental Law Institute at https://www.eli.org/sites/default/files/eli-pubs/d13-04.pdf

facilitate integrative and streamlined operational decision-making.[153] South Africa's approach for integrating ecological concerns into local land-use planning focuses on up-to-date scientifically-based mapping and spatial information; associated land-use guidelines; raising awareness and building capacity; as well as embedding biodiversity priorities into institutions that drive the process.[154]

'A key feature of national policy and planning tools in South Africa is that they are based on systematic conservation plans.'[155] This systematic conservation planning is an fundamental component of sensitive area management within the state and associated agencies. Systematic conservation planning requires an integrated approach that includes a complex system of zoning and land-use decision-making on multiple sectoral levels. Systematic conservation planning is critical to developmental decision-making, creating context for decision-makers and planners. Planners then set conservation targets and analyse the spatial data, the outputs of which are illustrated as maps and land-use guidelines.

The CBD principles, of which South Africa is a signatory, reinforce the need to understand and map vulnerabilities and potential impacts of all activities on the receiving environment through an ecologically-centred approach to development at the 'appropriate spatial and temporal scales'.[156] The suitability of different spatial scales is determined by the desired objective and relevance of the representative mapping, for instance mapping done over large areas is undertaken in support of implementing provincial and national action plans and the identification of priority areas.[157] Mapping done over smaller landscapes tend to be finer and aim to support the delineation of boundaries for protected areas, as well as guide local land-use planning and decision-making.[158]

[153] Bioregional plans, EMFs, biospheres and conservation plans (C-Plans) at all levels of government.
[154] SANBI 'Mainstreaming Biodiversity into Land-Use Regulation and Management at the Municipal Scale: Midterm Review Report' (2017). Available at: https://www.sanbi.org/wp-content/uploads/2018/03/biodiversity-and-land-use-project-midterm-review-report-november-2017-1.pdf.
[155] S D Holness & H Biggs 'Systematic Conservation Planning and Adaptive Management' (2011) 53 *Koedoe* 1.
[156] All 12 of the CBD principle make reference to 'ecosystems' as the central feature within the environment that requires protection and management. See CBD (note 126 above).
[157] Where national priority areas have been identified, these areas often require finer-scale mapping, assessment and analysis to take place to form the foundations of the chosen management plans or planning documents. See SANBI 'Biodiversity Advisor: Planning and Assessment' Available at: http://biodiversityadvisor.sanbi.org/planning-and-assessment/environmental-assessments/what-us-bioregional-planning/systematic-biodiversity-planning/.
[158] Ibid.

The South African environmental regulatory framework sets out various categories of sensitivities linked to a risk avoidance rating.[159] The rating system is based on the quality, sensitivity and the corresponding degree of protection needed to maintain the identified natural resources.[160] This rating system remains a chief consideration during project-specific environmental sensitivity assessment and analysis, assisting developers and decision-makers to identify areas which are at risk or likely to experience adverse change.[161] The resulting ecologically-centred sensitivity maps are used by licensing decision-makers and competent authorities as the basis for environmental and multi-sectoral planning, proactively integrating opportunities and constraints into integrated development and land-use planning.

4.5.3 *Mapping ecological thresholds*

The practical application of sustainable development means that certain concessions need to be made in order to appropriately balance the developmental and environmental related imperatives. This balancing exercise sometimes results in land-uses, like mining, that are not ecologically compatible to the receiving environment. The manner in which this loss of biodiversity and other natural resources will affect the functioning of ecosystems is of central concern. This requires the application of ecosystem-based adaptation to understand the resilience of the ecosystem by setting practical biodiversity targets.[162]

When discussing thresholds, it is important to appreciate the recognised theories pertinent to the area. Francis Stuart Chaplin, states that essentially resilience can be described as 'that property that enables ecosystems to absorb both expected and unforeseen change'.[163] Walker and Salt state that 'a key principle underlying resilience thinking is the likelihood of the ecosystem crossing a threshold or tipping point, beyond which it will become fundamentally and irreversibly different'.[164] Resilience is therefore core to understanding the compatibility of specific land-uses with an identified receiving environment and its particular characteristics.

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[159] For example, the EIA, EMF, Bioregional Plan and even certain SDFs have risk avoidance guidelines.
[160] N Brooks et al 'The Determinants of Vulnerability and Adaptive Capacity at the National Level and the Implications for Adaptation' *Global Environmental Change* (2005) 151,163.
[161] Ibid.
[162] 'Given the extreme complexity of interrelationships in an ecosystem, many scientists believe it is desirable to apply the precautionary principle and maintain as much diversity as possible at all scales.' See M Cadman et al *Biodiversity for Development: South Africa's Landscape Approach to Conserving Biodiversity and Promoting Ecosystem Resilience* (2010) South African National Biodiversity Institute 17.
[163] S C Chapin, G P Koffinas, & C Folke *Principles of Ecosystem Stewardship: Resilience-based natural resource management in a changing world* (2009) 350.
[164] B Walker & D Salt *Resilience Thinking: Sustaining Ecosystems and People in a Changing World* (2006) 14.

According to the National Spatial Biodiversity Assessment (NSBA), "the threshold beyond which an ecosystem becomes critically endangered is known as the 'biodiversity target' and represents the minimum proportion of each ecosystem that is required to maintain the biodiversity pattern".[165] In understanding the acceptable limits of these ecological patterns and processes, planners can identify ecosystems and species that are sensitive and in need of categorisation as priority areas. Biodiversity targets are subject to change due to the constant adaptation and fluctuation of ecological systems. The only way to keep abreast of such development is to scientifically assess the environmental status quo, periodically updating site and region-specific data.

Fischer et al states that this involves 'identifying biodiversity priority areas that are aligned with features of the landscape that increase the resilience of natural ecosystems to climate change and contribute to ecosystem-based adaptation'.[166] The categorisation of ecosystems and species within a landscape provides decision-makers with the information needed to make informed decisions, adding contextual information to EIA's, bioregional plans and EMFs by indicating high risk areas that require special attention.

4.5.4 *Understanding environmental spatial relationships*

A shared understanding of roles and relationships within the broader ecological landscape is critical to the safety, security and successful functioning of the regional environment. All local stakeholders and natural resource decision-makers require up-to-date spatial information regarding all biodiversity priorities. Such access would permit stakeholders to engage with regional ecological constraints and opportunities within a landscape and make appropriate land-use planning decisions and build an informed power base.[167] The success of operationalised IEM thus comprises of 'a stakeholder group, its relationship with the array of government and non-government decision makers, and its relationship with the public'.[168]

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[165] Driver et al *National Spatial Biodiversity Assessment 2004: Summary Report* South African National Biodiversity Institute (2004) 18.

[166] Cadman (note 162 above) 19. Also see J Fischer, D B Lindenmayer & A D Manning 'Biodiversity, Ecosystem Function, and Resilience: Ten Guiding Principles for Commodity Production Landscapes' (2006) 4 *Frontiers in Ecology & the Environment* 80-86.

[167] See M S Reed, 'Stakeholder Participation for Environmental Management: A Literature Review' (2008) 10 Biological Conservation 2417, 2431.

[168] R Margerum 'Integrated Environmental Management: The Foundations for Successful Practice' (1995) 24 Environmental Management 152.

The understanding of spatial relationships is based on the premise that stakeholders share interconnected consequences from incompatible activities.[169] Collective engagement with impact-related spatial information allows decisions to be made which are directly connected to the gravity of such developments, validating community buy-in and providing a foil for building meaningful multi-stakeholder engagement platforms.

Transparently engaging on the viability and impacts of different land-uses within a landscape can assist in pre-empting and ultimately moderating land-use conflicts by creating awareness on priority areas which would be incompatible with invasive high impact activities.[170] Once an area has been mapped, informed stakeholders can engage honestly and from a position of power regarding how to shape a landscape, particularly where the identification of areas of potential economic development and sensitivities are identified.[171]

4.6 ***The environmental character of spatial planning***

4.6.1 *Introduction*

The concept of 'spatial planning' was created out of necessity,[172] evolving as a response to socially relevant developmental phenomena and challenges of increased human population and consumption.[173] Yet, meaningful assimilation of planning into broader developmental frameworks faced the obstacles of navigating politics, power, coercion and, implementation within fixed territorial limits.[174]

The environmental consciousness of the 1960s coincided with the exploration of regional planning prospects, driving the creation of principles for the guidance of planning by the European Regional Development Fund in the 1970s.[175] Yet, it was not until the Torremolinos Conference of 1983 that the European Charter of Regional and Spatial Planning was adopted

[169] A good example being, various stakeholders use water resources within a landscape will affect the availability and quality of the resource for the whole of community. More specifically, the building of functional relationships between upstream and downstream water users allows users to be aware of the consequences of their actions during usage.
[170] See G Brown & C M Raymond 'Methods for Identifying Land Use Conflict Potential Using Participatory Mapping' (2013) 122 *Landscape and Urban Planning* 3.
[171] Participatory mapping could assist in such an exercise.
[172] H D Smith et al 'The integration of land and marine spatial planning' (2011) 15 *Journal of Coast Conservation* 291.
[173] J van Wyk 'Planning in All Its (Dis)Guises: Spheres of Government, Functional Areas and Authority' (2012) 15 *Potchefstroom Electronic Law Journal* 82.
[174] M Tewdwr-Jones, N Gallent & J Morphet 'An Anatomy of Spatial Planning: Coming to Terms with the Spatial Element in UK Planning' (2010) 18 *European Planning Studies* 243.
[175] Ibid 244. Also see K Kunzmann 'The Europeanization of Spatial Planning' in N Adams, J Alden & N Harris (eds) *Regional Development and Spatial Planning in an Enlarged Europe* (2006) 43, 64.

and ‘spatial planning’ was officially referenced for the first time to achieve ‘balanced socio-economic development, responsible management of natural resources and environmental protection’.[176] By the early 1990s it had become common place for major cities to adopt specific spatial plans and assimilate spatial planning into the practical implementation of urban development.[177]

‘Spatial planning’ is thus influenced by various practices and relationships, including different actors, cultural attitudes and ideologies.[178] The fluidity of the concept has led to the emergence of various definitions and interpretations of spatial planning, leaving an already complicated area without any definitive or internationally recognised description.[179] Furthermore, the terms ‘spatial planning’, ‘development planning,’ ‘land-use planning’ and ‘physical planning’ are used interchangeably by various jurisdictions and authorities.[180]

Jeannie Van Wyk, a leading South African planning scholar, defines planning as ‘a formulated or organised method according to which something is to be done, such as a scheme of action’.[181] Spatial planning has evolved from the ‘traditional idea of land-use planning to describe more proactive possibilities for the management of space, involving policy-making, policy integration, community participation, agency stake holding and development management’.[182] This understanding of planning has clearly been extended to ‘an ongoing, enduring process of managing change, by a range of actors, in the interests of sustainable development’.[183]

This link to the economic, social and environmental elements that make-up sustainable development is unquestionably embodied in the modern understanding of what constitutes spatial planning. The Committee of Ministers on the European Spatial Planning Charter supports this understanding of a balanced reflection, defining spatial planning as:

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[176] Council of Europe, European Conference responsible for Regional Planning: European Charter for Regional/Spatial Planning (Torremolinos Charter), 20 May 1983 in Torremolinos, Spain.
[177] W Salet & A Faludi, ‘Three Approaches to Strategic Spatial Planning’ in W Salet & A Faludi (eds) *The Revival of Strategic Spatial Planning* (2000) 3.
[178] S Schmidt & R Buehler ‘The Planning Process in the US and Germany: A Comparative Analysis’ 2007 (12) *International Planning Studies* 65.
[179] L Albrechts ‘Reframing Strategic Spatial Planning by Using a Coproduction Perspective’ 2013 (12) *Planning Theory* 46, 52.
[180] A Faludi ‘European Spatial Planning: Past, Present and Future’ (2010) 81 *Town Planning and Review* 9,10.
[181] Van Wyk (note 173 above) 12.
[182] This is supported by the UK Governments definition of spatial planning which ‘brings together and integrate policies for the development and use of land with other policies and programmes which influence the nature of Places and How They Function’. See M Tewdwr-Jones ‘Spatial planning: Principles, Practice and Culture (2004) 57 *Journal of Planning and Environment Law* 593.
[183] Ibid 591.

> *Giving geographical expression to the economic, social, cultural and ecological policies of society. It is at the same time a scientific discipline, an administrative technique and a policy developed as an interdisciplinary and comprehensive approach directed towards a balanced regional development and the physical organisation of space according to an overall strategy.*[184]

The multifaceted nature of planning is often misunderstood or understood narrowly, especially by the courts that interpret planning as only being connected to the 'use of land'.[185] Rather, it accommodates philosophies of strategic planning, linking land-use and spatial reasoning to the fulfilment of socio-economic goals.[186] Spatial planning aims to produce a 'rational territorial organisation of land-uses',[187] integrating the uses and needs of the specified area in order to balance the imperatives of socio-economic development and considered environmental management.

Spatial planning focuses on the developmental direction of an area by taking a holistic view of development and land-use. How space will be used and the rights and imperatives present in a region are balanced by gaining a better understanding of the current and potential issues, integrating sectoral policies in order to make more informed and representative decisions.[188] From this perspective, spatial planning is a tool that aims to manage and guide land-use, 'supporting the elements of sustainable development,[189] promoting greater utilisation, reshaping and strengthening spatial planning systems'. [190]

Society's needs and expectations are constantly shifting. As a needs-based system, planning must adapt to an ever-changing world by anticipating new developmental priorities and complexities. The contemporary understanding of planning is conceived as a constructive, pre-emptive and collective democratic process, anticipating the character and location of key features of a region by scientifically mapping sensitivities and economic potential to design

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[184] Council of Europe, European Conference responsible for Regional Planning: European Charter for Regional/Spatial Planning (Torremolinos Charter), 20 May 1983 in Torremolinos, Spain.
[185] *Yacoob J* in the minority judgment of *Wary Holdings (Pty) Ltd v Stalwo (Pty) Ltd and Others* 2008 (11) BCLR 1123 (CC) para 128.
[186] SPLUMA's Preamble obliges the state to realise constitutional rights as contained in s24, s25, s26 and s27.
[187] United Nations Economic Commission for Europe 'Spatial Planning: Key Instrument for Development and Effective Governance with Special Reference to Countries in Transition (2008).
[188] See Centre for Environmental Studies (1970) 25 'The LOGIMP Experiment', Information Paper 16.
[189] S Kidd & A Plater *The Ecosystem Approach to Marine Planning and Management* (2011) 47.
[190] A Todes, V Sim C & Sutherland 'The Relationship Between Planning and Environmental Management in South Africa: The Case of KwaZulu-Natal' (2009) 24 *Planning, Practice & Research* 412.

the most efficient means for their realisation.[191] For the purpose of this study, spatial planning will be viewed as, 'a broad and forward-looking concept which aims to take into account different elements of society, including environmental conditions, economic factors and social elements'.[192]

4.6.2 *The ecological and sectoral integration of spatial planning*

Early spatial planning was primarily concerned with land-use development and resource exploitation, and not with environmental sensitivity, analysis and compatibility assessment.[193] Historically, spatial planning instruments were inappropriate in dealing with social and environmental issues as these considerations did not form part of developmental planning processes.[194] The rights-based discourse has steadily developed of the last 50 years, moving from blanket volume development that addresses a need, to a more integrated and environmentally-focused paradigm. Contemporary planning reform is now predominantly concerned with addressing the legacy of the previous administration and integrating sustainable development considerations into all facets of developmental planning.[195]

Within the South African context, contemporary spatial planning has developed in response to the growing recognition of institutional and regulatory fragmentation, as well as growing unplanned developments, and rising environmental and social concerns.[196] The prominence of sustainable development as a constitutional right has resulted in the reinforcement of the principle within the planning framework. Practically, this has 'translated into the need to incorporate the social, economic and environmental issues and their spatial expressions into developmental decision-making'.[197]

SPLUMA emphasises sectoral integration as a key founding principle of spatial planning, making the proactive inclusion of environmental, social and economic considerations a requirement in all land-use decision-making.[198] The operation of such inter-sectoral governance requires that the new SPLUMA framework ensures compliance with the suite of

[191] Ibid.
[192] A Van der Valk 'The Dutch Planning Experience' 2002 (58) *Landscape and Urban Planning* 202.
[193] A Todes & A Karam 'Beyond Master Planning? New Approaches to Spatial Planning in Ekurhuleni, South Africa' (2010) 34 *Habitat International* 3.
[194] L Albrechts 'Bridge the Gap: From Spatial Planning to Strategic Projects' (2006) 14 *European Planning Studies* 1487.
[195] Claassen (note 137 above) 936.
[196] Glazewski (note 132 above) 30.
[197] L Albrechts Strategic (Spatial) Planning Re-examined. Environment and Planning (2004) 31 *Planning and Design* 743, 748.
[198] Preamble of SPLUMA.

environmental legislation during developmental decision-making.[199] An example being that SPLUMA requires compliance with environmental legislation and the recognition and integration of environmentally-focused planning tools into spatial planning, such as bioregional plans and EMFs.[200] SDFs contain the overarching spatial representation of the region's growth opportunities and developmental issues, providing the perfect foil for illustrating and giving spatial effect to policies and plans from other sectors.[201] 'These provisions in SPLUMA promote positive sectoral integration, which establishes horizontal and vertical integration between the environmental discipline and spatial planning.'[202]

Integration is core to the make-up of spatial planning as the harmonisation of the spatial dimension of sectoral policies must be considered in regional and common growth strategies.[203] In addition, the environmental character of planning is reflected in the environmental considerations incorporated into the mandates of different levels of government.[204] This is true for local and provincial spheres of government which have distinct economic development and planning mandates that require the requisite integration with environmental concerns in order to be seen to be achieving sustainable development.[205]

4.7 ***The landscape approach: a principle of unification***

4.7.1 *Understanding the landscape approach*

Over the past three decades, there has been a rapid evolution of philosophies and principles aimed at maintaining and restoring regional ecosystem integrity. One of the most influential of these concepts has been the landscape approach. With its foundation in ecologically-centred sustainable development and its strong spatial character, the landscape approach, and the implementation of Integrated Landscape Management, forms the foundation for a unifying theory between environmental management and spatial panning.[206] The landscape

[199] S24(2)(b) of SPLUMA.
[200] S24(2)(b) of SPLUMA.
[201] S12(3)-(5) of SPLUMA.
[202] J Van Wyk & M Oranje 'The post-1994 South African Spatial Planning System and Bill of Rights: A Meaningful and Mutually Beneficial Fit?' 2014 (3) Planning Theory 363.
[203] B Cullingworth & C Nadin *Town and Country Planning in the U.K.* 14 ed (2006) 91.
[204] K Van Assche & N Djanibekov 'Spatial planning as policy integration: The need for evolutionary perspective' 2012 (29) *Land Use Policy* 179.
[205] See 6.4.1.1 for more additional.
[206] 'Integrated Landscape Management' is term used when adopting and operationalising a landscape approach to environmental management and developmental imperatives in a specified region.

approach adopts and practically realises the principle of sustainable and ecologically compatible development over a specific landscape.[207]

Landscape approaches are intersectional in nature, primarily rooted in the cross-disciplinary area of environmental management, spatial planning and scientific assessment of landscape ecology.[208] Biodiversity management has been a particular focal point within the landscape management discourse since the beginning of the 1980s. The approach of developmental and conservation management within the landscape scale has since evolved into both protected area management and even into broader social issues.[209] The international sustainable development discourse of the 1980s and early 1990s dominated the conservation related space, with the Brundtland Report[210] and the formalisation of the principle of sustainable development becoming an accepted mantra.[211]

The 1990s also saw the adoption of the Convention on Biological Diversity (CBD), on which NEM: BA is based, which has a distinct ecosystem-centred approach. The CBD Scientific Committee, saw the value of taking a landscape scale or context into account when compiling information on the sustainable use of ecological resources. The CBD stated that, 'sustainability can only be achieved at an appropriate spatial and temporal context, the landscape level is arguably the most important spatial scale to improve and assess the sustainable management of natural resources.'[212] This period saw a transition away from the localised approach of targeting protected areas and buffer zones to a more holistic regional and integrated understanding of the landscape approach.[213] The developing area of sustainability science has also 'strengthened the integration between policy and practice to better understand the complexities of interactions between human and environmental systems.'[214]

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[207] P Frost et al 'Landscape-Scale Approaches for Integrated Natural Resource Management in Tropical Forest Landscapes' (2006) 11 *Ecology and Society* 30.
[208] D Lindenmayer et al. 'A checklist for ecological management of landscapes for conservation' (2008) 11 *Ecology Letters* 78, 79. Also see J Sayer 'Reconciling conservation and development: are landscapes the answer?' (2009) 41 *Biotropica* 649.
[209] J Reed et al 'Have Integrated Landscape Approaches Reconciled Societal and Environmental Issues in the Tropics?' (2017) 63 *Land Use Policy* 481, 482. Also see Hughes & F Flintan 'Integrating Conservation and Development Experience: A Review and Bibliography of the ICDP Literature' *International Institute for Environment and Development* (2001) 4.
[210] Brundtland (note 109 above).
[211] Reed (note 209 above).
[212] Convention of Biological Diversity *Report on How to Improve Sustainable Use of Biodiversity in A Landscape Perspective* (4 August 2011) UNEP/CBD/SBSTTA/15/1/Rev.1.
[213] Reed (note 209 above) 489.
[214] Ibid. Also see R W Kates et al 'Sustainability science' (2001) 292 *Science* 641.

Regional collaboration and the building of partnerships between communities, governments, businesses and civil society is core to operationalising contemporary integrated landscape management. Successful implementation of this approach is supported through 'a range of spatial and management tools to expand protected areas, as well as mainstream conservation priorities in land-use planning and economic decision-making to encourage ecologically-compatible production practices.'[215]

A universal definition is not readily available as the term has been attributed various definitions within a multitude of contexts. The sheer number of diverse approaches has resulted in a misunderstanding of terminologies, this is often identified as a contributing factor inhibiting the movement from conceptualisation, to acceptance, and finally to implementation.[216] This lack of consensus has led to 'fragmentation of knowledge, unnecessary re-invention of ideas and practices, and slow progress in gaining policy traction'.[217]

A useful definition of the landscape approach is contained in The Global Canopy Programme's (GCP) The Little Landscapes Book, namely:[218]

> *A conceptual framework whereby stakeholders in a landscape aim to reconcile competing social, economic and environmental objectives. A landscape approach aims to ensure the realisation of local level needs and action, while considering goals and outcomes important to stakeholders outside the landscape, such as national governments or the international community.*

Olivia Freeman, a chief proponent of the theory, offers a useful conceptual understanding of the landscape approach, concluding that 'participation, inter-disciplinarity, multi-functionality and sustainability' are the common themes shared by the different studies and theorists.[219] Jeffrey Sayer, one of the foremost authorities on the landscape approach, puts

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[215] Cadman (note 162 above) 16. The protection of natural resources is one of twelve key outcomes for government action adopted by the Presidency in 2009. See National Strategy for Sustainable Development and Action Plan (NSSD 1) 2011–2014, Department of Environmental Affairs (Approved by Cabinet on 23 November 2011).

[216] Scherr et al 'Defining Integrated Landscape Management for Policy Makers' (2013) 10 *Ecoagriculture Policy*
Focus 2.

[217] Ibid. This is covered in more depth in the section entitled 'Controversies, Barriers and Issues' below.

[218] Denier et al *The Little Sustainable Landscapes Book: Achieving Sustainable Development Through Integrated Landscape Management* (2015) 11.

[219] O E Freeman, L A Duguma, & P A Minang. 'Operationalizing the Integrated Landscape Approach in Practice' (2015) 20 *Ecology and Society* 24.

forward ten useful principles embodying the essence of the approach. These principles include: continual learning and adaptive management; common concern entry point; multiple scales; multi-functionality, multiple stakeholders; negotiated and transparent change logic; clarification of rights and responsibilities; participatory and user-friendly monitoring; resilience and strengthened stakeholder capacity.[220]

This elemental breakdown of the landscape approach is one of the most comprehensive and credible within the discourse.[221] These elements will be defined below:

Continual learning and adaptive management:

> *Despite the underlying uncertainties in causes and effects, changes in landscape attributes must inform decision-making. Learning from outcomes can improve management…. This learning and revision requires continual adjustment in which new knowledge is derived from multiple sources.*[222]

Common concern entry point:

> *Solutions to problems are built on shared negotiation processes based on trust. Trust emerges when objectives and values are shared. However, stakeholders have different values, beliefs, and objectives. The negotiation process requires focusing on easy-to-reach intermediate targets which provide a basis for stakeholders to begin to work together*.[223]

Multiple scales:

> *Numerous system influences affect management outcomes, but these impacts unfold under the influence of a diverse range of external influences and constraints…. An awareness of these higher and lower level processes can improve interventions, inform higher-level policy and governance, and coordinate administrative entities.*[224]

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[220] J Sayer et al 'Ten principles for a landscape approach to reconciling agriculture, conservation, and other competing land uses' (2013) 110 *Proceedings of the National Academy of Sciences* 8349, 8351.
[221] 'The ten principles of the landscape approach have now been adopted by the Subsidiary Body on Scientific, Technical and Technological Advice of the CBD, and have been submitted for consideration by the Conference of the Parties of the CBD in Hyderabad, India, in November 2012.' See Ibid.
[222] Sayer (note 220 above) 8351
[223] Ibid.
[224] Ibid.

Multi-functionality:

> *Landscapes and their components have multiple uses and purposes, each of which is valued in different ways by different stakeholders. Trade-offs exist among the differing landscape uses and need to be reconciled; it addresses them in a spatially explicit and ecosystem-driven manner that reconciles stakeholders' multiple needs, preferences, and aspirations.*[225]

Multiple stakeholders:

> *Multiple stakeholders frame and express objectives in different ways…. All stakeholders should be recognized, even though efficient pursuit of negotiated solutions may involve only a subset of stakeholders…. Developing a landscape approach requires a patient iterative process of identifying stakeholders and recognizing their concerns and aspirations.*[226]

Negotiated and transparent change logic*:*

> *Trust among stakeholders is a basis for good management and is needed to avoid or resolve conflicts. Transparency is the basis of trust. Transparency is achieved through a mutually understood and negotiated process of change and is helped by good governance.*[227]

Clarification of rights and responsibilities:

> *The rights and responsibilities of different actors need to be clear to, and accepted by, all stakeholders. Clarification of conflicting claims will require changes, ideally negotiated, that may be legal or informal. When conflict arises, there needs to be an accepted legitimate system for arbitration, justice, and reconciliation.*[228]

Participatory and user-friendly monitoring:

[225] Ibid.
[226] Ibid.
[227] Ibid.
[228] Ibid.

> *Information can be derived from multiple sources. To facilitate shared learning, information needs to be widely accessible. Systems that integrate different kinds of information need to be developed.*[229]

Resilience:

> *Wholesale unplanned system changes are usually detrimental and undesirable. System-level resilience can be increased through an active recognition of threats and vulnerabilities. Actions need to be promoted that address threats and that allow recovery after perturbation through improving capacity to resist and respond.*[230]

Strengthened stakeholder capacity:

> *[Stakeholders] require the ability to participate effectively…. Such participation presupposes certain skills and abilities (social, cultural, financial). Effective participation makes demands of stakeholders. The complex and changing nature of landscape processes requires competent and effective representation and institutions that are able to engage with all the issues raised by the process.*[231]

From the above analysis of the landscape approach it can be determined that the approach adopts an ecosystem focus to planning, utilising a transparent and inclusionary model that requires broad stakeholder involvement.[232] The adaptability and flexibility of this approach makes it an attractive developmental alternative.

4.7.2 *Achieving sustainable development through the landscape approach*

Adopting a landscape approach requires working within a variety of land-uses and stakeholders, with the aim of improving the sustainable management of a mixture of natural resources and commercial interests through the implementation of a multitude of spatial and environmental tools.[233] A landscape, as understood within the approach, is therefore directly linked to sustainable development outcomes, consisting of 'natural and human-modified

[229] Ibid.
[230] Ibid 8352.
[231] Ibid.
[232] J Reed, E Deakin & T Sunderland 'What are 'Integrated Landscape Approaches' and how effectively have they been implemented in the tropics: a systematic map protocol (2015) 4 *Environmental Evidence* 2.
[233] CBD (note 212 above).

socio-ecosystems which are influenced by ecological, historical, political, economic and cultural processes and activities'.[234]

The landscape approach aims to reconcile competing social, economic and environmental objectives, in an effort to safeguard, repair and use natural resources sustainably in order to promote the resilience of ecosystems and socio-economic upliftment. This approach has the potential for managing sensitive natural landscapes and resources, maintaining ecosystem services and promoting sustainable development.

Ibrahim Thiaw, the former Deputy Executive Director of the United Nations Environment Programme, believes that 'achieving long-term economic, environmental and social goals increasingly depends on understanding and accounting for the impact of land management decisions on ecosystem goods and services, and developing a more coordinated approach to natural resource management'.[235] The landscape approach adopts a holistic and regionally orientated spatial characteristic in order to achieve sustainable landscape management; integrating developmental imperatives and natural ecosystem sensitivity into collective decision-making at a regional scale of action.[236] The scale of the application of the landscape approach is therefore central to the functionality and realisation of sustainable development. 'Working towards sustainable development at the landscape scale means looking beyond the scope of a single sector, stakeholder group or the scale of a land management unit so as to meet the development and conservation needs of diverse stakeholders and sectors.'[237]

The application of the landscape approach has much potential in South Africa, given the country's immensely diverse people, culture, landscapes, biological resources and ecology. Such diversity requires an approach which holistically understands impacts, especially within the context of the increasing strain on many ecosystems and the impact on livelihoods, particularly of those living in rural areas.[238] Of central concern are invasive and high-risk land-use practices, ecosystem and species loss and the accelerated impacts of climate change. Environmentally-focused planning tools, such as EMFs and bioregional plans, have been

[234] I Petrosillo, R Aretano & G Zurlini, 'Socioecological Systems' in S A Elias (ed) *Earth Systems and Environmental Sciences* (2015) 1.
[235] I Thiaw et al *Food and Ecological Security: Identifying Synergies and Trade-offs* UNEP Policy Series. *Ecosystem Management* (2011) 4.
[236] Reed (note 209 above).
[237] Denier et al (note 218 above) 26.
[238] G Midgley *Climate Change and Terrestrial Biodiversity in South Africa* (2009) Review prepared for the 2nd National Communication on Climate Change in South Africa, unpublished technical report, SANBI.

adopted to ascertain the location and classify priority areas for concerted management and planning, underpinning the implementation of the landscape approach in South Africa.[239]

4.7.3 *Controversies, barriers and issues within the landscape discourse*

Integrated landscape management is not without its controversies and difficulties, with varying positions being advanced in this progressive approach to environmental management. These issues are not unique within the context of international progressive environmental management theories. The barriers to successful uptake that will be discussed include: the proliferation of definitions, stakeholder fatigue and knowledge, difficulties in accurate monitoring, the perpetuation of operational silos and centralised decision-making.[240]

The first challenge is the existence of an overabundance of intersecting philosophies and meanings in defining 'landscapes', 'landscape management', and 'landscape approaches'.[241] This is further complicated due to the cross-disciplinary nature of the content, as different fields have varying perspectives in the understanding and application of these concepts. The fear is that such issues can lead to a parallel conceptual development and a dilution of its efficacy, leading to a resistance to engage with an approach that has emerged from different fields.[242] Terminology confusion is a major risk, especially in an era where people need concretised and widely applied definitions in order to instil confidence. This issue contributes to the disintegration of knowledge and re-invention of concepts which ultimately impacts the ability of the approach to be supported.[243] For policymakers, this diversity is often perceived as confusion which can be overwhelming.[244]

Second, complications and the eventual failure in formulating acceptable aims, operational standards and funding that connect all relevant sectors can lead to operating silos, whether at the level of local stakeholders within a landscape, relevant spheres of government or NGOs. These operational difficulties are a characteristic of an approach that requires a significant

[239] Cadman (note 162 above) 33.
[240] J Reed et al 'Integrated landscape approaches to managing social and environmental issues in the tropics: learning from the past to guide the future' (2016) 22 *Global Change Biology* 2540, 2548.
[241] T Sunderland *Landscape approach defies simple definition - and that's good* Centre for International Forestry Research (27 August 2014) Forests News Available at: https://forestsnews.cifor.org/23834/landscape-approach-defies-simple-definition-and-thats-good?fnl=en.
[242] Reed (note 232 above) 2.
[243] Ibid 84.
[244] K Redford, C Padoch & T Sunderland 'Fads, Funding and Forgetting in Three Decades of Conservation' (2013) 27 *Conservation Biology* 437–438.

range of skills and funding to engage with extensive complexities across a landscape; such wide-ranging skill sets and resources are often not held within conservation organisations.[245]

The third concern relates to stakeholder engagement. The landscape approach relies heavily on effective, representative and regular multi-stakeholder engagement.[246] The concern is that engagement is reduced to a 'box-ticking exercise and stakeholders are deterred by a perception that there is too much participatory discussion at the expense of efficient decision-making'.[247] This type of stakeholder fatigue is common in areas that have experienced high levels of concentrated development. Requesting communities to engage in numerous processes over one region can be time consuming, resource intensive and intellectually draining. This is especially true where previous engagements have not lead to tangible benefits. Such disenchantment is exacerbated by different parties negotiating from different power positions and a lack of adequate knowledge and information, both of which directly impact the ability of stakeholders to meaningfully engage and secure their interests within the plan. In order to combat these perceptions and power differences there should be a free flow of understandable information and regular capacitation initiatives to create an 'equality of arms'.

The fourth concern is how appropriate monitoring is conducted within a landscape where multiple objectives need to be achieved.[248] Without quantifiable information the evaluation of progress within the landscape is indefinable and landscape approaches risk becoming ineffective.[249] Effective monitoring, is the least developed element of the landscape approach, which is made more difficult due to 'the size of area, subject-matter complexity, intellectual willingness, and financial, institutional and human resource commitments'.[250] Researchers have developed a number of tools[251] in recent years and, while the emergence of participatory approaches to landscape monitoring are not fully adopted, they are encouraging.[252]

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[245] Sayer (note 208 above) 649.
[246] Denier et al (note 218 above) 89, 106.
[247] Reed et al (note 240 above) 2547.
[248] Ibid 2549.
[249] Reed et al (note 240 above) 2549.
[250] N J Singh 'Tackling the Motivation to Monitor: Success and Sustainability of a Participatory Monitoring Program' (2014) *Ecology and Society* 1.
[251] 'Landscape approaches should be assessed along a minimum of four dimensions, environmental protection and restoration; sustainable production; livelihoods security; and institutional capacity and governance.' See Sayer (note 208 above) 649.
[252] A Bebbington 'Capitals and Capabilities: A Framework for Analyzing Peasant Viability, Rural Livelihoods and Poverty' (1999) 27 *World Development* 2021, 2044. See Reed (note 240 above) 2549.

The final barrier is the slow uptake of a decentralised model of natural resource management. Decentralisation is when the 'central government formally transfers planning, decision-making and management powers to local institutions'.[253] Jessie Ribot, a well-known landscape scholar, observes that 'many developing countries around the world are taking steps to decentralise some aspects of their natural resource management in an effort to create a more integrated and locally relevant decision-making management structure'.[254] In theory, this approach supports locally representive landscape management, yet in a South African context the local and regional authorities are often burdened with less resources and capacities to fulfil this function.

4.8 ***Concluding Comments***

The chapter set out to understand the context and theoretical underpinnings of the two distinct systems of spatial planning and environmental management. The primary goal was to show the natural and intersectional links between these two distinct yet interrelated systems of law. An ancillary intention was to identify theories of unification that can be built upon and improved in order to better serve the aforementioned intersection. Moreover, the chapter aimed to discuss and understand the concepts and principles related to the landscape approach, with particular focus on the central elements of environmental management and spatial planning. What is clear is that collaborative planning, scientific assessment and integrated planning are the central elements to building a sustainable landscape, particularly in areas of heightened sensitivity. Spatial planning, in particular, has been used to identify appropriate land-uses and designate protected sensitive areas, a testament to the movement from area-specific to regional strategic planning and the convergence between environmental management and spatial planning. This evolution is reflected in reform of the law over the last decade, which has seen the underlying ideological frame of the legislation clearly moving towards an ecosystem-centred and spatially aware approach that recognises integrated landscape management.

The next chapter intends to build on the landscape approach, as the intersectional theory of unification, developing it into a more practically implementable standard in an effort to create a system that achieves sustainable management of natural resources in sensitive areas.

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[253] J Ribot *Democratic Decentralization of Natural Resources: Institutionalizing Popular Participation* World Resources Institute (2002) 3.

[254] Ibid. 'The CBD states that 'management should be decentralized to the lowest appropriate level'. See CBD (note 212 above) Principle 12.

CHAPTER FIVE: TOWARDS ENVIRONMENTAL SPATIAL PLANNING

5.1 ***Introduction***

5.1.1 *From the landscape approach to environmental spatial planning*

From the above discussion it has been established that the balancing of environmental, social and economic considerations is the basis for sustainable development and should be applied in all sensitive areas. Moreover, the successful management of invasive activities in sensitive areas requires spatial planning with strong environmental and social development principles,[255] and with natural ecosystem integrity as an appropriately weighted factor in the developmental decision-making process.[256] In other words, for considered developmental planning to occur in sensitive areas, there needs to be an application of spatial planning, with environmental considerations and ecological protection at its core; all the while maintaining a strong community focus enabled through multi-stakeholder involvement and transparency. While spatial planning and environmental management individually attempt to address the problem of organising space in sensitive areas, the manner in which these two areas undertake to achieve the objective is in divergent fashions.[257] This accordingly fosters the need for the application of a unifying and established theory to bring a more consistent approach to sensitive area management and development.

The elements of the landscape approach form the perfect foundation for a unifying theory, making a 'spatially explicit attempt to simultaneously address conservation and development objectives'.[258] Yet the approach requires attention in both clarity of design and operationalisation in order to iron out the roles of the distinctive role-players in order to unlock ecologically-centred sustainable development in sensitive areas.

5.1.2 *The elemental breakdown of environmental spatial planning*

The combined understandings of the chief proponents in Freeman and Sayer were used in the above literature review to identify the key elements of the landscape approach. This is, to date, the most comprehensive and credible unpacking of the landscape approach, and will

[255] Examples of such common principles include: meaningful engagement, scientific analysis and making decisions that respond appropriately to possible impacts on people and the environment.
[256] *King v Dykes* 1971(3) SA 540 (RA) at 545 and *HTF Developers (Pty) Ltd v Minister of Environmental Affairs and Tourism and Others* (24371/05) [2006] ZAGPHC 132 para 19.
[257] See 4.6 and 4.7 above.
[258] Sayer et al (note 220 above) 8350.

therefore form the basis for the conceptual frame of the proposed theory of environmental spatial planning (ESP).

The concept of ESP combines central spatial planning and environmental management principles, recognising that both society and the economy are subject to ecological conditions.[259] ESP builds on the landscape approach by purposefully bridging the gap between spatial planning and environmental management, integrating the plans and tools from both sectors, and encouraging harmonisation and cross-sectoral alignment.

Environmentally-focused spatial planning forms part of the new movement towards a more integrated formulation of understanding planning in South Africa. ESP hopes to formalise this emerging trend by using distinct principles inspired by the landscape approach. These thematic identifiers, as presented below, are rooted in a number of legislative instruments such as NEMA, NEM: BA, NEM: PAA and SPLUMA.

In considering the above components, it becomes clear that ESP is a multifaceted process which considers the complexities of the conflicts between the natural environment and human needs. The developmental decision-making process is the bridge which best manages the relationship between humans and the environment, consequently the argument presented in this study focuses on the value of ESP, its integrated nature and its embodiment of co-operative governance and stakeholder collaboration to support democratic decision-making.

ESP can thus be said to be made up of the following principles: ecosystem-driven integration and multi-functionality; sectoral integration of planning instruments; scale and spatial awareness; co-operative governance; multi-stakeholder collaboration and participation; capacitation and continual learning; compatibility examination and analysis; and finally, transparent participatory monitoring and access to information.[260]

5.2 ***Justification for the adaptation of the landscape approach***

5.2.1 *Adaptation of Sayer's landscape approach elements*

Each of Sayer's ten elements of the landscape approach have been assessed and subsequently amended, extended and/or combined below to form the elemental breakdown of ESP. Each

[259] N Low 'Eco-socialisation and Environmental Planning: A Polanyian approach' (2002) 34 *Environment and Planning* 43,58. Also see 4.8 and 5.1 above.
[260] Sayer (note 220 above) 8349.

departure from the original element has been justified. Where Sayer's breakdown does not adequately address a need, this will be provided for as an additional element.

The first of Sayers keys elements is 'continual learning and adaptive management'. This element has been grouped under the banner of 'capacitation and continual learning'. The justification of the decision to group the element is that the two areas of 'continual learning' and 'capacitation' are centrally connected and therefore they have been designated under the same banner.

The second of Sayers key elements is a 'common concern entry point'. This element has been grouped under the banner of 'multi-stakeholder collaboration and participation'. The justification for this decision is that shared negotiation and trust is a central objective of a responsive and multi-stakeholder participatory process. This principle will be imbedded within the participatory process.

The third key element is 'multiple scales'. This element has been adapted and included within the 'co-operative governance' and 'sectoral integration of planning instruments' identifiers. The justification for this decision is that this element involves the integration of various levels, both between plans and between various administrative authorities. This is therefore broken into both intergovernmental 'co-operative governance' and 'sectoral integration' as separate elements.

The fourth key element is 'multi-functionality'. This element has been adapted and included to form 'ecosystem-driven integration and multi-functionality'. This thematic identifier will include all environmentally-centred approaches, such as sustainable development and IEM for example. The justification for this decision is that the balanced approach of considering the multiple uses and trade-offs of resource use strongly echoes the principle of ecologically-focused sustainable development, therefore multi-functionality is grouped under the 'ecosystem-driven integration and multi-functionality' section.

The fifth key element is 'multiple stakeholders'. This element has been grouped under the banner of 'multi-stakeholder collaboration and participation'. The justification for this decision is that multiple stakeholders must be consulted to ensure the successful operation of ESP. This logically pairs with 'multi-stakeholder collaboration and participation'.

Sayers sixth key element is 'negotiated and transparent change logic'. This element has been included in 'transparent participatory monitoring and access to information' as well as 'multi-

stakeholder collaboration and participation.' The justification for this decision is that transparency and trust are central to successful participatory structures. These central principles will be divided into the actual transparency of the content and deliberations that take place as part of the public participation process.

The seventh key element is 'clarification of rights and responsibilities'. This element has been amended to form a part of 'co-operative governance' and 'multi-stakeholder collaboration and participation'. The justification for this decision is that within the multi-stakeholder engagement process there will need to be detailed discussion, agreement and rules which set out the rights and responsibilities of the various parties. Conflict would have to be managed by clear and accepted procedures.

The eighth key element is that of 'participatory and user-friendly monitoring'. This element has been adapted and included together with access to information to form 'transparent participatory monitoring and access to information'. The justification for this decision is that this is crucial to having up to date and relevant data and information to base developmental decisions upon. This element is therefore deserving of its own adapted ESP element.

The ninth and penultimate key element is 'resilience'. This element has been included in the 'ecosystem-driven integration and multi-functionality' thematic identifier, as well as 'compatibility examination and analysis'. The justification for the decision is that resilience is an ecosystem-centred approach, it will form as part of the 'ecosystem-driven integration and multi-functionality'. The identification of thresholds forms an important facet of understanding the status quo of the receiving environment and delineating area specific compatibility analysis.

The final of Sayers key elements is 'strengthened stakeholder capacity'. This element has been included under 'capacitation and continual learning'. The justification for this decision is that stakeholder training on process and technical content is needed to adapt to the challenges and nature of developments taking place in sensitive areas.

5.2.2 *Additional elements*

Although Sayer's ten elements of the landscape approach are comprehensive, the researcher has put forward newly formed elements to make sensitive area management more practical for decision-makers and impacted stakeholders. These additional elements take the form of the thematic identifiers below:

5.2.2.1 *Sectoral integration of planning instruments*

A principle that is not explicitly framed in the ten principle breakdown, but is alluded to in Sayers contribution, is sectoral integration. ESP requires this principle to be expressed clearly, especially when integration is legislatively required between sector plans and departments. More specifically, this requires the consideration of all relevant plans during the formulation of new tools to ensure the construction of common growth paths.

5.2.2.2 *Scale and spatial awareness*

A part of Freeman's definitions, scale and spatial awareness is not included as a separate element.[261] This element's roots lie in the landscape approach. It needs to be extended in ESP as scale and spatial awareness is critical to identifying and understanding individual sensitivities within a particular landscape. Such considerations need to be at the forefront of decision-making in order to meaningfully inform land-use.

5.2.2.3 *Co-operative governance*

Co-operation between and within state sectors is crucial to aligned planning and decision-making and therefore requires to be explicitly mentioned. Even though this is eluded to in the make-up of the landscape approach, it needs to be expressly stated as it mirrors the legislative intention of cohesive state decision-making and intergovernmental conflict resolution.

5.2.2.4 *Compatibility examination and analysis*

From a spatial understanding and environmental mapping perspective, it is important that collected data is analysed to identify inherent sensitivities and economic potential in order to appreciate whether an activity is in conflict or compatible with the proposed activity. This is central to the awareness of sensitivity, future planning and developmental decision-making in sensitive areas.

5.3 ***Explanation of thematic identifiers of environmental spatial planning***

The above section justified the departure from Sayers widely appreciated understanding of the landscape approach. The section intended to show the reader how the individual elements of the landscape approach have been adapted to create ESP. The aim is that this process

[261] See 4.8.1 above.

inspires confidence in the adaptation process as each decision or departure from accepted theory must be held to be reasonable, rational and logical. Now that the newly adapted elements have been identified, the section below gives content to each element and expands on the previous decision by giving a fully referenced breakdown of each element. These elements will form the bases of the assessment to be undertaken in the legal and case study chapters and therefore having a concrete understanding each elements nature and scope is essential.

5.3.1 *Ecosystem-driven integration and multi-functionality*

The concept of 'integration' can be broken up into two central facets, environmental and sectoral integration.[262] From an ecological perspective, we understand that the environment does not operate in isolation but is rather a series of intricate and interconnected ecological systems that rely on each other to survive. The landscape approach adopts an ecosystem-driven and spatially explicit methodology in an attempt to reconcile the needs, preferences, and aspirations of multiple stakeholders.[263] Conservation, sustainability and equity are core elements of the NEMA recognised principle of Integrated Environmental Management (IEM), practically promoting the synthesis of these elements into developmental decision-making and the understanding of dynamic interconnected ecosystems.[264] IEM is thus a testament to an integrated understanding of how ecosystem operate and what is require to sustain a continuation of the various process needed in order to ensure sustainability.

This links with the understanding of sustainable multifunctional landscapes, which are 'created and managed to integrate human production and resource use into the ecological fabric of a landscape maintaining critical ecosystem function, service flows and biodiversity retention'.[265] Ecosystem-driven integration and multi-functionality also assesses the conservation planning approach and the principles utilised as the basis for the planning tools.

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[262] See 5.3.2 below.

[263] H Korn, K Bockmühl & R Schliep *Report of the European expert meeting in preparation of SBSTTA-15*, 26-28 September, 2011. Bonn, Germany: Bundesamt für Naturschutz; 2011.

[264] S2(4)(b) states that 'Environmental management must be integrated, acknowledging that all elements of the environment are linked and interrelated, and it must take into account the effects of decisions on all aspects of the environment and all people in the environment by pursuing the selection of the best practicable environmental option.' See F P Retief & LA Sandham 'Implementation of Integrated Environmental Management (IEM) as Part of Integrated Development Planning' (2001) 8 *Journal of Environmental Law and Policy* 77,79.

[265] P J O'Farrell1 & P M L Anderson 'Sustainable multifunctional landscapes: a review to implementation' (2010) 2 *Environmental Sustainability* 59. Also see H Wiggering et al 'The Concept of Multifunctionality in Sustainable Land Development' in K Helming & H Wiggering (eds) *Sustainable Development of Multifunctional Landscapes* (2003) 5.

As an example, the thematic identifier would assess whether the conflict between conservation and development has been identified as a threat, and whether a pre-emptive approach to development is taken.

5.3.2 *Sectoral integration of planning instruments*

From a sectoral perspective, integration comprises of social, spatial, environmental, economic and functional integration, in other words, integration across sectors.[266] The integration of all planning instruments is crucial to holistic and aligned development. The spatial planning and environmental framework has numerous tools, such as IDPs and EMFs. In order to operate efficiently, alignment and integration of the tools is crucial. Unaligned tools have the potential to confuse mandates and cause conflict that frustrates developmental planning and keeps communities from much-needed benefit, exposing natural resources to developmental threats. This element has a strong connection to co-operative governance but is distinct in that it is not only about inter-governmental cooperation but the alignment of policy and planning tools which are at the heart of integrated development planning. Sectoral integration, while not expressly identified as an established core concept in South African law, the principle of 'good administration' referenced in SPLUMA.[267] Practically, this thematic identifier will assess whether other sectoral or environmental plans (such as EMFs, bioregional plans, IDPs and SDFs) are recognised and have been used in the construction of the plan under assessment.

5.3.3 *Scale and spatial awareness*

Having a strong land-use planning foundation for development allows the analysis and subsequent decision-making to take place with a regionally specific and spatially aware perspective. Sensitivity analysis is dependent on the scale of the assessment and the detailed information given to decision-makers, thus all information regarding ecological and social sensitivity, as well as economic opportunity, must be spatially represented to provide decision-makers and the public with all available information. The SPLUMA required SDF

[266] L Mandy Sectoral Integration and Meta-Governaence: Lessons Beyond The 'Spatial Planning' Agenda in England (2014) 85 *The Town Planning Review* 37.
[267] S 7 (e)(i) of SPLUMA states that 'the principle of good administration requires that all spheres of government ensure an integrated approach to land-use and land development that is guided by the land-use management systems embodied in the act'.

embodies the requirement to be spatially aware within the appropriate scale, this gives the term a recognisable legal grounding[268]

The landscape approach is by its very nature a regionally specific approach, therefore a landscape-scale is appropriate in responding to a series of ecosystem processes, conservation objectives and land-uses. This is core to applying a holistic and cumulative perspective to impact on a regional scale. The assessment of the scale and spatial awareness characteristics of an environmental or spatial plan will consider whether the plan is regionally focused and whether the elements' scales are presented consistently or at all.

5.3.4 *Co-operative governance*

The development and conservation sectors have a multitude of stakeholders and numerous departments at various levels of government that must fulfil their parallel obligations in environmental and developmental areas.[269] This tiered structure of governance relies on open and transparent engagement between the various spheres, each respecting each other's mandate. This often leads to unconsidered development being pursued in sensitive areas.[270] All levels of government need to co-operate in support of the overarching constitutional mandate of community service and support. This cannot be achieved without regular communication and close collaboration. While having multiple decision-making bodies in overlapping functional areas has caused numerous conflicts,[271] this multi-level approach allows for collective decision-making.[272]

Spatial planning and environmental management are two distinct sectors who's considerations are 'inseparably connected' and must be factored into developmental decision-

[268] S 12(1) (a) of SPLUMA states that all spheres of government must prepare SDFs that 'interpret and represent the spatial development vision of the responsible sphere of government and competent authority'.
[269] S2(4)(l-m) of NEMA states that 'there must be intergovernmental co-ordination and harmonisation of policies, legislation and actions relating to the environment; actual or potential conflicts of interest between organs of state should be resolved through conflict resolution procedures.' See S40 & S41(1) of the Constitution. Also see *City of Johannesburg Metropolitan Municipality v Gauteng Development Tribunal and others* 2010 (6) SA 182 (CC).
[270] J van Wyk 'Planning in All Its (Dis)Guises: Spheres of Government, Functional Areas and Authority' (2012) 15 *Potchefstroom Electronic Law Journal* 5.
[271] In *City of Johannesburg Metropolitan Municipality,* it was held that areas such as housing and agriculture requires co-operation due to the far reaching ramifications. The court has recognised local government's role in protecting the environment, establishing that municipalities have a constitutional obligation to promote 'ecologically sustainable development.' Also see *Le Sueur and Another v Ethekwini Municipality and Others* ZAKZPHC 6 (2013) para 12.
[272] The Intergovernmental Relations Framework Act No. 13 of 2005 establishes a framework for the national government, provincial governments and local governments to promote and facilitate intergovernmental relations.

making across all spheres of government.[273] In order to minimise conflict and limit any ultra vires[274] between decision-makers, cross-sphere decision-making between these two closely related areas there needs to be appropriate and efficient inter-governmental relations and structures.[275] Therefore, vertical and horizontal co-operation between spheres and departments is critical to such an assessment of the legitimacy of such cross-sphere decision-making.[276] For this to be fulfilled there is a requirement for there to be institutional structures in place to ensure co-operation between state role-players.

The assessment will investigate whether such co-operative structures are present and operational within the assessed environmental and spatial tools.

5.3.5 *Multi-stakeholder collaboration and participation*

Participation is the driver behind democratic decision-making and a central facet to inclusive local growth. For successful management to work there needs to be an understanding of impact and opportunity.[277] Spatial planning and environmental impacts have a far-reaching impact on people's lives. How the local community and other interested parties are involved in the environmental and developmental management of a landscape is crucial to successful collective understanding and the creation of a social licence to operate.[278] Moreover, understanding the way in which stakeholders relate to the environment and the appreciation of internal spatial relationships[279] supports inclusive and sustainable impact management.[280]

An important aspect of meaningful participation is the ability to access the information that presents details of the project and the receiving environment.[281] The area of transparency is far more complex than just being able to access information; rather, it involves the manner in

[273] *Fuel Retailers Association of SA (Pty) Ltd v Director General, Environmental Management Mpumalanga and Others* 2007 (2) SA 163 (SCA).
[274] Jafta J recognises that 'the functional areas allocated to the various spheres of government are not contained in 'hermetically sealed compartments' but they remain distinct from one another'. See *City of Johannesburg Metropolitan* Municipality para 55.
[275] Environmental considerations are factored into decision-making as the 'environment' is a schedule 4 concurrent competency of both national and provincial functional areas. See S76(3) of the Constitution.
[276] *Wary Holdings* (note 185 above) para 127.
[277] 2(a)(iv) & S2(4)(f) of NEMA.
[278] K Moffat et al 'The Social Licence to Operate: A Critical Review' (2016) 89 *Journal of Forest Research* 481.
[279] 'Internal spatial relationships' refers to the relationships that exist between stakeholders which reside in the same region, this proximity means that such stakeholders share important natural resources and have an individual and cumulative impact of such resources. See 4.5.4 above.
[280] 2(a)(iv) & S2(4)(g) of NEMA.
[281] S2(4)(k) of NEMA. Also see S32 of the Constitution.

which decisions are taken and the resultant accountability of the state and developers.[282] The elements of access to information and transparency are so critical to the fulfilment of a meaningful participation process that they are afforded their own element.[283]

5.3.6 *Capacitation and continual learning*

Appropriate educational initiatives must be pursued in order to include communities in the development of the local economy, giving support to local economic development and environmental sustainability. Meaningful engagement relies directly on these initiatives to support and empower communities to engage with complex information on an equal footing to other stakeholders.[284] Environmental law, science and developmental planning are technical fields and without capacitation and skills development people may not be able to truly and meaningfully participate. Having a clear and concise plan on how natural resources will be shared and how the community can be involved must be a requirement of any collective management legal instrument or environmental tool, such as IDPs and bioregional plans.

This will be assessed through examining the number and extent of the initiatives in place to ensue skills transfer and capacitation.

5.3.7 *Compatibility examination and analysis*

Accurate compatibility examination and analysis constitutes the central pillar of understanding the receiving environment. It enables responsive, informed and appropriate decision-making based on the characteristics and thresholds of the ecosystems and species within the landscape. Environmentally sustainable land-use planning relies on the accuracy of data and the incorporation of ecosystem understanding and thresholds analysis to propose ecologically-compatible production practices.[285] Without detailed spatial information, the trade-offs that realise sustainable development cannot be negotiated.[286]

The assessment of the compatibility examination and analysis identifier examines the nature and consistency of the sensitivity analysis methodology adopted in the tools.

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[282] S195 of the Constitution.
[283] To be discussed below at 5.3.8.
[284] S2(4)(h) of NEMA.
[285] See more on the importance of accurate environmental data in M E Haklay 'Public Access to Environmental Information: Past, Present and Future' (2003) 27 *Computers, Environment and Urban Systems* 163, 180.
[286] M Kosmus, I Renner & S Ullrich *Integrating Ecosystem Services into Development Planning* (2012) 66.

5.3.8 *Transparent participatory monitoring and access to information*

To facilitate a shared understanding of impacts and opportunities of development and conservation, information needs to be easily accessible and presented in an understandable manner.[287] The collection and analysis of accurate data is core to understanding the status quo of the receiving environment and developing a collectively agreed upon desired state. 'The operationalisation of good governance principles such as transparency and public participation depends largely on the degree of access that citizens have to government information.'[288] The public nature of the evaluated information and how data is monitored will be assessed as part of this study.

5.4 ***Concluding remarks***

This chapter has unpacked the adapted elements of the landscape approach, which ground the theory of Environmental Spatial Planning (ESP). ESP embodies a spatially aware, responsive, participatory and integrated ecosystem-centred approach to development in sensitive areas. The thematic identifiers that make up ESP will be assessed against the legal framework and plans within the spatial planning and environmental systems in the following chapters.

The next chapter introduces the connections between theory and law, presenting the legal systems that manage these two areas which make up the concept of ESP. The aim is to expressly link the legal regime to the concepts discussed above, showing both how these concepts are integrated into the legal regime and, importantly to layout the policy and legislative framework that will be referenced throughout the thesis. The purpose of the next chapter will be to ultimately understand how these themes manifest in the relevant pieces of legislation, as well as the specific environmental and spatial planning tools.

[287] S 2(4)(k) of NEMA states that 'Decisions must be taken in an open and transparent manner, and access to information must be provided in accordance with the law.

[288] D L Marais, M Quayle & J K Burns 'The Role of Access to Information in Enabling Transparency and Public Participation in Governance: A Case Study of Access to Policy Consultation Records in South Africa' (2017) 9 *African Journal of Public Affairs* 36.

CHAPTER SIX: LEGAL FRAMEWORK FOR ENVIRONMENTAL MANAGEMENT AND SPATIAL PLANNING

6.1 *Introduction*

This chapter links the thematic elements of Environmental Spatial Planning (ESP) to the South African legislative framework. This involves an examination of both the environmental management and spatial planning legal frameworks, focusing on the application and operational functionality of the mechanisms that capture the intersecting areas of concern. The chapter will not be a rehearsal of the entire legal framework but rather focuses on the relevant legal instruments and tools that give effect to ESP or embody the integration between spatial planning and environmental management.

A primary aim of the chapter is thus to investigate whether the South African environmental and planning legal framework operationalises ESP. This will be achieved by using the thematic elements listed in the previous section as the lens of analysis, assessing the extent to which the legislative mechanisms and tools recognise and embody ESP. In other words, how do these themes manifest in the relevant legislative framework and how do they realise the objectives of sustainable development. The focus of this assessment will be on NEMA, NEM: BA and NEM: PAA as these are the primary pieces of legislation that provide for the environmental spatial instruments under review.[289]

The assessment will be presented in the form of a narrative, applying the elements and assessing their integration into the legal framework.[290] Integration will be determined by the representivity of the elements in the text of the relevant legislation, regulation or guidelines that empower and guide the operation of the tools. The manner in which the assessment will take place will involve a one to five rating scale, ranging from non-existent to excellent in relation to the adoption and representation of the individual elements of ESP. The practical linkage and justification of the one to five rating scale and is explained in more detail by Table 2 below:

[289] For the narrow scope of this study the National Water Act (NWA) and the National Heritage Resources Act (NHRA) will be covered briefly as they are important to the characteristics of the site and case study but not central to the case study findings.

[290] The thematic identifiers include: ecosystem-driven integration and multi-functionality; compatibility examination and analysis; scale and spatial awareness; multi-stakeholder's collaboration and participation; sectoral integration; cooperative governance; transparent and participatory monitoring and access to information; and finally, capacitation and learning.

5 – Excellent:
The ESP element is both found expressly in the empowering regulation and is very similar to what is required in terms of the tool. Detail is also given regarding its implementation.

4 – Good:
The ESP element is referred to briefly and yet is not a central element of the tool in the empowering regulation and is similar to what is required in terms of the tool.

3 – Average:
The ESP element is not directly referred to but can be seen as implied or inferred from context. The tool can be seen as attempting to align to the values of the ESP element.

2 – Poor:
The ESP element is not referred to, yet the tool or instrument under assessment does have other principles that can be seen as laying a platform for a move towards the ESP element.

1 – Non-existent:
The ESP element is not referred to and there is no indication of any attempt to align the element to the tool.

Table 1: Environmental spatial planning rating scale

The chapter will conclude by drawing inferences from the assessment and introducing the case study that will specifically look into the practical application of environmental spatial planning tools.

6.2 ***Legislation and tools***

During the early 1990s environmental law in South Africa was not as comprehensive as it is today. Although there was a growing conservation movement, as well as existing environmental management and planning laws, the legal framework responded to ecological issues in a haphazard fashion. The promulgation of the Environment Conservation Act No. 73 of 1989 (ECA) was a landmark achievement, yet it made no direct reference to sustainable development or the balancing of the central elements that make-up the principle. The concept of conservation was very narrowly understood, 'often being conditional upon matching the political objectives with that of the Apartheid state'.[291]

[291] Sustainable use focused more on the enjoyment of wildlife related activities of the white minority and less about the development of the black majority. See Republic of South Africa President's Council (1984) *Report of the Planning Committee of the President's Council on Nature Conservation in South Africa* PC2/1984.

The first ten years of democracy (1994 – 2004) saw a systematic regeneration of all fundamental legal principles, policies and legislation. Three spheres of government were established, each sphere mandated to tackle the impacts of the oppressive history of the country and build an inclusive and sustainable society.[292] The new dispensation inherited the structural inefficiencies of the Apartheid State[293] which had, '17 state departments who had a responsibility for nature conservation, many of which had fragmented and even divergent regulation'.[294] This made integrated environmental decision-making an almost impossible task.

The increased status of environmental management came about predominantly from the insertion of an explicit right to environment in Section 24 of the Constitution, but also through the international paradigm shifts.[295] The mandate of the newly formed environmental management sector was to appreciate, defend and responsibly manage South Africa's natural resources, while additionally focusing on ecosystem stability, social justice and socio-economic development. An important move during this period was the transition to trusteeship[296] and seeing natural resources as natural heritage,[297] belonging to all, and managed by the state on behalf of the people of South Africa.[298]

The elevation of the environmental right in the Constitution was specific and intentional, giving credence to ecologically-centred sustainable development, framing the right as absolute and not progressive in nature, as with that of other constitutional rights.[299] The democratic transition was thus the catalyst that drove the county's environmental management framework overhaul,[300] infusing human rights, such as, equity and sustainability

[292] Nine provinces were formed, each headed by a provincial government. Within provinces, a new system of district, local and metropolitan municipalities were created, all responsible for environmental protection and sustainability.
[293] Spatial Planning and Land Use Management White Paper GN R 1658 in GG 22473 of 20 July 2001.
[294] R Wynberg, 'A Decade of Biodiversity Conservation and Use in South Africa: Tracking Progress from the Rio Earth Summit to the Johannesburg World Summit on Sustainable Development' (2002) 98 *South African Journal of Science* 233, 234.
[295] Conservation is core to the s24 right as enshrined in the constitution, the direct reference refers to 'ecologically sustainable development', where resources are used for 'present and future generations'.
[296] B J Huntley & K H Redford *Mainstreaming Biodiversity in Practice: A STAP Advisory Document* Global Environment Facility (2014) 60.
[297] S2(4)(o) of NEMA. See E van der Schyff 'Unpacking the Public Trust Doctrine: A Journey into Foreign Territory' (2010) 13 *Potchefstroom Electronic Law Journal* 122.
[298] The S3 of the MPRDA, S2(4)(o) of NEMA, S3 of NWA and S3 of NEMPAA re-enforce the trustee principle.
[299] The right to housing is an example of a right that must be progressively realised within available resources.
[300] During this period of fundamental legislative and policy overhaul, there were seven areas which received dedicated focus in relation environmental management, these included: 'biodiversity, forestry, water, fisheries,

into all environmentally-specific institutions and policies.[301] The political shift presented an opportunity to make many of these new principles the basis for new framework legislation.

The 1990s also saw the emergence of an important extension of the sustainable development principle, through a more purposeful life-cycle approach encapsulated in Integrated Environmental Management (IEM). IEM works on the understanding that the environment does not operate in isolation, but rather is a series of intricate and interconnected systems that rely on each other to survive and flourish; the concept makes provision for a more holistic understanding of the environment.[302] The South African legal landscape has adopted the principle of IEM, which permeates all environmental decision-making processes.[303] Conservation, sustainability and equity are core elements of IEM, encouraging the synthesis of these elements into practical developmental decision-making. IEM proactively enables and supports the implementation of strategies for the integrated management of all ecological elements,[304] promoting equitable and sustainable use and strategic management of natural resources. IEM recognises that 'human needs for production, livelihood and environmental goals are deeply inter-connected'.[305]

South Africa has made significant advancements in safeguarding and sustainably managing natural resources since 1994[306] and, along with the legislative instruments referred to above, has developed a comprehensive set of tools to promote species and ecosystem stability at the landscape level, yet many challenges remain.[307] Some of these challenges include an absence of community and state capacity, as well as problems faced in terms of land claims in conservation areas and the uncertainty of tenure.[308] Moreover, although the rapid expansion

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coastal development, and integrated pollution control'. See R Wynberg and K Swiderska *South Africa's experience in developing a policy on biodiversity and access to genetic resources* (2001) 10.

[301] A good example of this is how environmental issues were initially integrated into the Reconstruction and Development Programme (RDP). The RDP made important linkages between development, nation-building and sustainability, expressing particular connections between adequate services such as water, energy and land and the need for a stable ecological state. Section 2.10 of the Reconstruction and Development Programme 1994.

[302] D S Slocombe 'Implementing Ecosystem-Based Management' (1993) 43 *Journal of Biosciences* 612.

[303] S2(4)(b) of NEMA.

[304] Natural elements include: land, water, atmospheric, plant and animal resources.

[305] S M Born and C Sonzogni 'Integrated Environmental Management: Strengthening the Conceptualization' (1995) 19 *Environmental Management* 168. Also see R Margerum 'Integrated Environmental Management: The Foundations for Successful Practice' (1995) 24 *Environmental Management* 152.

[306] Expanding and consolidating the country's protected areas was a core goal of the new government, opening new marine and terrestrial protected areas at a rapid rate, the most in history. See DEAT (2009) Fifteen Years: A review of the Department of Environmental Affairs and Tourism.

[307] M Cadman et al *Biodiversity for Development: South Africa's Landscape Approach to Conserving Biodiversity and Promoting Ecosystem Resilience* (2010) South African National Biodiversity Institute 3.

[308] For further reading see Department of Rural Development and Land Reform (2011-2012) Policy for the Integration of Environmental Planning into Land Reform and Rural Development Projects.

of protected areas was commendable,[309] this has unfortunately been less calculated and cognisant of natural connectivity, 'proclaiming protected areas in a non-strategic manner and focusing on mostly low value uncontested targets'.[310]

The South African environmental legal framework is constantly evolving in an effort to correct the 'legal fragmentation and inadequate integration of environmental considerations into sectoral and land-use plans'.[311] This can be seen in the lack of integration of conservation into a national land-use strategy or sectoral plans and programmes when the new democratic government began to plot the environmental approach for the country after 1994.[312] As a result, the influence of environmental priorities at the developmental planning stage has remained consistently unintegrated and narrow within existing plans.[313]

The last ten years in South Africa has seen a movement towards a sustainability discourse which utilises spatial planning to achieve its environmental goals.[314] Sustainable development is strongly linked to spatial planning, as its success is dependent on a concrete connection with development based on successful planning. [315] Within the value-driven balanced decision-making of sustainable development, planning considerations are important as they are directly influenced by the spatially representative characteristics of the environment and recognition of inherent compatibility sensitivities.[316] On a physical planning level there has also been a notable movement towards a more integrated appreciation of sensitive areas within a bioregional context.[317] Spatially representative sensitivity mapping is being used with increasingly regularity within spatial planning frameworks, particularly in categorising

[309] '16 million hectares are under private conservation management in South Africa, an almost threefold increase over the amount of state land designated for protection.' See https://www.nrf.ac.za/sites/default/files/documents/THRIP%20Annual%20Report%202012_13.pdf

[310] Notable exceptions include the systematic conservation planning undertaken for the Succulent Karoo and Cape ecoregions, such as that done in the CAPE project. See Cape Action Plan for the Environment (2000) *A Biodiversity Strategy and Action Plan for the Cape Floral Kingdom* World Wide Fund for Nature South Africa.

[311] LJ Kotzé 'Improving Unsustainable Environmental Governance in South Africa: The Case for Holistic Governance' (2006) 9 *Potchefstroom Electronic Law Journal* 75.

[312] General Environmental Policy GN R51 in GG 15428 of 21 January 1994.

[313] K Swiderska *Mainstreaming Biodiversity in Development Policy and Planning: A Review of Country Experience (*2002) International Institute for Environment and Development 25.

[314] Examples include the way in which EMFs, bioregional plans and buffer zones utilise mapping and spatial awareness to achieve core aims.

[315] SPLUMA attempts to harmonise land-use planning while embodying constitutional principles of, inter alia, equality, dignity and environmental protection. See S 12(1)(i) of the Spatial Land Use Management Act No. 16 of 2013 (SPLUMA).

[316] See 6.4.2.1 for a discussion on SDFs.

[317] Cape Action Plan (note 310 above).

land-uses and identifying sensitivities. [318] This is a testament to the movement from specific areas to regional strategic planning and the convergence between environmental management and spatial planning.[319]

Environmental considerations, although mandated by NEMA, have needed to practically find their way into local and district planning policies that are required to be considered or 'mainstreamed' into developmental decision-making.[320] Sensitive areas now serve as the core of 'a matrix of other land-use types that support conservation and ecosystem resilience, whilst supporting socio-economic development'.[321] An earlier broader understanding of resource conservation seems to have migrated to a more balanced understanding that promotes sustainable natural resource use and development in an integrated, inclusive, equitable and holistic manner under the umbrella of environmental management.[322]

It is hoped that in time the 'green-shoots' of a more integrated legal framework between spatial planning and environmental management can become an even more discernible infusion, yet requires direction and intentional facilitation to grow into a clearly recognisable sector.[323]

6.3 ***Environmental Management Planning Instruments and Tools***

In order to regulate South Africa's highly dynamic sensitive areas the legislative framework entrenches a multi-faceted, progressive and transformative legal structure founded on internationally accepted principles as well as regionally-specific environmental imperatives. This framework embodies principles of integrated development planning and sustainable development, adopting the usage of environmentally-focused spatial planning tools to inform developmental decision-making. These tools have proven to assist in creating holistic and inclusive developmental growth, by identifying areas of sensitivity and attributing appropriate compatible land-uses within a context of robust engagement.

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[318] The Space Economy: An important consideration in spatial development planning, The South African Cities Network (19 April 2013) 10,11.
[319] A Driver et al National Biodiversity Assessment 2011: An assessment of South Africa's biodiversity and ecosystems SANBI (2012) 152.
[320] P Hazlewood, G Kulshrestha & C McNeill 'Linking Biodiversity Conservation and Poverty Reduction to Achieve the Millennium Development Goals' in D Roes (eds) *The Millennium Development Goals and Conservation* UNDP (2005) 158.
[321] Cadman (note 162 above) 15.
[322] J C Gifford *Living by the Land* (1945) 8.
[323] There are numerous examples of this integration which will be explained in below, yet a good example is the manner in which EMFs map sensitivity and use spatial illustrations to represent levels of sensitivity.

6.3.1 *National Environmental Management Act*

International and domestic environmental laws are grounded in principles. Within the South African context, these principles are framed in S 2 of NEMA and form the foundation of the legislative framework and legal theory.[324] These principles must be considered in all forms of decision-making that have an impact on the environment, from the creation and understanding of legal rules to the processing of environmental authorisations (EAs).[325] Sustainable development is a central founding principle of NEMA, the definition of which recognises planning as a core facet to the successful realisation of the principle.[326] Moreover, NEMA takes a holistic approach to environmental management, aiming to ensure the creation of socio-ecological systems where the ecosystems and society function in an integrated and planned manner. This is not dissimilar to the objective of the landscape approach, and by association ESP.

Environmental justice is one of the central Section 2 NEMA principles that permeate the environmental legal framework.[327] The right to equality, which is realised through the 'distributive paradigm',[328] is an essential element of environmental justice, representing not only the distribution of negative impacts, but the equitable allocation of benefits amongst all sectors of society, with particular focus on marginalised communities. Spatial and environmental justice are intricately intertwined, as marginalised communities are often located in areas far removed from services and exposed to highly impactful developments, like mining.[329]

[324] Principles are the nationally codified general norms which are inextricably bonded to the creation of law and regulation. See S2 of NEMA.
[325] S2(c) and (e) of NEMA.
[326] S24(3) of NEMA: 'Sustainable development means the integration of social, economic and environmental factors into planning, implementation and decision-making so as to ensure that development serves present and future generations.'
[327] NEMA S2(a)(iv): S2(4)(c).
[328] See U.S. General Accounting Office (GAO) *Siting of Hazardous Waste Landfills and their Correlation with Racial and Economic Status of Surrounding Communities* (14 June 1983). This was an important study that lead to positive movement of the environmental justice discourse that examined the relationship between redistributive effects of environmental risks and minority groups in the USA.
[329] For additional reading see W B Grey 'Environmental Justice: Do Poor and Minority Populations Face More Hazards?' (2012).

6.3.1.1 *Environmental Impact Assessment: The first step in realising environmental spatial planning*

The EIA considers, investigates, assesses and reports on potential environmental impacts of listed activities to the competent authority as a condition before receiving an EA.[330] EIAs are required by NEMA and regulated by the Environmental Impact Assessment Regulations of 2014 (EIA Regulations).[331] The EIA Regulations create thresholds of impact which require either a basic assessment or more comprehensive full scoping and EIA in order to receive the EA for the specific listed activity.[332] The EIA is the principal developmental planning mechanism in the consideration of the sustainable utilisation of natural resources, understanding environmental impacts and the value of environmental goods and services. The connection between EIAs and spatial planning is undeniable because at its very core spatial planning triggers the need for EIAs. This is explained by the nature of EIAs being the precursor for any developmental application and central in understanding the spatial character, positioning and regional placement of any particular development which exceeds regulated thresholds. Before any environmental studies have been completed the existing spatial planning status quo is investigated to establish if any restrictions can be immediately detected.

EIAs are supported by a variety of principles in the risk assessment process, including IEM, sustainable development, the precautionary principle, risk adverse approach and cumulative impact.[333] The system recognises the conflict between conservation and development, utilising practical principles, such as IEM and the mitigation hierarchy as core elements of pre-emptive long-term planning. EIAs and the associated regulations give effect to the objectives of ecosystem-centred integrated environmental management, exemplifying the inclusion of most of the elements considered in ESP. An example being how the assessment criteria incorporates the S 2 principles of NEMA, including integration, co-operative

[330] S24(1) of NEMA.
[331] NEMA: EIA Regulations of 2014 (GNR 326) and the three Listing Notices (GNR 324, 325 & 327).
[332] Within the South African context, the environmental mandate rests with the DEA; within the mining context the DMR is the competent authority for the consideration and approval of licenses.
[333] Appendix 1 of the EIA Regulations.

governance,[334] public participation, regional cumulative impact and, centrally, compatibility and sensitivity analysis.[335]

Sensitivity is specific to every receiving environment, being based on a particular time and regional spatial character.[336] Therefore, when assessing scale and spatial awareness the EIA process seeks to ensure ecologically-integrated and holistic site-specific impact assessments that take regional cumulative impact into consideration.[337] Scale is seen as a central metric, as the application for an EA must comprise of a description of the location of the proposed activity in the form of cadastral mapping, the appropriate scale for the activity, and the co-ordinates of the boundary properties.[338] Mapping is also required as part of the specialist reports, often 'superimposing the activity, associated structures and infrastructure on the environmental sensitivities of the site'.[339] Such a superimposition would additionally include outlining areas to be avoided and considered, including buffer zones.[340]

In terms of decision making by competent authorities, although NEMA and its Regulations are the primary statutory instruments that are consulted as part of the EIA process, SPLUMA contains certain provisions that allow for the integration of collecting environmental impact related information for the purposes of informed integrated decision making.[341] The alignment of information gathering and regulatory processes is central when dealing with sensitive areas that have been exempt from development and given a legally supported protection status. SPLUMA requires that all municipalities overlay identified sensitive priority areas into their relevant SDFs. Yet SDFs do not lead to automatic exclusions from the requirement to obtain an EA, but can be used for purposes of excluding some of the activities identified in terms of NEMA from the requirement to obtain an EA.[342]

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[334] The initiation of the 'One Environmental System' attempts to align all the required authorisations and time frames, from water, mineral, air and environmental, across the legal spectrum for ease of developmental certainty.

[335] A G Del Campo 'Mapping Environmental Sensitivity: A Systematic Online Approach to Support Environmental Assessment and Planning' (2017) 66 *Environmental Impact Assessment Review* 86, 98.

[336] N Brooks, W N Adger P M Kelly 'The Determinants of Vulnerability and Adaptive Capacity at the National Level and the Implications for Adaptation' (2005) 15 *Global Environmental Change* 151, 163.

[337] T Murombo 'Beyond Public Participation: The Disjuncture between South Africa's Environmental Impact Assessment Law and Sustainable Development' (2008) 11 *Potchefstroom Electronic Law Journal* 106, 169.

[338] Regulation 16 (vii) of 2014 EIA Regulations.

[339] Appendix 6(1)(1)(h) of 2014 EIA Regulations.

[340] Appendix 4(3)(1)(h) of 2014 EIA Regulations.

[341] S 21(j) of SPLUMA states that 'municipal Spatial Development Frameworks must include a strategic assessment of the environmental pressures and opportunities within the municipal area, including the spatial location of environmental sensitivities, high potential agricultural land and coastal access strips where relevant'.

[342] National Environmental Management Act No. 107 of 1998: Draft Minimum Standards for the Consideration of Environmental Aspects in the Preparation and Review of Municipal Spatial Development Frameworks GN R 647 in 42451.

Sectoral integration and alignment is of central importance to the EIA process. For example, the initial scoping phase of the EIA process requires 'a description of the policy and legislative context associated to the activity, including an identification of all legislation, policies, plans, guidelines, spatial tools, municipal planning frameworks and instruments'.[343] The EIA framework further provides for an additional assessment process, namely the Strategic Environmental Assessment (SEA), which is a more in-depth assessment of the sustainability of policies, plans and programmes over a specified region.[344]

Both vertical and horizontal co-operation is mandated as part of the EIA process. Horizontal co-operation is central to achieving alignment as the EIA process makes provision for structured inter-governmental relations during decision-making. Making decisions on high impact activities involves balancing competing imperatives from a number of departments. Therefore, the 'competent authority or Environmental Assessment Practitioner (EAP) must consult with every organ of state that administers a law relating to a matter affecting the environment and must manage all licence processes in a cooperative manner'.[345]

Multi-stakeholder collaboration and participation is a cornerstone of the EIA.[346] The scoping and full EIA processes have formal public participation requirements that must be conducted in order for a valid application to be completed.[347] The participation process involves the development of an Interested and Affected Party (I&AP) register, rigorous notice periods, advertisements and the opportunity to submit comments.[348]

Furthermore, the submission and amendment processes include a wide array of creative and practical public participation requirements which contain provisions relating to literacy, disability, and other disadvantages in an attempt to be as inclusive as possible.[349] EIA development is highly complex, requiring significant scientific knowledge in order to participate meaningfully. The EAP is responsible for ensuring that I&APs understand the impacts and associated mitigation measures, however the EIA regulations do not have fitting

[343] Appendix 2 (2)(e) & 16 (3)(c) 2014 EIA Regulations.
[344] D B Magraw & L D Hawke 'Sustainable Development' in D Bodansky et al (eds) *The Oxford Handbook of International Environmental Law* 635.
[345] Reg 7(2) & (3) of the 2014 EIA Regulations.
[346] Participatory structures are clear and guideline documents give specifics as to how this should be completed.
[347] Reg 40 & 41 of the 2014 EIA Regulations. Potential I&APs have a period of least 30 days to submit comments on each of the basic assessment report, EMPr, scoping report and EIA report, and closure plan.
[348] Reg 41(2)(a), 42(a) & (b) of the 2014 EIA Regulations.
[349] Reg 37(3) of the 2014 EIA Regulations.

initiatives in place to ensure real participation through appropriate capacitation and continual learning.[350]

The EIA process not only assesses impact, but facilitates the further consideration of viable less harmful alternatives, ensuring that the planned activity aligns with the intended regional growth model.[351] The EIA is the principle tool in understanding the sensitivities and characteristics of the receiving environment, matching the desired activity to the specific impact on the area.

EIA regulations have specific provisions for access to information that allow I&APs to engage with all information that has the potential to influence any decision.[352] EIA monitoring is achieved through auditing as the EA must contain 'requirements for the avoidance, management, mitigation, monitoring and reporting of impacts throughout the life of the activity'.[353] The EA and its conditions must be audited and qualified by an experienced independent specialist,[354] and where it falls short, additional specialists must provide recommendations to the DEA.[355] There must also be a separate public participation process for the dissemination of the audit report results to ensure transparency and compliance.[356]

From the above, the EIA appears to be closely aligned to many of the ESP elements. This seems to be particularly true from an 'ecosystem-driven integration and multi-functionality' and 'compatibility examination and analysis' point of view. This is unsurprising as the core aim of the EIA is to assess the potential site-specific and regional individual and cumulative impact of any particular activity. In terms of 'multi-stakeholder collaboration and participation', engagements need to be more collaborative but what exists is fairly detailed. The DEA has recognised the need for robust engagement throughout the EIA process. Moreover, 'scale and spatial awareness' is present but does not reach its full potential due to the project-specific nature of the EIA, even though cumulative impact is considered this would be more of a focus when a region SEA is performed. Where the tool falls short is the 'capacitation and continual learning' thematic element, as more needs to be done to assist

[350] This depends on a variety of factors including the size of consultation meeting, language and level of education.
[351] Murombo (note 337 above).
[352] Reg 10, 13 & 41(2) of the 2014 EIA Regulations.
[353] Reg 26(d)(iv) of the 2014 EIA Regulations.
[354] Reg 34 of the 2014 EIA Regulations.
[355] Reg 26(e) & (f). Appendix 7 lays out the auditing process and what it entails.
[356] Reg 24(5) & (6) of the 2014 EIA Regulations.

skills deficits, particularly when assessments take place in areas in more rural areas. This is ultimately the obstacle provides excludes many of the rural populace from the outset of the process due to the technical and scientific nature of the content.

6.3.1.2 *Environmental Management Frameworks: The embodiment of operationalised environmental spatial planning*

Environmental Management Frameworks (EMFs) are strategic environmental management instruments mandated by NEMA to map sensitivity, 'specifying the extent, interrelationship and significance of specific environmental attributes while providing land-use compatibility guidelines and zonation'.[357] Once an EMF is initiated and gazetted by either the Minister or MEC, authorities must take the content of the EMF into account in all administrative developmental decisions of the relevant region. From a strategic point of view, the EMF provides valuable information to be factored into decision-making, supporting information-based strategic planning decisions in order to prevent and mitigate harm.[358] EMFs were bolstered by the promulgation of EMF-specific regulations in 2010.[359]

EMFs are a spatial decision-making support tool that assists in forward planning,[360] environmental governance, land-use management and constructing management processes within a specific area while being complementary to other relevant planning frameworks. The conflict between conservation and development, in particular mining, nature conservation and eco-tourism is expressly identified as a core function of the EMF. In fact, the inherent conflict of imperatives in a particular area often acts as the catalyst for such a plan. EMFs strongly reflect ESP, with particular reference to spatial awareness, land-use compatibility analysis and stakeholder involvement.

The purpose of the EMF is to 'provide a framework which informs the IDP and SDF processes within a region, as well as to provide a framework for broader environmental

[357] These attributes include biodiversity, hydrology, geology and cultural resources in specific geographical areas. See M Marais 'Environmental Management Frameworks: Results and Inferences of Report Quality Performance in South Africa' (2015) 97 *South African Geographical Journal* 83, 84.
[358] The preventative approach falls within the precautionary principle (Principle 15 of the Rio Declaration), this approach is also adopted by the Bamako Convention and the London Dumping Convention. Also see S2(viii) NEMA.
[359] S5.15 Environmental Management Framework Regulations GN R 547 in GG 33306 of 18 June 2010.
[360] S7(b)(iii) of SPLUMA.

decision making'.[361] The EMF is designed to be integrated with other tools and legal frameworks, making parallel processes more effective and efficient, for instance, reducing the number of EIAs needed for areas which have already been mapped by an EMF study. IDPs and SDFs also benefit as this integration provides comprehensive baseline sensitivity data and economic potential analysis that can form the basis for further detailed study.

EMFs take regional planning and environmental considerations into account to establish appropriate spatial knowledge and controls.[362] The EMF's focus on the regional context provides the EMF with an advantage over the project area-specific EIA.[363] There is a set list of elements required, such as wetlands, ESAs, CBAs and heritage characteristics, but additional elements can be added if there is a characteristic that is prominent in the study area.[364]

EMFs promote co-operative environmental governance through inclusive outcome-based processes.[365] Comments from communities and business are required to be incorporated into the developmental model of the area, but importantly, this process also requires inter-governmental consultation with all levels of government and relevant sector departments.[366] Stakeholders are required to have regular and robust engagements concerning the sensitivities and the future development of an area. Therefore, as an integrated co-operative structure, the EMF requires broad-based buy-in in order for the goals of inclusive development to be realised.

The public participation process closely mirrors that of the EIA, namely, widespread advertisements as well as commenting and notice periods.[367] Public participation is crucial to the effectiveness of outcomes and should reflect stakeholder interests and concerns,[368] ensuring that potential I&APs are provided with a reasonable opportunity and sufficient understanding to provide comment during the process of developing the EMF.[369] While the

[361] The EMF Implementation Guideline stresses the role of municipalities and contain a particular reference to the alignment of SDFs and IDPs. See DEA Environmental Management Framework Implementation Guidelines GN R 806 in GG 35769 of 10 October 2012.
[362] Department of Rural Development and Land Reform, Guidelines for the Formulation of Spatial Development Frameworks (August 2011). Available at http://www.ruraldevelopment.gov.za/services/299-spatial-planning-and-land-use-management/538-sdf-guidelines#.XBzWsVwzbIU.
[363] Marais (note 357 above).
[364] Scales that maps will be presented are required to be at 1: 50 000.
[365] S2(3) of Environmental Management Framework Regulations GN R 547 in GG 33306 of 18 June 2010.
[366] S3(4) of EMF Regulations.
[367] S3(2) of EMF Regulations.
[368] Marais (note 357 above) 91.
[369] Reg 3(4) of EMF Regulations.

EMF is a highly participatory process, there are no initiatives that promote stakeholder capacitation. The process does however require free and transparent access to information.[370]

EIAs are becoming increasingly prevalent in South Africa due to the low thresholds of the EIA screening system.[371] The EMF provides the required information to stop the project at the feasibility phase or suggest alternatives where impacts cannot be mitigated. EMFs support the 'shifting role of assessment as it moves upstream, targeting the early stages in the design of development proposals, and crucially the processes and contextual factors that shape these proposals'.[372] The EMF pre-emptively identifies Environmental Management Zones (EMZs) and the activities best suited for an area, which should ultimately lead to fewer EIAs by acting as an early identification tool.

For an EMF to be applicable its needs to be current, therefore the timeous review of the plan is required. Due to the integrated nature of EMFs with other plans and frameworks, it provides an opportunity for the models to be revised in unison. This ensures spatial connectivity between the various plans, encouraging sustainable and holistic decision-making. However, the EMF does fall short in terms of making clear provisions for monitoring and evaluation. The only reference made to this element is that the EMF can be revised at the authorities' request, but specific mandated timeframes for revision are not provided.[373]

Ecosystem integration and multi-functionality is key to the establishment and operation of the EMF, especially from the perspective of understanding and recognising the conflict that exists between incompatible activities. From a sectoral integration perspective, EMFs are required to recognise other plans, but due to their lack of formal binding status, this recognition is not fully appreciated by decision-makers and authors of overlapping plans and tools. Scale and spatial awareness as well as compatibility examination and analysis are core to its operation and as such are considered to be an embodiment of these principles. The EMF falls short of achieving a full ESP acknowledgement as capacitation and continual learning are a weakness of the tool.

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[370] An example being the access to drafts and final reports, as well as the sharing of initial background information that form the baseline for the EMF.

[371] F Retief, C Welman & L Sandham 'Performance of Environmental Impact Assessment (EIA) Screening in South Africa: A Comparative Analysis between the 1997 and 2006 EIA Regimes' (2011) 2 *South African Geographical Journal* 154, 158.

[372] O Bina 'A critical review of the dominant lines of argumentation on the need for strategic environmental assessment' (2007) 27 *Environmental Impact Assessment Review* 585, 600.

[373] Reg 6 & 7 of EMF Regulations.

6.3.2 *National Environmental Management: Biodiversity Act*

The National Environmental Management: Biodiversity Act (NEM: BA) operates within the NEMA framework as a specific environmental management act, expressly providing for the management and conservation of biological diversity. NEM: BA is supported by nationally relevant policies and strategies that facilitate the forward planning for biodiversity management, principally including the National Biodiversity Framework (NBF)[374] and the National Biodiversity Strategy and Action Plan (NBSAP).[375]

The NBF establishes an 'integrated, co-ordinated and consistent approach to biodiversity management by all private and public stakeholders', focusing on priority actions that are reviewable over a five year cycle.[376] The NBF is an ecologically and spatially representative platform that maps all sensitive biodiversity and aligns medium-term priorities with local development planning, supporting and aligning environmental decision-making. The NBSAP, while aligned to the NBF, provides a spatial description of sensitive ecosystems, identifying broad priority areas and long-term strategic objectives for managing biodiversity.[377] The NBSAP includes a direct spatial component, the National Biodiversity Assessment (NBA), which will be discussed further below.

To practically realise these goals NEM: BA introduces a set of nationally applicable biodiversity-focused spatial planning tools; examples include bioregional plans and biodiversity management plans.[378] These tools can assist the practical alignment of biodiversity, cultural and water resource concerns in developmental planning and decision-making.[379] A common feature of the systemic biodiversity plans is the importance attributed to CBAs and ESAs, informing the multi-sectoral planning and decision-making processes in land-use planning, EAs and natural resource management.[380]

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[374] National Biodiversity Framework GN 813 in GG No. 32474 of 3 August 2009.
[375] S 43(1) of NEM: BA.
[376] Chapter 3 of NEMBA requires that a NBF be developed and updated every five years.
[377] The NBSAP forms a part of South Africa's commitments to the Convention on Biological Diversity (CBD) and aligns national objectives with international norms. The NBSAP sets out strategic fifteen year targets, as well as shorter-term 5-year targets, linking these targets with clearly identified roles of the appropriate role-players.
[378] NEM: BA establishes SANBI which is responsible for research, co-ordinating programmes and providing science-based planning advice to the state on the sustainable use of biological resources. See Chapter 2 of NEM: BA.
[379] A R Paterson 'Connectivity conservation law through the eyes of the greater Cederberg Biodiversity Corridor' in M Diegues Leuzinger et al (2013) *The Legal Aspects of Connectivity Conservation: Case Studies* 116.
[380] SANBI 'Biodiversity Mainstreaming Toolbox for land-use planning and development in Gauteng' (2014) 27.

6.3.2.1 *The National Biodiversity Assessment: The foundational baseline*

The National Biodiversity Assessment (NBA) 2019[381] follows from the NBA 2011 and NBSA 2004,[382] building and developing the detailed knowledge of the national spatial representation of the biodiversity and related concerns. The NBA assesses the state of biodiversity and ecosystems on a national scale with an emphasis on providing spatial or mapped information to identify priority areas in need of specific management. The NBA embodies a pre-emptive developmental methodology, approaching biodiversity assessment from a highly scientific ecological perspective, while balancing the imperatives of social and economic development. The NBA unequivocally states that, 'South Africa takes a landscape approach to the management of biodiversity, managing a mosaic of land and resource uses including protection, restoration, production and subsistence use, in order to deliver ecological, economic and social benefits'.[383]

The NBA supplements the country's environmentally-focused spatial plans, informing land-use planning, EIAs, catchment management strategies and protected area expansion planning. The NBA forms the basis of developmental and environmental planning tools, presenting baseline information through a detailed national assessment of the county's sensitive environmental resources. The NBA serves an additional purpose of supporting the review of national policies and strategies, including the NBSAP, NBF, NPAES, as well as of provincial and local spatial biodiversity plans. The NBA additionally strengthens land-use planning by integrating the objectives and biodiversity science of parallel sectors, such as provincial and municipal SDFs.[384] By its very nature, the NBA is meant to be accessible and useable, especially for decision-makers, policy-makers and practitioners in a variety of units.[385]

The nature of the NBA is therefore one fundamentally connected to spatial analysis, with a view to understanding trends over time with the help of the best available scientific data. The NBA furthermore identifies which ecosystems are the most threatened, mapping ecosystem threat status' through the identification of ecological infrastructure concentration on a

[381] The NBA 2019 is currently being finalised but as yet has not been published.
[382] The first national assessment was dubbed the National Spatial Biodiversity Assessment (NBSA), yet it falls within the same classification of the nation assessment to be conducted every five years by NEM: BA.
[383] A Driver et al *National Biodiversity Assessment 2011: An assessment of South Africa's biodiversity and ecosystems* SANBI (2012) 26.
[384] Ibid 1.
[385] 'The NBA also contributes to tracking progress in achieving the objectives of the Delivery Agreement for Outcome 10, which the Minister of Environmental Affairs has signed with the President; the NBA is central to fulfilling SANBI's mandate to monitor and report regularly on the state of biodiversity.' Ibid.

national scale. The NBA takes a pro-active approach to biodiversity protection by identifying what are the priority future pressures on biodiversity. 'A key feature is that it focuses on ecosystems, as well as species, and is well suited to inform a landscape approach to biodiversity conservation and ecosystem resilience.'[386] The NBA provides this overarching view of spatial biodiversity priority areas by presenting information within a geographically specific platform extracted from regional and national biodiversity plans.[387]

The NBA is as a powerful data repository that can be used to centralise environmental and developmental environmental decision-making, strengthening land-use and strategic planning through the identification of related ecosystem-based opportunities and priorities.[388] In other words, the NBA acts as a platform that presents a standardised layering of 'national spatial data and national biodiversity targets that can be used in other national, provincial and local planning projects'.[389]

The NBA is managed by the South African National Biodiversity Institute (SANBI) in collaboration with numerous partners, with the input of several experts and stakeholders over a three-year period. The critical role of human capital development is recognised, as the state must invest in skilled and experienced people in the biodiversity sector.[390]

Compatibility examination and analysis is at the heart of the NBA baseline, which uses 'ecosystem threat status' and 'ecosystem protection levels' as the primary assessment indicators. The indicators are then translated into spatially informed biodiversity priority areas and actions that can inform cross-sectoral planning and decision-making. The NBA is thus a central resource in pre-emptive planning by providing early indicators of sensitivity into a site-specific EIA process.

The scientific nature of the information often makes comprehension of environmental and spatial data a challenge for decision-makers. Therefore, the NBA has made the results of

[386] 'The NBA must be completed every five to seven years, and assesses the state of South Africa's biodiversity, across terrestrial, freshwater, estuarine and marine environments, emphasising spatially mapped information for ecosystems and species.' See South Africa's Fifth National Report to the Convention on Biological Diversity (March 2014) 65.
[387] The determination of the ecosystem statuses is based on how much of an ecosystem's original area remained intact, relative to those classified as 'critically endangered'.
[388] 'The NBA additionally provides opportunities for ecosystem-based job creation and supports the provision of ecosystem services.' See Driver (note 383 above).
[389] Ibid.
[390] An example being the Human Capital Development Strategy, coordinated by SANBI, which provides a mechanism for agencies to contribute in a coherent and synergistic way to skills development and retention. See *A Human Capital Development Strategy for the Biodiversity Sector: 2010 – 2030*. SANBI (2010).

these assessments available in an accessible and usable format. The NBA is essential to achieving SANBI's mandate in terms of NEM: BA to periodically report on the state of biodiversity through scientifically-based 'ecosystem-level monitoring, assessment and planning'.[391]

6.3.2.2 *Bioregional plans: realising regional environmental spatial planning*

Designated bioregions and their associated bioregional plans are aimed at the management of biodiversity priority areas that contain 'whole or several nested ecosystems that are characterised by landforms, vegetation cover, human culture and history' that are in need of conservation action.[392] An important purpose of these plans is to manage sensitive areas that are not located within protected areas but are still valuable enough to be conserved from the intrusion of high impact activities. Bioregional plans provide guidelines for the management of significant biodiversity and form part of the tools identified by NEM: BA, embodying the principles of IEM, integrated development planning and sustainable development. These plans provide a cross-sectoral platform that determines the conservation status of identified priority areas and then supports their conservation planning and monitoring.[393] The design and construction of a bioregional plan is generally driven by the appropriate provincial conservation authority and is then designated, gazetted and published by the Minister or MEC.[394]

The bioregional plan is classified as a systematic biodiversity plan which adopts the principle of representation. In terms of this principle, the focus of the conservation action will be to identify specific areas which will portray a representative sample of all biodiversity patterns. Systemic biodiversity planning also follows other key principles such as the principle of persistence in that bioregional plans identify areas needed to sustain long-term natural biological processes. This is achieved through setting of biodiversity targets in priority areas in order to make a spatially efficient and representive plan in an effort to assist in the reconciliation of land-use conflicts.

[391] Time-lapse is done relating to the previous areas and the assessments of that time.
[392] S1.3.3 of NEM: BA 'Guideline regarding the determination of bioregions and the preparation of and publication of bioregional plans' GNR 291 in GG 32006 of 16 March 2009
[393] S37 of NEM: BA.
[394] S40 (1)(b) of NEM: BA.

Bioregional plans have special significance for local economic development and are of particular importance to local and district municipalities.[395] NEM: BA requires that 'a bioregional plan is coordinated and aligned with existing plans', such as municipal IDPs, and by implication SDFs.[396] Once published, the plan becomes assimilated into all land-use and developmental processes. Municipalities must further align all bioregional plans into their EMPs, in particular, recognising the importance of identified CBAs and ESAs.[397]

A published and gazetted bioregional plan must be considered by the municipality and sectoral departments during the developmental planning process.[398] Yet the extent to which the direction of the plan must influence the final development or land-use decision is still debatable. A bioregional plan is 'the biodiversity sector's input into various multi-sectoral planning and authorisation processes, supporting and streamlining environmental and developmental decision-making, feeding into multi-sectoral planning and assessment processes such as EMFs, SDFs, SEAs and EIAs'.[399]

Bioregions must be set within the boundaries of a municipality or a group of municipalities. The intersectional nature of bioregional plans means that many departments and spheres of government are involved in the construction and implementation of the plan. This type of instrument requires effective co-operative governance and conflict resolution mechanisms to be successful. Any overlapping roles, responsibilities and resulting conflict is either managed through an intergovernmental Memorandum of Understanding (MoU) or through an Implementation Protocol, which is provided for in the Intergovernmental Framework Relations Act 13 of 2005 (IGFRA).[400] Provision is made for the 'referral of conflicts between decision makers regarding the protection of the environment to conciliation or arbitration processes'.[401]

Bioregional plans spatially map all priority areas, these include; protected areas, no-go areas, CBAs and ESAs, especially those sensitive areas falling outside of the protected area

[395] Recommended users include the following: designated competent authorities before issuing environmental authorisations; DWS should take bioregional plans and into account in granting water licences and water allocations; DMR should take bioregional plans into account in their authorisations for prospecting and mining.
[396] S 48(1) of NEM: BA.
[397] S 48(2) of NEM: BA.
[398] Ibid.
[399] NEM: BA: National List of Threatened Ecosystems GN 1477 in GG No. 32689 of 6 November 2009.
[400] Chapter 4 of NEMA deals with fair decision making and conflict resolution in environmental decisions.
[401] Such as MECs, municipal councils and other national ministers. See Chapter 4 of NEMA.

network.[402] The bioregional plan is thus meant to connect existing protected areas with under protected zones within a singular co-ordinated plan.

Bioregional plans require comprehensive public participation and general consultation in line with NEM: BA.[403] The Minister and the MEC 'must give notice of the proposed exercise of the power in the Government Gazette and in at least one nationally distributed newspaper, or if the exercise of the power affects only a specific area, in at least one newspaper distributed in that area'.[404] Public written comments and objections must also be invited. The application must contain 'sufficient information to enable members of the public to submit meaningful representations or objections'.[405]

In terms of compatibility examination and analysis, the bioregional plan maps the ecological priorities and matches their compatibility with suitable land-use planning guidelines to inform developmental application processes. These guidelines provide an indication of appropriate land-use within each area, identifying compatible and incompatible land-use. The bioregional plan does not grant or remove development rights but rather gives guidance to decision-makers for the effective management of biodiversity.[406]

Bioregional plans aim to 'inform planning, decision-making and management of natural resources by a wide range of sectors and stakeholders, and need to be accessible and understandable to people who are not experts in biodiversity or a related field'.[407] The lead implementing agency is usually the relevant provincial authority, which must, with the support of SANBI, 'monitor implementation of the plan and coordinate the process of reviewing and amending the plan after five years'.[408]

From the above, it is clear that bioregional plans have numerous advantages, embodying many of the various ESP elements. The most notable are the sectoral integration requirements and co-operative governance processes that feed bioregional plans into multi-sectoral planning and assessment processes such as EMFs, SDFs, SEAs and EIAs. Moreover, its

[402] An example includes spatially explicit ecological corridors that need to be managed to ensure natural connectivity. 'Priority is given to areas of the country that fall within the mapped biodiversity priority areas as identified through the NBA'. See NEM: BA Bioregional Guideline (note 389 above).
[403] S47, 99 & 100 of NEM: BA.
[404] S3.1.7 of NEM: BA: National list of ecosystems that are threatened and in need of protection GNR 1002 in GG 34809 of 9 December 2011.
[405] S100(2)(b) NEM: BA
[406] S41(a) of NEM: BA.
[407] NEM: BA Bioregional Guideline (note 392 above) 2.1.
[408] Ibid 2.6.1. The respective authority must also submit an implementation progress report and amended plan to the MEC. See Ibid 2.2.

regional connection and character is meant to assimilate seamlessly into local developmental decision-making. Where the bioregional planning tool does fall short is collaborative participation and capacitation as the requirements do not go far enough to ensure regional buy-in and upskilling of those meant to use to tool.

6.3.2.3 *Biodiversity management plans: ensuring stability for identified vulnerabilities*

Biodiversity management plans give precedence to biodiversity priorities and targets, informing planning and decision-making to ensure that biodiversity conservation imperatives are not jeopardised. The main objective of a biodiversity management plan is to focus on a particular species' or ecosystems' wellbeing, managing and formulating actions in an effort to improve their conservation status. A biodiversity management plan, furthermore, investigates and supports the development of opportunities for economic and social benefit, encouraging the further development of capacity in conservation management.

The purpose of biodiversity management plans is to safeguard the continuing existence of the species or ecosystem to which it relates, meaning that the ecosystem must be 'maintained in, or restored to, a natural, near-natural or ecologically functional state, or the species' survival is maintained and ensured'.[409] NEM: BA gives broad-spectrum requirements for biodiversity management plans, remaining flexible regarding the content or the process of developing a plan as species and ecosystems are likely to differ from one another.

More specifically, the purpose of biodiversity management plans is to manage the sustainable use of natural resources on a site-specific level. A biodiversity management plan is not envisioned to be an intricate tool that is difficult to manage, but is rather designed to be a cost effective and easily understood platform to effectively manage sensitive environments. Flexibility and simplicity are therefore central to the plan, and can be pursued by either an individual or group of stakeholders. To be at all functional the plan requires robust engagement and a firm commitment from stakeholders, as all content and pursuant actions is formulated through collaboration. In all cases, the provincial conservation authority must be involved in the development of a biodiversity management plan.[410]

[409] S45 of NEM: BA.
[410] S5.2 – 5.4 of NEM: BA: Publication of norms and standards for biodiversity management plans for ecosystems GNR 532 in GG 35486 2 July 2012.

The biodiversity management plan must be integrated into developmental decision-making, aligning itself with provincially and nationally applicable legislation, as well as other instruments relevant to the area. Biodiversity management plans have a direct relationship to IDPs, SDFs, EMFs and bioregional plans; as these tools provide, not only a useful context for the development of biodiversity management plans but have the ability of influencing site-specific developmental and conservation decision-making. Moreover, 'municipal SDFs should incorporate CBAs and ESAs from bioregional plans, biodiversity sector plans or provincial spatial biodiversity plans, and could highlight ecosystems for which biodiversity management plans, should be developed'.[411] If an environmental or spatial plan is developed for an area in which a biodiversity management plan already exists, all plans should take into account all existing objectives and incompatible land-uses specified in pre-existing biodiversity management plans.

Monitoring of the area must be undertaken by the designated management authority, for example a conservation authority, NGO, landowners, land users or volunteers in charge fulfilling the objectives of the biodiversity management plan. This monitoring must provide the 'basis for evaluating whether the agreed management actions are being carried out and whether the management objectives are being achieved'.[412] The biodiversity management plan must specify the agreed reporting requirements and periods, with a brief monitoring report being required to be submitted at least once a year to the competent authority. Reports must also be made available to the Minister for review every five years to assess compliance with the plan and its objectives.[413]

A biodiversity management plan serves a very specific purpose for a particular area, understanding the ecological constraints of the area and responding accordingly. The biodiversity management plan performs well in terms of ecosystem integration and multi-functionality as it recognises the competing imperatives and adopts an ecosystem-centred approach to developmental decision-making. An additional area of strong assimilation into ESP is transparent monitoring and access to information, as bearers of the biodiversity management plan have clear annual reporting responsibilities. The areas of poor representation of ESP include scale and spatial awareness, as well as capacitation and continual learning.

[411] S8.5 of NEM: BA: Norms and standards for biodiversity management plans for ecosystems GNR 83 in GG 27302 of 7 February 2014.
[412] Ibid 5.3.
[413] S46 of NEM: BA.

6.3.3 *National Environmental Management: Protected Areas Act*

South Africa has a complex history of sensitive area protection, moving from a protectionist, discriminatory and exclusive system to one of inclusion and integration. Protected areas declaration was narrowly focused during this period, often motivated by the protection of popular individual species, at other times protected areas were established simply because land was available.[414] While formal protected areas still represent one of the best means of protecting biodiversity and ecosystems, this narrow understanding has evolved beyond the purely protectionist approach.[415]

The National Environmental Management: Protected Areas Act 57 of 2003 (NEM: PAA) is the chief legislation which provides protection and management of ecologically valuable areas with the state acting as the trustee.[416] NEM: PAA aims to 'balance the relationship between biodiversity conservation, human settlement and economic development, promoting the sustainable utilisation of protected areas for human benefit'.[417] NEM: PAA puts in place a central and overarching repository of legally binding provisions for the management of national, provincial and local protected areas. NEM: PAA, furthermore, expressly provides for robust co-operative governance and public participation in matters relating to the declaration and management of protected areas.[418] NEM: PAA is administered by the DEA through agencies such as South African National Parks (SANParks).[419]

6.3.3.1 *The National Protected Areas Expansion Strategy (NPAES)*

The declaration of formal protected areas are the 'most secure and effective mechanism for conserving a representative sample of all biodiversity'.[420] This process aims to create a tool that can directly contribute to understanding ecological resilience and cumulative impact in an effort to achieve ecologically-centred sustainable development.[421] Moreover, the protected

[414] Cadman (note 162 above) 15.
[415] Ibid.
[416] NPAES aims to have 12 percent of South African land mass protected by 2030.
[417] Cadman (note 162 above) 33.
[418] 'Before NEM: PAA became law in 2003, national, provincial and local protected areas were managed according to varying criteria contained in different legislation in each of the provinces.' See Ibid.
[419] Nature conservation is a function which is shared between national and provincial government as a schedule 4 concurrent competency.
[420] Department of Environmental Affairs, National Protected Areas Expansion Strategy for South Africa (2016) 5.
[421] Ibid.

area network is meant to deliver significant socio-economic benefits and contribute to South Africa's overall development goals.

Protected areas as well as the spatial representations of ecological processes are recognised in all the NPAES iterations. The 2008 NPAES built on the work done by the 2004 NPAES, which presented the position that more needed to be done to improve the biodiversity representation of the national protected area system. A new 2016 NPAES has been published which updates maps and spatial data of the 2008 iteration.[422]

The NPAES uses two factors in identifying priority areas for protected area expansion, these are, 'importance' and 'urgency'. An area is considered important if it 'contributes to meeting biodiversity thresholds for terrestrial or freshwater ecosystems, maintaining ecological processes or climate change resilience'.[423] Urgency is determined by 'the extent to which spatial options for meeting protected area targets exist, which is often linked to the degree of competing land or resource uses in an area'.[424] NPAES utilises four main mechanisms for declaration and expansion of protected areas, namely the: 'acquisition of land, contract agreements, biodiversity stewardship programmes and the declaration of state or public land'.[425]

Other environmentally-focused spatial planning tools such as bioregional plans, biodiversity management plans and EMFs are principally and structurally aligned with the protected area legal regime in order to a support the expansion and effective management of the areas within the network.

NPAES provides detailed maps that guide the expansion of priority zones within the protected area network. These maps include area specific: biodiversity patterns; ecological processes; climatic gradients; and natural corridors such as coastal, dune and river corridors.[426] NPAES provides a national scale of priority areas that require expansion, while the meticulous site-specific assessment falls within the provincial mandate. The province must therefore note the identified sensitivities in the NPAES and work towards a more comprehensive data-driven site-scale planning platform. These processes are led by the

[422] The NPAES is commissioned by the DEA, with technical support from the SANBI and SANParks, and is drafted in close collaboration with key national departments, national and provincial conservation institutions.
[423] Department of Environmental Affairs, National Protected Areas Expansion Strategy for South Africa (2008) 24.
[424] Ibid.
[425] Ibid.
[426] Ibid 31.

relevant protected area agencies and fed into the provincial expansion strategy. Significant information gaps for the NPAES include an 'accurate spatial layer of existing protected areas; maps and classifications of marine ecosystems and habitats; a complete national wetlands map; and a national spatial data layer on land ownership and tenure'.[427]

NPAES has a proactive coordination objective, aiming to create a set of targets and spatial priorities that are nationally applicable and universally understood. This foundation aims to create a basis from which a variety of public and private stakeholders can collaborate from a common set of data to expand and manage protected areas in South Africa. This process does not occur in a silo but is rather pursued concurrently and in alignment with the management and improvement of existing and new protected areas. NPAES is intended to be used by all role-players in protected area expansion, including 'protected area agencies and managers, conservation NGOs and funding agencies, policymakers in relevant national departments, municipalities and the private sector'.[428]

NPAES houses ecosystem-specific protected area targets and associated priority areas that form the justification of the expansion of the designated protected areas. Protected area targets are 'targets that indicate how much of each ecosystem should be included in protected areas, and help to focus protected area expansion on the least protected ecosystems'.[429]

There are numerous authorities that are involved in the management and implementation of NPAES, the principle drivers include protected area and heritage site authorities, as well as the relevant provincial and sectoral departments in charge of environmental management. From a practical perspective, each of these authorities must align these expansion targets to an area specific protected area expansion implementation plan. The designated authorities must make these implementation plans an institutional priority in the furtherance of the NPAES strategic objectives and must be approved by DEA. The DEA must ensure 'alignment of the efforts of the multiple agencies involved in protected area expansion, providing a forum for discussing challenges and sharing lessons, and tracking progress towards meeting protected area targets'.[430] In order to ensure accuracy, NPAES is required to be reviewed every five years. The process is managed by DEA with technical support from SANBI.

[427] Ibid 64.
[428] Ibid 2.
[429] Ibid ix. The scientific quality of the data often determines the extent to which the targets can be considered accurate ecosystem-specific thresholds.
[430] Ibid xiii.

6.3.3.2 *Buffer zones: The first layer of protection for sensitive landscapes*

Buffer zones are NEM: PAA empowered ecological management tools which surround and shield a core area, insulating it from external impacts. Buffer zones increase the effective size of the protected area 'buffering' sensitive areas from damaging land-use activities.[431] Buffer zones are therefore delineated boundaries within which specified activities may only occur if they are sustainable and compatible with identified ecological thresholds.[432] The landscape approach has particular relevance in a buffer zone declaration process as a landscape is composed of elements of varying quality that are influenced directly by spatially explicit relationships amongst complex regional-mosaics.[433]

Buffer zones recognise the importance of ecosystem-driven integration, prioritising the retention of ecological integrity of sensitive areas which contain valuable and representative ecosystem and species samples, scenic areas or heritage sites. These are not considered core sites and are therefore not no-go areas, but rather need careful management and planning of appropriate activities and management of impacts. Ecologically-centred sustainable development and the balancing of imperatives is held as central, with development only being permitted where it will not lead to unacceptable ecological loss and impact on the core area.

The thematic elements of ESP feature prominently in the buffer zone policy,[434] including a collective approach to understanding the sensitivities and multi-functionality of the receiving environment that are key to successful implementation of sustainable planning. There is also a necessity to maintain and create ecological connectivity between areas of significance, making the connection to a regional understanding of cumulative impact a central principle. The long-term approach is encouraging as the maintenance of system integrity is crucial and must not be jeopardised to satisfy short-term needs.

A main policy objective of the buffer zone is to 'integrate biodiversity considerations into land-use planning procedures and environmental assessments that impact the core and surrounding sensitive areas'.[435] Effective relationships and engagement between the park

[431]R L 'Priority Conservation Areas: Towards an Operational Definition for Regional Assessments' in *National Parks and Protected Areas: Selection, Delimitation, and Management* (eds) J J Pigram and R. C. Sundell, (1997) 337, 357.
[432] M L Cadenasso et al 'A Framework for a Theory of Ecological Boundaries' (2003) 53 *Bioscience* 750.
[433]A J Hansen & F DiCastri *Landscape Boundaries: Consequences for Biotic Diversity and Ecological flow* (1992) 219, 236.
[434] Strategy on Buffer Zones for National Parks GN R 106 in GG 35020 of 8 February 2012.
[435] S Brownlie & R Wynberg 'The Integration of Biodiversity into National Environmental Assessment Procedures: South African Case Study' UNDP (2001) 6.

management authority and the municipalities are needed to guide the integration of the park and its buffer zone into the municipal SDFs and IDPs.[436] The link to park management plans is explicit and the buffer zone must be responsive to what it stipulates.

From a co-operative governance perspective, the protection and sustainable management of biodiversity is strategically assimilated into all state sectoral planning and policy objectives. The recognition of the need for integration is important as development in a parks buffer zone may be managed by any of the three spheres of government, this may lead to role confusion. In order to avoid this confusion the provisions of the IGRFA are utilised.[437]

Robust cooperation between the park management authority and the community is mandated. Stakeholder structures are set up to ensure that awareness is achieved and maintained between the public and the state. Stakeholders must have an opportunity to partake in resolutions about how biological resources are managed. Public participation is thus critical to the management of biodiversity and stakeholders and must be kept up to date on the fulfilment of park management objectives. The process of protected area declaration requires significant landowner consultation and negotiation as per NEMA. The Act also requires a formal gazetting process that must be followed.

A core goal of the buffer zone is to 'enhance the capacity of communities residing in or adjacent to protected areas to participate in protected area management by providing appropriate training and education, recognising local expertise and traditional institutions as important'.[438] The improvement of capacity is central to the sustainability of South African parks as empowerment of the communities' in the areas immediately outside the boundary enhances the long-term viability of protected areas.[439]

As part of the buffer zone delineation process the lead authorities must 'investigate, formulate and implement integrated land-use planning approaches that include multiple natural resource activities which are compatible with conservation and sustainable use'.[440] Due to the value

[436] Buffer zones must be included into the municipal SDFs so that the purpose and values of the national park, as defined in the management plan, are reflected in the primary local economic development plans.
[437] S35 of Intergovernmental Relations Framework Act No. 13 of 2005.
[438] Strategy on Buffer Zones (note 434 above) 17.
[439] There is certain capacity driven poverty relief programmes that have a particular interest in improving buffer zones through the rehabilitation of natural ecological systems. Such programmes include Working for Wetlands, Working for Water as well as the development programmes such as the Extended Public Works Programme (EPWP). For further reading see https://www.csir.co.za/exploring-working-water-success-stories.
[440] Strategy on Buffer Zones (note 434 above) 13.

and sensitivity of the areas in and around national parks, any activity that impacts the buffer zone requires an EA and will be subject to the requisite EIA process.

The Buffer Zone Strategy of 2012 does provide for significantly wide-ranging requirements for transparency and access to information, stating that 'all information necessary to ensure the conservation and sustainable use of biodiversity must be readily available in an accessible form, and enable people to work with, and obtain the information they need for informed participation in biodiversity management'.[441] The strategy is explicit regarding the important role that accurate information plays in relation to sustainable resource use and decisions on activities that could impact the core. Only the 'best available knowledge' will be used to justify the decisions in and around the sensitive core area.[442]

With regards to evaluation and review, the strategy requires an ongoing and consistent process that is monitored and reviewed on regular intervals or when required. Buffer zones require significant flexibility in order to remain, relevant and responsive to 'social, economic and environmental change, as well as to scientific and technological advances, while having due concern for maintaining continuity'.[443]

Buffer zones for national parks are sufficiently aligned and form a part of the NEMA protected area framework. Buffer zones meaningfully embody the ecosystem integration and multi-functionality thematic element to inform the managing of a mosaic of land-uses and the balancing of multiple imperatives. The capacitation and continual learning element is well represented, as education and building capacity is central to the buffers operation and success. Where the buffer zone policy falls short is in terms of the scale and spatial awareness, as although regional awareness is acceptably fulfilled the mapping needs to be more expressly required.

6.3.3.3 *Protected area management plans: securing sensitive landscapes*

Protected area management plans aim to protect and manage protected areas by giving guidance to the developmental and conservation priorities within the gazetted area. Each protected area must have an approved protected area management plan in accordance with

[441] Ibid 9.
[442] Ibid 10.
[443] Ibid.

the NEM: PAA.[444] The detail of protected area management plan development is contained in the Norms and Standards for the Management of Protected Areas of 2016 as well as the Framework for Developing and Implementing Management Plans of 2008.[445] Each plan is specifically tailored to the characteristics and needs of the particular protected area, identifying biodiversity targets and strategies for addressing threats and pressures which can be incorporated into planning and decision making.

Each protected area management plan recognises the intricacy and variety of the socio-ecological systems, striving to manage cultural resources and maintain the stability of these ecosystems. The development of the plan thus focuses on maintaining the stability of ecosystem goods and services, as well as making these benefits available and accessible to people. There is no hierarchy of biodiversity elements as all elements, including species, ecosystems and processes are treated equally. Protected area management plans therefore strive to maintain a balance and mitigate potential conflict in the management of sensitivities by putting a system in place to mitigate threats and manage resources through action.

Apart from containing an environmental planning component, protected area management plans also manage the development of economic opportunities of the park and surrounding areas. This is achieved through integrating the protected area framework with municipal objectives and the relevant components of the local IDP. The IDP also needs to take the relevant aspects of the protected area management plan into consideration, including the consideration and inclusion of the protected area buffer zones and any priority areas for protected area expansion. The plan should be a tool that guides the management of protected areas at all levels of government, building accountability and promoting co-operative governance.

From a spatial perspective, the plan recognises the importance of zoning, indicating the ecological and cultural features of each area and what activities may take place there, aligning with other spatial representative plans and the mapping of future developmental decisions. A park specific Conservation Development Framework (CDF) is aligned with the plan, outlining the information needed for zoning and the other spatial development targets. This zoning element represents the long-term representation of the internal spatial desired state of a park. A CDF zoning plan takes both sensitivity and compatibility into consideration

[444] S39 of NEM: PAA.
[445] S11 of NEM: PAA: 'The Minister may prescribe norms and standards for any of the objectives of the Act, including the management of protected areas as well as indicators to measure.'

when designating what particular impacts would be acceptable in different sections of the park. The management objectives of these sections are included in the management plan.

In order to construct a protected area management plan, SANParks undertakes a thorough and holistic public participation process with all key stakeholders, with a particular focus on marginalised communities.[446] The process must provide 'the opportunity for input from all stakeholders within reasonable timeframes, emphasising the sharing of information, joint learning and capacity building'.[447] Stakeholders may include local communities, municipalities, state departments, NGOs and other I&APs.[448] The consultation process must involve defining the collective expectations for a desired state of the protected area. The consultation process engages on the variety of hopes and needs of the stakeholders in the area, looking at the risks and potential of the region 'evaluating the acceptability of the predicted consequences of potential management options and reviewing the outcome of management relative to the vision'.[449]

All stakeholders and I&APs are considered central to the process and must therefore be given appropriate, timeous and transparent access to all relevant information.[450] Management authorities must be accountable and responsive to the comments and proposals from stakeholders, recording all inputs and demonstrating how these have been included in the final product, and if not, reasoning must be provided as to how a decision was reached.[451] Protected area management plans recognise that initiatives are required that encourage capacity building in ecological processes and effective multi-stakeholder structured engagement. SANParks, in particular, makes provision for educational programmes to ensure meaningful participation.

The desired outcomes of the protected area management plans are developed with site-specific limits of acceptable change in mind. These limits are reflected in the thresholds of potential concern (TPCs). TPCs are the 'upper and lower boundaries of change in selected indicators of ecosystem performance and desired state, when the indicator approaches the

[446] S41 (1) - (3) of NEMPAA.
[447] 'The process recognises all knowledge, indigenous and ordinary, as well as the diversity of values and opinions that exist between stakeholders.' See Ibid.
[448] Ibid.
[449] SANParks 'A Framework for Developing and Implementing Management Plans for South African National Parks' (undated) 52.
[450] Ibid 27.
[451] Ibid.

TPC the future desired state may be in jeopardy'.[452] The TPCs act as a strategic early warning system for the management authorities, alerting them to the need for intervention where thresholds are threatened. The monitoring programme is based on the TPCs, informing the authorities on what indicators to monitor. These results are interpreted relative to a time-frame of expected change, the results of which are used to adapt and align development planning with the area's needs.

Regulation requires a process for periodic review and the updating of the protected area management plan at the relevant temporal and spatial scale that supports the outlined management objectives.[453] A biodiversity resource inventory for the protected area is maintained and monitored; information on these sites and resources supports planning and decision-making for the management of the area.

The regulation of protected area management plans seems to holistically align with the elements of ESP and performs particularly well within the context of compatibility analysis and assessment. Where the protected area management plans appear to fall short is within the context of scale and spatial awareness.

6.3.3.4 *Biosphere reserves: internationally identified sensitivities*

Biosphere reserves are identified ecosystems that have inherent sensitive ecological characteristics in diverse areas that have both been transformed and protected.[454] Biosphere reserves are designed to demonstrate a balanced relationship between people and nature.[455] In other words, biosphere reserves focus on achieving development while fostering economic development that is environmentally and socially sustainable, creating an atmosphere conducive to resolving conflict around natural resource use through science and understanding.[456]

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[452] SANParks, 'Mapungubwe Park Management Plan' (2008) 19.
[453] S11.1 (a)(xiii) of NEM: PAA Norms and Standards for the Management of Protected Areas in South Africa GN R 382 in GG 39878 of 31 March 2016).
[454] Proclaimed biosphere reserves in South Africa include: Kogelberg Biosphere Reserve (1998); Cape West Coast Biosphere Reserve (2000); Kruger to Canyons Biosphere Reserve (2001); Waterberg Biosphere Reserve (2001); Cape Winelands Biosphere Reserve (2007); Vhembe Biosphere Reserve (2009); Gouritz Cluster Biosphere Reserve (2015); Magaliesberg Biosphere Reserve (2015).
[455] South African Strategy for the Biosphere Reserve Programme (2016-2020), Department of Environmental Affairs (2015) 13.
[456] W Amer, S Ashong & D Tiomoko *Management Manual for UNESCO Biosphere Reserves in Africa*. German Commission for UNESCO (2015) 12.

Importantly, biosphere reserves have no formal recognition in terms of the South African legal framework but are rather linked to international commitments as part of South Africa's adoption of the Man and Biodiversity Programme (MAB).[457] Biosphere reserves, therefore have a different mandate, being run by independent, apolitical, not-for-profit bodies that are supported by DEA and recognised under the United Nations Educational, Scientific and Cultural Organisation's (UNESCO) Biosphere Reserve framework.[458]

In terms of land-use compatibility, the biosphere has its own zonation component which attaches various guidelines.[459] This zonation divides the biosphere reserves into three interconnected zones which have complementary and mutually supportive functions. These zones are broken up into the core area,[460] buffer zone[461] and transition area.[462] Each of these zones have been allocated different levels of sensitivity, which would guide compatible development.

From a co-operative governance perspective, biosphere reserves are managed through participatory planning and the support by national, provincial and local government, international organisations, and the private sector. 'These biosphere reserves are well positioned to contribute to governmental strategies and programmes at various levels and to varying extents.'[463] Intergovernmental co-operation is therefore important, requiring robust collaboration between government departments as a mechanism to assist with the implementation of other sectoral programmes in order to realise their shared objectives. Relevant government departments are required to meet regularly, which provides an opportunity for operational inter-departmental cooperation. Partnerships should be integrated between departments and across organisational levels in order to be as efficient and successful as possible.

[457] The reason biosphere reserves are presented under this Protected Areas Act section of the study is due to the fact that the South African Strategy for the Biosphere Reserve Programme (2016-2020) identifies the Protected Areas Directorate as lead co-coordinating agency for the Biosphere Reserve Programme in South Africa. Another reason for this designation is that many Biosphere Reserves include designated protected areas.
[458] The 2014 EIA Regulations under the NEMA specifically include biosphere reserves as core areas of heightened sensitivity that trigger environmental authorisation.
[459] The term "zonation" broadly refers to a distribution in zones or regions of definite character.
[460] 'An ecosystem that is strictly protected, and conserves ecosystems, species, landscapes and genetic variation.' See http://www.unesco.org/new/en/natural-sciences/environment/ecological-sciences/biosphere-reserves/main-characteristics/zoning-schemes/
[461] 'An area that either surrounds core areas, only ecologically sound activities are carried out.' See Ibid.
[462] 'An area is the part of the biosphere reserve in which the most activity takes place. It helps to encourage human and economic development that is sustainable both ecologically and socio-culturally.' See Ibid.
[463] Biosphere reserves are poorly recognised by governmental departments as only one biosphere reserve is referenced in the NBSAP.

In order to achieve the biosphere reserve's strategic objectives there needs to be authentic stakeholder buy-in. This requires the formulation of concrete partnerships amongst the general public, role-players and stakeholders. Biosphere reserves develop the understanding of stakeholder participation, extending the role of affected stakeholders to that of active partners which take and share benefits and responsibility and have an active part to play

This type of collaboration requires biosphere reserves to enhance and strengthen the communities' and stakeholders' capacity in facilitating sustainably driven regional development.[464] Supporting the capacitation of private and public parties is necessary at all levels within the biosphere reserves, as learning, monitoring and knowledge sharing is core to the operation of the biosphere reserve and must form a part of the operational programme.[465] In my view, biospheres need to also create strong relationships with academic institutions, government bodies and NGOs to assist in monitoring and the provision of expert assistance on complex components.

Biosphere reserves find themselves in a slightly different arena due to their lack of formal status. Notwithstanding this setback, they do possess some characteristics that mirror the ESP elements. The most prominent is the detailed adoption of the ecosystem integration and multi-functionality element which can be seen in the nature of the adopted environmental principles, such as sustainable development and the fact that the tool is borne out of the need to balance imperatives in areas of prevalent land-use conflicts. Biosphere reserves are also particularly focused on strengthening the communities' and stakeholders' capacity and therefore capacitation and continual learning is strongly aligned with the ESP principles. The robust land-use compatibility guidelines also show an alignment to the compatibility and analysis element. The obvious shortfalls are directly linked to the status issues, in particular sectoral integration is not a principle present in the make-up of the tool as departments are not legislatively required to recognise biosphere reserves.

[464] UNESCO 'Global Biosphere Reserve Strategy 2015-2025: Man and Biosphere Programme (2015) 19,12
[465] Ibid.

6.3.4 *National Water Act*

Water is a common theme in the management of protected and sensitive areas due to the integrated nature of the resource and its centrality in the health of ecosystems, community development and economic priorities. The National Water Act No. 36 of 1998 (NWA) governs the strategic management of water resources in South Africa, an already water scarce country with rising water needs, declining resources and increasingly degraded sources. The Department of Water and Sanitation (DWS) is the mandated competent authority for the management of all water resources and has recognised that the 'traditional approach of focusing on new water resource development must be extended to address and prioritise the sustainable management and protection of water resources'.[466]

The NWA addresses, among other things, the 'protection of the aquatic and associated ecosystems and their biological diversity'.[467] The Act regulates all water uses, some of which are non-consumptive but which may impact on the integrity, functioning and biodiversity of wetlands and watercourses. The process to obtain authorisation for these categories of water use vary in complexity according to the risk associated with the use and activity. High risk activities require a full Integrated Water Use Licence Application (IWULA). During this IWULA process the competent authority must assess the impact of the proposed water use and impact on the water resource. The process is similar to the EIA process in that scientific assessment, public participation and compatibility must be considered.

'Sustainable multi-functional landscapes are created and managed to integrate human production and landscape use, to maintain critical ecosystem function, service flows and biodiversity, where water is of central importance.'[468] From a landscape point of view, the responsibility of water resource management is complex and the challenges remain multifaceted, thus the responsibility lies not only with the individual user, but is shared with the extended community, including each role player in each of the land-use sectors.[469]

The NWA has spatial planning built into it, requiring the establishment, maintenance and implementation of a reviewable National Water Resource Strategy (NWRS)[470] for the co-

[466] DWA 'National Water Resource Strategy 2' Available at: http://www.dwa.gov.za/nwrs/.
[467] NEMBA National List of Threatened Ecosystems GN R 1447 in GG 32689 of 6 November 2009.
[468] P J O'Farrell & P M Anderson 'Sustainable Multifunctional Landscapes: A Review to Implementation' (2010) 2 *Current Opinion in Environmental Sustainability* 59.
[469] M Everard *Common Ground: The Sharing of Land and Landscapes for Sustainability* (2011) 37.
[470] The National Water Resource Strategy 2 (NWRS 2) is currently in force.

ordination and planning of all water resources in the country.[471] The NWRS operationalises the NWA by committing all public and private stakeholders to conserving water resources while contributing to social and economic goals. The integration between the need to sustainably manage water resources and development is explicit, from the licencing process for impactful activities to the planning process.[472]

Water is a renewable resource, but the various stages of the production process need to be acutely protected and conserved. One of the most important facets of the water production process is the collection of water in areas known as catchments. These regions are therefore of utmost importance and require special consideration and management. The Catchment Management Agencies (CMAs) are statutory bodies that manage the water resources and coordinate functions of other institutions involved in water related matters on these catchment levels.[473] CMAs enable the realisation of ESP and are at the forefront of water management and planning in a given catchment or region, taking the individual characteristics into account by incorporating biodiversity, cultural and water resource concerns in developmental planning.

Every CMA must, according to legislation, 'progressively establish a catchment management strategy (CMS) setting out the framework for managing water resources within the water management area (WMA) and the principles for allocating water to existing and prospective water users'.[474] A CMS is an overall plan to handle the affairs of a WMA to achieve its specific objectives, including the establishment and guidance of any other required management institutions that are required to effectively manage regional water sources.[475] Apart from being binding on all water management institutions within the specified area, it must also outline how the management intuitions are to engage with users and any other important stakeholders in the management of water resources.

The National Freshwater Ecosystem Priority Areas (NFEPAs) are freshwater ecosystems that have been identified as key areas for sustaining freshwater biodiversity and associated

[471] The NWRS must be reviewed every 5 years and is the primary mechanism of managing water resources across all sectors, focusing on and involving water use sectors, communities, civil society, and the private sector. See S5(1) of NWA.
[472] The NWRS contains the developmental objectives as set outlined in the National Development Plan (NDP), articulating the NDP goals of eradicating poverty and reducing inequality by 2030. See NWRS (note 466 above) at S2.1.
[473] Part 1 of NWA.
[474] Part 2 of the NWA.
[475] Ibid.

ecosystem services.[476] 'NFEPA maps strategic spatial priorities for conserving freshwater ecosystems and supporting sustainable use of water resources.'[477] NFEPAs spatial representative mapping adopts the principles of systematic biodiversity planning and provides guidance on how many watercourses should remain in a healthy and stable state in order to support the strategic water resource management objectives. NFEPAs do not necessarily need to be protected from human use entirely, but rather should be supported by 'good planning, decision-making and management to ensure that use and development does not impact on the condition of the ecosystem'.[478] If a site falls within a NFEPA catchment, the guide would assist with planning and land-use in and around these ecosystems. The NFEPA guide also gives a comprehensive overview on how to assess the various NFEPA covered resources in environmental assessments.

From a more practical perspective, water stewardship is the realisation of the landscape approach within the context of water resources as its takes a collective regional multi-stakeholder approach to water management. The NWA started the movement to collective engagement by all sectors of society, making water resources management a broader public responsibility.[479] Water stewardship can be defined as 'the use of water that is socially equitable, environmentally sustainable and economically beneficial, achieved through a stakeholder-inclusive process that involves site and catchment-based actions'.[480] The water stewardship model has inherent characteristics embodying ESP. These elements include: transparency, multi-stakeholder collaboration and participation, co-operative governance and scale and spatial awareness.

[476] Freshwater ecosystems refer to 'all inland water bodies whether fresh or saline, including rivers, lakes, wetlands, sub-surface waters and estuaries'. These freshwater ecosystems are valuable ecological infrastructure for the provision of fresh water, fish and sustaining biodiversity and yet freshwater ecosystems are the most highly threatened group of ecosystems. See SANBI 'Lexicon of Biodiversity Planning in South Africa' Beta Version, (June 2016) 26.
[477] A Driver 'Implementation Manual for Freshwater Ecosystem Priority Areas' Water Resource Commission (20111) i.
[478] Ibid 16.
[479] Preamble of the NWA refers to 'recognising the need for the integrated management of all aspects of water resources and, where appropriate, the delegation of management functions to a regional or catchment level so as to enable everyone to participate.'
[480] Alliance for Water Stewardship (2014) The AWS International Water Stewardship Standard. Available at: a4ws.org/our-work/aws-system/the-aws-standard/.

6.3.5 *National Resources Heritage Act*

The final area of distinct relevance in the environmental legal framework is that of cultural heritage. Sensitive and protected areas form unique ecological landscapes from the core of a broader universal system. Indigenous cultures place specific significance on such sites, drawing inspiration and faith from their continued existence. Care must therefore be taken to preserve the integrity of historically and spiritually significant areas, synthesising their importance into every aspect of land-use and planning.[481] As such, important sacred sites are constitutionally and legislatively managed and protected.

The right to the protection of cultural resources can be read into the section 24 right to environment in the constitution, as human wellbeing is intrinsically connected to cultural and spiritual connections of historical value. The National Heritage Resources Act No. 25 of 1999 (NRHA) manages all significant cultural resources in South Africa. When planning and analysing sensitive areas prior to development, the cultural resources must be taken into account and valued as with any other significant environmental resource deserving of protection.[482]

South Africa's heritage resources, also referred to as the 'national estate', comprise of a wide range of places, landscapes, items and beliefs. According to the NHRA, 'no person may destroy, damage, deface, excavate, alter, remove from its original position, sub-divide or change the planning status of any heritage site without a permit issued by the heritage resource authority responsible for the protection of such a site'.[483]

The mandate for heritage related approvals lies within a three tier system. Locally important sites (Grade 3) are managed by the Local Heritage Resource Authorities; provincially valuable sites (Grade 2) are managed by the Provincial Heritage Resource Authority; lastly, internationally important sites (Grade 1) are managed and authorised by the South African Heritage Resource Agency (SAHRA).[484] In terms of the NHRA, as well as the World

[481]M P Pimbert & J N Pretty 'Diversity and sustainability in community based conservation' Paper presented at the UNESCO-IIPA regional workshop on Community-based Conservation (February 1997) 12.
[482] 'There has been a drive for community-based management and conservation to take the lead in protecting spiritually significant sites, yet this remains difficult due to funding and dependence on centralised bureaucratic organizations for planning and implementation, rather than moving towards a more community-centred strategic planning process.' See Ibid 2.
[483] S27(18) of the NHRA.
[484] The three tier system only operates as mandate if the local and provincial heritage authorities have received and been designated with the specific competencies.

Heritage Site Act of 1999 (WHSA) approvals from both SAHRA and UNESCO are required for any alterations and maintenance to any Grade 1 site, like Mapungubwe.

The Act further requires an independent heritage consultant 'to conduct a Heritage Impact Assessment (HIA) to determine if any sites of significance occur within the boundaries of the identified area, and if so, to recommend if the proposed activity can proceed'.[485] The HIA forms part of the EIA as required by the EIA Regulations and is intended for submission to SAHRA for permitting and approvals. Once an HIA has been completed, the applicant must prepare a Heritage Management Plan (HMP). This plan will describe the management and mitigation measures to be applied in order to prevent or mitigate the heritage impacts of the planned developments as assessed by the HIA. The HMP is placed amongst the various management documents for the site and is a practical document that provides guidelines for all phases of any activities on the site. These processes are required to ensure that the negative heritage impacts are addressed and that positive heritage impacts are enhanced.

Each HMP also makes provision for compliance monitoring as well as relevant and project-specific standards, mitigation measures and timeframes. The HMP identifies specific people to undertake tasks, allocating responsibility and accountability, and provides for verification of the effective implementation of the heritage management objectives. The HMP also describes the specific control methods where any action threatens the integrity of the site.

The Cultural Heritage Survey Guidelines and Assessment Tools for Protected Areas in South Africa of May 2017 (Guidelines) is aimed at guiding the daily operation and management of protected areas and cultural heritage resources.[486] Planning, analysis and participation form a central part of the Guidelines, being created as a 'response to concerns among protected area professionals, that many protected areas are failing to achieve their objectives and may be losing the value for which they were established'.[487] As the custodian of NEM: PAA, the DEA has acknowledged the significance of natural resources and thus developed the Guidelines to assist in their operational management.

The Guidelines are considered to be a part of the systematic environmental management approach, aligning to the planning, establishment and expansion of the protected area regime.

[485] S5(7) of the NHRA.
[486] The guide is used together with the NHRA, NEM: PAA, SAHRA and Provincial Heritage Resources Agency (PHRA) Guidelines on Norms and Standards.
[487] S1 of Cultural Heritage Survey Guidelines and Assessment Tools for Protected Areas in South Africa GNR 1356 in GG 41306 of 8 December 2017.

The guidelines strive to contribute to the broader conservation agenda, aligning to the principle of representivity where a 'sample of a country's cultural and ecological resources' must be conserved as part of the national threshold methodology.[488] The Guideline enables managers of protected areas to 'work within the ambit of the current heritage management systems, according to set standards and best practice, to effectively manage and conserve cultural heritage resources of the NHRA in the quest to improve and sustain the management of cultural heritage resources within protected areas'.[489]

In terms of co-operative governance, the NHRA requires 'all branches of the State to, on the request of a heritage resources authority, make any information under its control available for use and incorporation into the database'.[490] The NHRA provides that all State organs and management authorities of protected areas must support heritage resources authorities to manage important heritage sites and resources.

6.4 ***Spatial Planning Instruments and Tools***

6.4.1 *South African context*

During the mid-nineteenth century South Africa was a land of opportunity, with settlers migrating to the Northern parts of the country. This expansion to the Transvaal required the regulation of land-use which mainly took the form of covenants and conditions.[491] The end of the nineteenth century would bring with it the discovery of gold, quickly changing the planning landscape and moving South Africa from an agrarian to a commodity-based economy. This fundamental shift required more detailed regulation in the form of the 'Gold Laws'. These laws would primarily regulate the physical alteration and usage of land in the interests of gold extraction.[492]

The formal recognition of the South African Union in 1910 fragmented the country's regulation of land-use into four provinces.[493] It would, however, take two further decades before planning was formalised with the promulgation of the first Transvaal Ordinance and

[488] S3 of the Cultural heritage guidelines.
[489] Ibid.
[490] S9 (2) of the NHRA.
[491] J Van Wyk & M Oranje (note 202 above) 354.
[492] Ibid.
[493] These were the Transvaal, Natal, Orange Free State and the Cape Province.

associated town planning schemes.[494] Zoning and town-planning schemes would then only become common across the country towards 1950, operationalising the racially motivated political ideologies of the state at the time.[495] Apartheid would prove to have a significant and lasting effect on the spatial pattern of South Africa, paving the way for 'racial zoning and unjust economic spatial patterns', as well as a dichotomy between planning systems and institutional arrangements.[496]

The Physical Planning Act No. 88 of 1967 was South Africa's first national planning legislation.[497] Importantly the act provided for guide plans to assist in practically applying the provisions of the act. The Physical Planning Act was then updated in 1991 to provide for the demarcation of the country into regions, largely repealing these Guide Plans and introducing National Development Plans, Regional Development Plans, Regional Structure Plans and Urban Structure Plans to be used by the various authorities responsible for physical planning.[498]

The rise of South Africa's constitutional democracy in the mid-1990s was a major event, triggering extensive legislative reform to address the long-standing social inequalities through a single unified system.[499] This transition involved the development of the final constitution which entrenched basic and fundamental rights which had to be respected, protected, promoted, and fulfilled.[500] The transition provided an opportunity to align South Africa with the global planning movement and an evolution towards integrating the sustainable use of natural resources with strategic planning.[501] The introduction of three different spheres of government, the establishment of nine provinces, as well as the establishment local and district municipalities set the country on course to an integrated platform of development.[502]

For the transition to be a true reflection of democratic values, laws which perpetuated the divisions had to be repealed, replaced and rectified. The overhaul of planning laws required

[494] The ordinances developed in South Africa included the Transvaal Townships and Town Planning Ordinance 11 of 1931, Orange Free State Townships Ordinance 20 of 1947, Township Ordinance (Cape) 22 of 1934 and Natal Private Township and Town-Planning Ordinance 10 of 1934.
[495] Van Wyk & Oranje (note 202 above) 355.
[496] Ibid.
[497] Van Wyk (note 173 above) 42.
[498] S4(1)(a), S4(1)(b), S4(2), S6, S37 and S22 of Physical Planning Act 1991. See Van Wyk (note 173 above) 99.
[499] M Kidd *Environmental Law* 2 ed (2011) 210. Also see See Van Wyk (note 173 above) 356.
[500] Van Wyk (note 173 above) 50.
[501] D R Godschalk 'Land Use Planning Challenges: Coping with Conflicts in Visions of Sustainable Development and Liveable Communities' 2004 (70) *Journal of the American Planning Association* 5.
[502] P Harrison & A Todes 'The Use of Spatial Frameworks in Regional Development in South Africa' (2001) 35 *Regional Studies* 67. Also see Glazewski (note 132 above) 6, 10.

the state to repeal all unconstitutional provisions that played a part in creating division and unequal development. The introduction of the Development Facilitation Act No.65 of 1995 (DFA) aimed to assist in centralising planning, yet only acting as an interim measure.[503] The DFA proposed to create a unified country-wide planning structure, with the chief objective of fast-tracking development in underserviced areas. This was not fully realised as many provinces did not follow suit.[504] The only tangible effect was that the DFA served to operate in parallel with old order planning ordinances which perpetuated the system it was enacted to address.[505]

During this period there was a definite focus on land-use, land reform and land redistribution, service delivery and poverty eradication, all of which impact the operation of planning law.[506] In an attempt to realise these goals the state initiated the development of numerous policies and programmes to address the negative legacy impacts of Apartheid. Examples of these include the 2003 National Spatial Development Perspective (NSDP) which was completed (and updated in 2006), the Reconstruction and Development Programme[507] and the White Paper on South African Land Policy.[508]

Additional policies of relevance to environmental planning, include the 2012 National Development Plan (NDP), the 2012 New Growth Path, and the Medium Term Strategic Framework 2014-2019, which support the NDP.[509] The NDP, in particular, acknowledges the role spatial planning needs to play in achieving the objectives of a large-scale infrastructure roll-out in order to impact on the delivery of basic services.[510] The NDP requires 'spatial planning and development to be guided by normative principles and that policy and plans explicitly indicate how they would meet the requirements of such principles'.[511] The Infrastructure Development Act No.23 of 2014 (IDA) was then enacted to provide a

[503] South African Local Government Association 'An introduction to Municipal Planning within South Africa' (2011) *South African Planning Institute* 5. Also see Claassen (note 137 above) 928.
[504] The Kwazulu-Natal Planning and Development Act 6 of 2008, Northern Cape Planning and Development Act No. 7 of 1998, Western Cape Land and Development Act and Gauteng Planning and Development Act No.3 of 2003 were developed, however the latter two failed to commence. See Glazewski (note 126 above) 39.
[505] Claassen (note 137 above).
[506] Van Wyk (note 173 above) 136.
[507] White Paper on Reconstruction and Development GN 1954 in GG No. 16085 of 23 November 1994.
[508] Department of Land Affairs, White Paper on South African Land Policy (1997).
[509] Department of Rural Development and Land Reform (DRDLR) (2014) SDF Guidelines (Final Draft) 10.
[510] Ibid. Also see The Presidency Republic of South Africa, National Planning Commission (2012) National Development Plan 2030.
[511] National Planning Commission 'National Development Plan 2030: Our Future-make it work' (2011) 277.

legislative platform from which these policies could support the fast-tracking of these larger-scale strategic projects.[512]

A significant and strategic element of modern planning frameworks is the adoption of the principle of 'integrated development planning' which affords local government wide-ranging local economic development related powers and functions in order to fulfil its constitutional mandate.[513] In order to operationalise this principle, a need arose for practical instruments to ensure developmental coordination. This paved the way for Integrated Development Plans (IDPs) and the inclusion of Spatial Development Frameworks (SDFs).[514]

The form, powers and functions of local government is dealt with in the Local Government: Municipal Structures Act No.117 of 2008. The other act central to local government operation is the Local Government: Municipal Systems Act No.32 of 2000 (MSA) which regulates the operation of local government in the achievement of integrated development planning. The MSA requires each municipality to draw up an IDP and SDF for their local area, which identifies challenges and opportunities for growth and charts the next five years of developmental priorities.[515]

The intention of these planning tools was to provide a platform for planning which embodies constitutional norms and standards. These goals were unfortunately short-lived as the reality of having a complex set of laws running in parallel proved to be a difficult platform for change. The plethora of regulatory instruments operating in the planning framework during this period further added to the symptom of fragmentation and confusion within the system.[516] This un-integrated system was further enabled through the variety of different spatial planning instruments with different empowering legislation and regulations, which in turn gave rise to a number of court cases.[517] Although the discourse has shifted to attempting to create a more cohesive framework, the difficulty in streamlining planning law is clear in the multiple efforts to effect legal reform. These attempts have, arguably, 'been largely

[512] The government has made a clear move to accelerate the priority national infrastructure roll-out through the promulgation of the Infrastructure Development Act No. 23 of 2014 (IDA).
[513] S44 of the Constitution, refer to Schedule 4 and 5 for government competences.
[514] Harrison P 'Integrated Development Plans and Third Way Politics in Democracy and Delivery' in U Pillay, R Tomlinson & J du Toit *Democracy and Delivery* (2006) 195. Glazewski (note 126 above) 13.
[515] Chapter 5 of LG: MSA prescribes for IDPs. N McDiarmid 'Implementing Spatial Planning for Government' 2005 (3) IMIESA 31.
[516] Ibid 928; Glazewski (note 132 above) 30.
[517] G Abrahams & S Berrisford 'Addressing The Crisis of Planning Law Reform in South Africa' (2012) South African Cities Network 11. See Spatial Planning and Land Use Management White Paper GN R 1658 in GG 22473 of 20 July 2001.

unsuccessful in bringing about the intended legal reform and have rather further perpetuated the persistent fragmentation and confusion'.[518] To address these concerns the South African Government undertook a process of concerted planning law reform with the promulgation of SPLUMA on 1 July 2015.[519]

The applicability of the old order ordinances remain the remnants of the Apartheid system's pro-development approach, a symbol of the misalignment that still exists today.[520] The Constitutional Court has found that numerous ordinances were inconsistent with the Constitution and these are therefore being phased out.[521] All nine provinces have been mandated to pass new individual provincial planning legislation, however to date, the process has not been fully completed, hindering the promotion of inclusive sustainable development.[522]

The provincial ordinances were not the only developmental legal instruments that have faced constitutional challenge, the Development Facilitation Act No 67 of 1995 (DFA) also faced similar questions regarding constitutionality. The DFA was enacted as a temporary resolution to address the segregationist spatial legacy, intended to expedite service delivery to impoverished areas, taking land-use planning away from municipal decision-makers and fast-tracking development by giving it to the better resourced Provincial Development Tribunals.[523] The Constitutional Court has subsequently declared sections of the DFA unconstitutional due to the unjustifiable limitation of municipal powers.[524]

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[518] S Berrisford 'Unravelling Apartheid Spatial Planning Legislation in South Africa' (2011) 22 *Urban Forum* 248, 251.

[519] Proclamation of SPLUMA in GG No. 38828 (27 May 2015). Refer to S3.2.1 for repealed laws.

[520] Each of the four provinces that existed before 1994 had an ordinance which regulated land use planning. These include: The Town-Planning and Townships Ordinance No.15 of 1986; the Cape Province's Land Use Planning Ordinance No.15 of 1985; the Orange Free State's Townships Ordinance No.9 of 1969; and the Natal Province's Town Planning Ordinance No. 27 of 1949. The Transvaal, Cape Province and Orange Free State Ordinances remained in force until after 2010, of which The Free State still remain in force as of the date of the study. See F Goagoase *Planning Law in Namibia* (2013) 29.

[521] Spatial Planning and Land Use Management White Paper GN R 1658 in GG 22473 of 20 July 2001. Also see *Camps Bay Ratepayers and Residents Association and Others v Minister of Planning, Culture and Administration Western Cape* 2001 (4) SA 294 (C). Obiter dictum in *City of Johannesburg Metropolitan Municipality v Gauteng Development Tribunal* 2010 (6) SA 182 (CC).

[522] The only vague reference to sustainable development is referenced in the Cape Province Ordinance 33 of 1935 as 'coordinated and harmonious development', yet this reference cannot be considered constitutionally inspired.

[523] SPLUMA also repeals certain Acts, namely: The Removal of Restrictions Act No. 84 of 1967; Physical Planning Act No. 88 of 1967; Less Formal Township Establishment Act No. 113 of 1991; and the Physical Planning Act No. 125 of 1991.

[524] *City of Johannesburg Metropolitan Municipality v Gauteng Development Tribunal* 2008 (4) SA 572 (W). *City of Johannesburg Metropolitan Municipality v Gauteng Development Tribunal* 2010 (2) SA 554 (SCA); 2010 (2) BCLR 157 (SCA).

SPLUMA supplanted the DFA and other ancillary planning laws, unifying the spatial planning system into one coherent and inclusive planning framework.[525] Importantly, SPLUMA provides for the sustainable and efficient use of land and spatial justice. One of the main aims of the new system of planning law is 'to create a uniform, recognisable and comprehensive system of spatial planning and land-use management throughout South Africa'.[526] The introduction of SPLUMA was not the panacea many expected as the presence of overlapping planning systems at various spheres of government caused operational complications.[527]

Planning law therefore shapes and governs everyday activities in significant and inescapable ways.[528] All infrastructural developments need to be planned, integrated and authorised, all the while existing within a multifaceted regulatory framework of intertwined acts, ordinances and regulations. As stated above, the South African planning system is historically unintegrated by design and characterised by various fragmented parallel processes, manifesting in unequal, disjointed and ineffective settlement patterns.[529] The status quo leads to a 'complex and inefficient framework, with planning officials in all spheres of government having to deal with different systems within the jurisdiction of each province and municipality'.[530]

6.4.1 *Municipal Systems Act No. 32 of 2000*

The Municipal Systems Act (MSA) caters for the fundamental values, tools and procedures to empower municipalities to serve communities by ensuring equitable access to necessary services.[531] The Act defines the legal nature and legislative powers of municipalities, establishing a structured system for strategic and integrated municipal planning, performance management and the use of municipal resources. The Act seeks to redress the effects of the pre-constitutional era of land-use management, focusing on uplifting and empowering of poor

[525] SPLUMA was passed into law on 1 July 2015.
[526] Preamble of SPLUMA.
[527] J De Visser and X Poswa 'Municipal Law Making under SPLUMA: A Survey of Fifteen First Generation Municipal Planning By-Laws' (2019) 22 Potchefstroom Electronic Law Journal 2, 25.
[528] P Murray 'Zoning Matters: A 'SPLUMA' Score-Card One Year On' De Rebus (2016) Available at: http://www.derebus.org.za/zoning-matters-spluma-score-card-one-year/.
[529] See 6.2 above.
[530] The Spatial Planning and Land Use Management Act No. 16 of 2013 (SPLUMA) preamble refers explicitly to persisting 'fragmentation, duplication and unfair discrimination, which characterised pre-existing planning law'. Also see Spatial Planning and Land Use Management Bill GG 35445 of 15 June 2012.
[531] Preamble of the Municipal Systems Act No.32 of 2000.

communities. The MSA sets out the requirement for municipalities in South Africa to develop both individual IDPs, including SDFs[532] in order to manage the land-use system.[533]

6.4.1.1 *Integrated Development Plans: The embodiment of local planning*

The notion of 'integrated development planning' and the requirement for municipal IDPs was introduced within the South African context through the Local Government Transition Act No.97 of 1996 and then further described in the White Paper on Local Government of 9 March 1998. The development of IDPs was then formally introduced through in the MSA. The MSA obliges municipalities to design and implement a five year annually reviewable IDP in order to address the identified developmental issues, guiding and planning broad-based management and expenditure.[534] The local and district municipalities bear the responsibility to formulate and implement IDPs, apportioning them legal status, superseding all intersecting plans that concern development within local government. The IDPs thus carry significant weight within the local developmental planning metric, as they reflect the vision for 'development of the municipality, with special emphasis on the most critical development and internal transformation needs'.[535]

The MSA has self-imposed environmental obligations, committing to provide services in an environmentally sustainable manner. The Court in *Le Sueur and Another v Ethekwini Municipality* confirmed that an explicit municipal duty exists to ensure that environmentally-sensitive land is protected and conserved.[536] The responsibility of environmentally-conscious planning and protection is therefore a core obligation of local government, even though the 'environment' is not an explicit functional competency, municipal planning must recognise the s24 right to environmental health and wellbeing.[537]

[532] Little is said about the SDF in the MSA, this is detailed in SPLUMA and dealt with under this section.
[533] S25 and S26 of the MSA. See Yacoob J in Wary Holdings (note 185 above) para 132, stated that 'municipalities must engage in integrated development planning as set out in the MSA.'
[534] The Act also requires municipalities to review the IDP on an annual basis and reflect on progress made. See S34 of the MSA.
[535] S26(c) of the MSA.
[536] There is an obligation on municipalities to contribute to the progressive realisation of the constitutional rights. See *Le Sueur* (note 271 above) 24.
[537] S23(1)(c) of the MSA.

Therefore it is vital that both SDFs and IDPs have strong environmental policy considerations.[538] Sensitive areas must, consequently, feature in the decision-making of municipal planning, especially where a high ecological value is present.[539]

The MSA requires that IDPs must be compatible, aligned, integrated and reflective of 'all national and provincial development plans and planning requirements in order to reflect the common growth strategies and sector plans'.[540] The MEC or provincial authority may also facilitate the 'co-ordination and alignment of IDPs of different municipalities, including plans, strategies and programmes of national and provincial organs of state'.[541] IDPs therefore play the role of linking, integrating and co-ordinating all intra-departmental, provincial and national development plans, supporting and integrating with the applicable SDF.[542]

However, on a local level the most important integration must occur between the municipal IDPs and SDFs, as these instruments are integral to fulfilling the local integrated planning function. The spatial analysis section of the IDP provides the existing spatial pattern, growth points and population concentrations that have emerged in the municipal area, while spatial detail, challenges and opportunities is contained in the SDF.

The spatial future of an area is based on the collective decisions regarding land-use, characteristics and developmental drivers of the area. The IDP must encapsulate these features and produce a nuanced and appropriate plan to guide development.[543] The IDP must 'involve the local community in the development, implementation and review of the municipality's performance management system, and, in particular, allow the community to participate in the setting of appropriate key performance indicators and performance targets for the municipality'.[544] IDPs do not only permeate state departments and directly affected communities but should also be the product of engagement between NGOs, CBOs, business, traditional authorities, as well as private and public institutions of higher learning. The IDP is

[538] *Le Sueur* (note 271 above) 24. Also see 23(1)(c) of the MSA.
[539] 'One of the driving forces in the EMFs recent growth is the support they provide for SDFs vision.' See Marais (note 357 above) 96.
[540] S25 of the MSA. Also see s 41 of the Constitution.
[541] The province may also take appropriate steps to resolve disputes in connection with the planning, drafting, adoption or review of an IDP between a municipality and the local community; and different municipalities.
[542] Chapter 5 of the MSA.
[543] Wary Holdings (note 185 above) para 136.
[544] S42 of the MSA.

therefore a consultative document, requiring meaningful engagement and embodying both vertical and horizontal alignment through its construction and implementation.

The IDP, as the chief local planning tool, is therefore integral to the delivery of basic services and realising sustainable development. From the perspective of ecosystem integration and multi-functionality, it is clear that sustainable development has been integrated into the IDP framework, yet no nuanced understanding of its application is presently applied. Capacitation and continual learning continues to be a challenge for directly affected communities in rural areas. The areas of successful representation of the ESP are co-operative governance, sectoral integration and transparent monitoring and access to information, as these are heavily co-operative documents available on municipal websites, which additionally have annual reporting requirements.

6.4.1.2 *Integrated Environmental Management Plans: A local environmental plan*

All municipalities in South Africa are required to comply with and, where relevant, implement national and provincial laws and policies. In terms of the MSA, service delivery must be performed in an 'environmentally sustainable manner, ensuring that the risk of harm to the environment and to human health and safety is minimised and that potential benefits are maximised to the extent that they are reasonably possible under the circumstances'.[545] The MSA further requires that 'all legislation that is intended to protect the environment and human health and safety is complied with'.[546] The Integrated Environmental Management Plans (IEMPs) are meant to facilitate compliance with such legislation and adopted environmental policies.[547]

An IEMP is described as 'a plan or programme that seeks to achieve a required end state and describes how activities that have or could have an adverse impact on the environment, will be mitigated, controlled and monitored'.[548] IEMPs should be incorporated into the IDP processes so as to ensure that principles of sustainable development at a local level are promoted and considered during the planning, implementation and monitoring process.

The IEMP presents the requirements and procedures necessary to make sure that the environment is not adversely affected by impactful activities and that such development can

[545] S1 of the MSA.
[546] Ibid.
[547] Even though this is the intention there is no clear and recognisable provision set out for IEMPs yet it is more of a customary tool utilised.
[548] SANParks 'Environmental Management Plan: Construction Activities' (undated) 3.

be environmentally sustainable over the long-term on a local and district level. The IEMP acts as an instrument for the municipality to ensure that sound environmental management practices are incorporated during developments in the municipal area. Additionally, the IEMP must ensure appropriate restoration of affected areas and delivery of services in an environmentally sustainable manner.

IEMPs approach and apply environmental management and understand ecological resources and the broader natural environment as the key foundation for social and economic systems. Although there may be various applications of environmental management by local government, the IEMPs often focus on the requirements for management of the natural system that underpins human well- being, quality of life and the economy.

Whilst preparation of IEMPs by municipalities does not currently have a well-founded position in law, municipalities are increasingly turning to these plans to integrate and appreciate regional environmental concerns and obligations. The IEMP can serve as the central integrated repository of all relevant municipal environmental policies, programmes and by-laws.[549] IEMPs, once prepared, provide 'invaluable guidance for municipalities and their communities, leading to the strengthening of environmental input into the IDP preparation processes'.[550] However, due to the uncertain status of IEMPs the public participation requirements are not clearly presented and thus the involvement of directly affected stakeholders is not distinctive.

Many smaller municipalities deal with environmental management in a decentralised way through various municipal functions including: community services, water and wastewater, and waste management. The lack of a co- ordinated and integrated environmental management policy has been recognised as a significant constraint within municipalities.[551] From this it is clear that IEMPs fall short in a number of respects, namely, scale and spatial awareness, multi-stakeholder collaboration and participation, as well as transparent monitoring and access to information.

[549] J Middleton et al 'Environmental Management and Local Government' PDG Occasional Paper No. 1 (April 2011) 20.
[550] Ibid.
[551] WA Wegelin & HE Jacobs 'The development of a municipal water conservation and demand management strategy and business plan as required by the Water Services Act, South Africa' (2012) 3 *Water SA* 415, 421.

6.4.2 *The Spatial Planning and Land Use Management Act No.16 of 2013*

It is clear that the South African spatial planning system has been under constant reform since the inauguration of the new dispensation, inheriting a system designed to give effect to unconstitutional developmental models. The era has been characterised by various bodies undertaking fragmented parallel processes, manifesting in unequal, incoherent and inefficient settlement patterns.[552] To ensure that development takes place in an integrated and sustainable manner, the IDPs and SDFs of municipalities now have to be aligned with the principles and directives in SPLUMA.

The goal of SPLUMA is to establish an inclusive, equitable and efficient spatial planning and land-use management framework, supporting uniform approaches to decision-making by authorities. SPLUMA attempts to add the required detail to clarify the confusion that persists with regard to the various competencies of planning. The role of the SPLUMA principles is overarching, applying to 'all organs of state and other authorities responsible for the implementation of legislation regulating the use and development of land'.[553] SPLUMA increases the level of obligations within the municipalities' ambit of responsibility, many of which are under resourced and undertrained, making the full implementation of SPLUMA a challenge.[554]

SPLUMA endeavours 'to align planning principles and law into one clear and unambiguous system, founded on constitutionally protected rights including the right to environment, water, food and housing'.[555] It integrates constitutional principles and considerations into IDPs and SDFs, providing an opportunity to encourage sensitive area protection and sustainability into developmental planning.

The scope of the municipal function within the spatial planning framework expanded dramatically as a result of the enactment of the SPLUMA and the recent judgments of the Constitutional Court.[556] Each province is empowered by the Constitution to pass provincial

[552] SPLUMA White Paper (note 293 above).
[553] S6(1) of the SPLUMA.
[554] Presentation to the 8th National SALGA Municipal Managers Forum Programme, SPLUMA implementation: Challenges & Proposals, Department of Rural Development and Land Reform, 4-5 September 2014.
[555] Snyman (note 1 above) 21.
[556] On 29 January 2016, the Constitutional Court of South Africa, in the matter of *Tronox KZN Sands (Pty) Ltd v KwaZulu-Natal Planning and Development Appeal Tribunal*, confirmed an order of the High Court, declaring S45 of the KwaZulu-Natal Planning & Development Act 6 of 2008 ("the PDA") constitutionally invalid.

planning laws to further regulate municipal planning in that particular province and to also regulate the provincial government's own planning.[557]

The new approach contained in SPLUMA recognises the use of spatial planning tools[558] yet, in order for these instruments to be effective their role needs to be clarified. The importance of integrating these central planning tools is crucial to the success of sensitive area management, as they lay out the core strategies and objectives for development in the area.[559] These planning instruments would have to include the fundamental principles that make up the core objectives of SPLUMA in the act's preamble. The most important of these include sectoral integration, spatial sustainability and resilience, spatial justice and equality, efficiency, participation and co-ordination as well as accuracy of information and data. These principles are closely related to the ESP elements; this is encouraging as all land-use applications must be supported and align with the five foundational principles.

6.4.2.1 *Spatial Development Frameworks: The spatial component of local planning*

A SDF is a 'compulsory framework that seeks to guide the overall spatial distribution of desirable land-uses within a municipality in order to give effect to the vision, goals and objectives of the municipal IDP'.[560] The SDF is seen as a central element of the IDP, encapsulating the spatial policy and developmental aspirations of the area, identifying resources and developmental potential in order to maximise sustainable growth. Although the MSA requires the SDF construction, there are no details on how this must occur, this is housed in SPLUMA. The legislative framework regulates integrated development and identifies the significance of appreciating the spatial context of a receiving environment in order to efficiently manage integrated local development.

The SPLUMA-led spatial system utilises the SDF to promote social, economic and environmental sustainability throughout the province, district and local municipal boundaries, ensuring that the developmental needs of the regions are met. Broadly, the SDF hopes to assist all levels of government to address key problem areas and establish a more balanced

[557] Only the Western Cape has made use of this constitutional power in the 'post- SPLUMA' era, it is unclear whether the other provinces will complete the planning architecture envisaged by SPLUMA by passing provincial planning legislation.
[558] S7(b)(3) of SPLUMA.
[559] IDPs and SDFs are required in terms of S 25 of the MSA.
[560] S26(e) of the MSA. Also see Guidelines for the Development of Provincial, Regional and Municipal Spatial Development Frameworks and Precinct Plans, Department of Rural Development and Land Reform (September 2014) 67.

spatial development pattern for the province with an integrated settlement hierarchy. Although a powerful tool in the 'expression of the coordination, alignment and integration of sectoral policies',[561] SDFs are only authorised to guide and inform integrated developmental planning. From a practical perspective, the SDFs are used to assist any developmental application process during the proposal stage, allowing the developers and decision-makers insight into the overall view of spatial sensitivities and impacts within the region.

The management of growth in urban and rural environments relies on the exploitation of opportunities and the understanding of risks and impact on resources. The SDF is a central element of the IDP, encapsulating the spatial policy and developmental aspirations of the area, identifying resources and potential in order to maximise sustainable growth for the implementation of the IDP.

The SDFs are strategic in nature and aimed at the integrated development of the municipality, co-ordinating various sector plans, aligning municipal resources and capacity in an effort to fulfil the objectives of the IDP. Moreover, an SDF must 'assist in integrating, coordinating, aligning and expressing development policies and plans emanating from the various sectors of the spheres of government as they apply within the municipal area'.[562] The national and provincial spheres of government and each municipality must formulate SDFs that represent the incorporation of all relevant departmental policies and plans, especially appreciating and assimilating any adopted environmental management instrument.[563]

From an environmental management perspective, it's crucial that SDFs have strong environmental policy considerations. Environmentally-focused spatial planning tools, such as EMF's for instance, practically support the SDFs vision, informing and guiding planning decisions of the SDF.[564] SPLUMA thus recognises the use of these tools in the construction of planning tools and all other developmental considerations.[565] The SDF must also 'give effect to all national legislation and policies on mineral resources and the sustainable utilisation and protection of agricultural resources'.[566]

[561] S12(3) of SPLUMA.
[562] S12(5) of SPLUMA.
[563] S12(1)(m) of SPLUMA.
[564] Municipalities are using EMFs to pre-screen environmental characteristics in order to inform SDF formulation, this is factor can be attributed to the recent growth of EMFs which is creating demand for its use and aiding its popularity. See Marais (Note 357 above) 95.
[565] S7(b)(3) of SPLUMA.
[566] S12(1)(n).

SPLUMA requires SDFs to be 'prepared and adopted by national, provincial and municipal spheres of government',[567] guiding the 'overall spatial distribution of current and desirable land uses within a municipality in order to give effect to the vision, goals and objectives of the municipal IDP'.[568] These frameworks must work in unison, pointing to the importance of alignment and co-operative governance. If there is conflict between provincial and municipal SDFs, the Premier must enable the revision of the SDFs to achieve consistency.[569] In connection with the preparation, adoption or revision of the SDF, the municipality must take appropriate steps consistent with IGRFA to resolve disputes between municipalities.[570]

In order to be effective, public and private stakeholders need to be made aware of the objectives and practicality of the SDF. This requires considerable consultation, publicity and awareness campaigns. Avenues that need to be pursued are public meetings, exhibitions, debates and discussions in the media.[571] Central to such participation is access to information, as each sphere of government must prepare SDFs that 'provide clear and accessible information to the public and private sector and provide direction for investment purposes'.[572] The reviewability of SDFs is in line with that of IDPs, in that each spatial instrument must be reviewed every five years.[573]

The SDF model has many characteristics that mirror ESP. The foremast elements that are represented include ecosystem integration and multi-functionality, sectoral integration and, in particular, scale and spatial awareness.

[567] S12(2)(b) of SPLUMA.
[568] SDF Guidelines (note 506 above). See S26(e) of the MSA, which requires all municipalities to compile SDFs as a component of the IDP.
[569] S22(3) of SPLUMA.
[570] Ibid.
[571] S12(1)(o) of SPLUMA.
[572] S12(1)(g) of SPLUMA.
[573] S15(5) of SPLUMA.

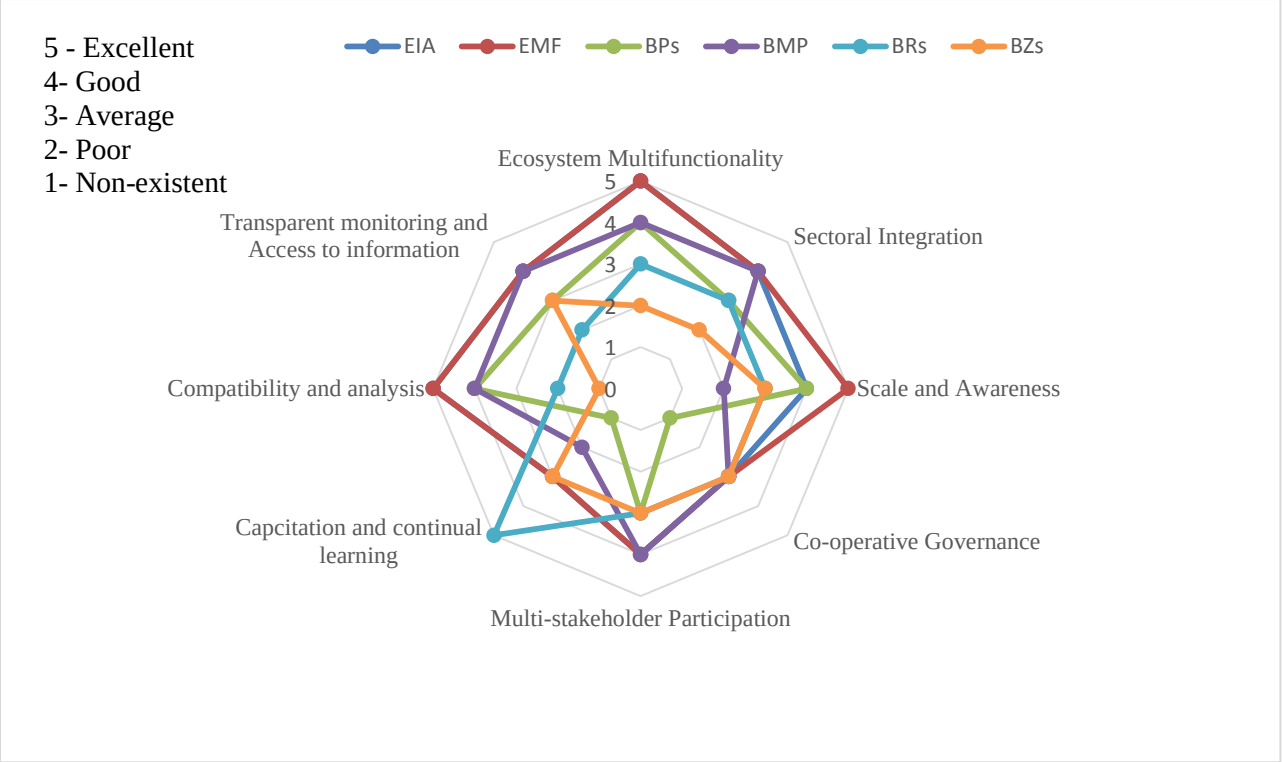
6.5 ***Concluding Remarks and Legislative Assessment***

This section provides a birds-eye view of the legislative context within which ESP is located. From the narrative presented above it is clear that the manner in which the legal framework has been designed intentionally formulates these plans to operate in an overlapping fashion. It is therefore important to understand which plans or combinations work best and how they align with the principles of ESP. In order to achieve this, an assessment of the integration of these elements is presented in the concluding summary. The assessment, as explained above, uses a one to five rating scale.

The section will be broken down into both the environmental and spatial planning assessment, and then a final combined view will present the broad assessment of the overlapping spatial planning and environmental systems in order to give a picture of both systems in order to present a brief comparative picture. The section will, furthermore, make use of radar diagrams and colour coded tables to illustrate the representivity of the thematic elements and to identify themes between the plans, particularly between the two intersecting areas of environmental management and spatial planning. As stated above, this is a birds-eye view and will therefore not be discussed in-depth as this is reserved for the 'findings and observations' in chapter 10.

6.5.1 *Environmental mechanisms*

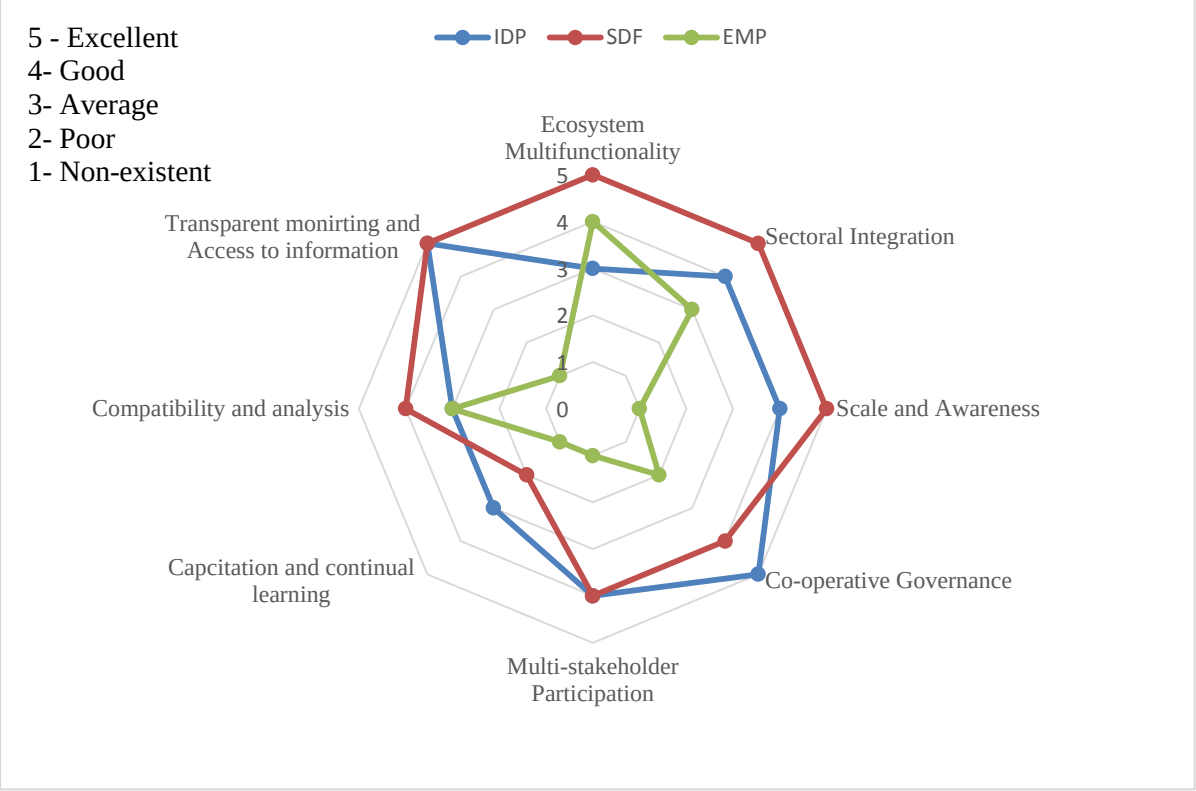
The graph below shows that out of the five environmentally-driven plans assessed, the EIA and EMF are most representative of the ESP elements. These two tools, as well as bioregional Plans, suffer from a similar downfall, in that capacitation and continual learning is not well represented and integrated into the system. The diagram also represents the deficiencies of the spatial nature of certain plans, in particular portrayed in biosphere reserves. Sectoral integration is not well represented, with the buffer zones and biosphere reserves the worst performing tools. Co-operative governance is also a general issue that is not adequately addressed, with all the mechanisms showing an average representation and buffer zones having a non-existent representation of the ESP elements.



Graph 1: Environmental management legal framework assessment table

6.5.2 *Spatial planning mechanisms*

The spatial planning tools that are under assessment depict a very different illustration the above environmental mechanism table, as can be seen by the radar diagram below. The spatial planning framework shows stark differences that exist between the adoption of the elements of ESP. The environment does not play as key a role, apart from in the SDFs. Capacitation and continual learning is not well represented in law, while definite issues exist with regards to transparent monitoring and access to information, collaboration and multi-stakeholder participation and compatibility assessment and analysis in the construction and maintenance process are present. The worst performing spatial planning mechanism is the EMP which fails to represent any of the elements in an above average rating except ecosystem multifunctionality with the remaining elements being non-existent to poor.



Graph 2: Spatial planning legal framework assessment

6.5.3 *Combined view of environmental and spatial planning mechanisms*

The illustration below depicts the priorities of the different planning and environmental tools. It is clear that the environmental framework has been infused with not only an environmental prioritisation but, also a prioritisation of access to information, spatial awareness and sectoral and co-operative integration. Certain elements are favoured but the environmental tools fare much better than the spatial planning tools in relation to ESP elements.

5 – Excellent	4 – Good	3 – Average	2 – Poor	1 – Non-existent

ESP ELEMENTS	**EIA**	**EMF**	**BPs**	**BMPs**	**PAMPs**	**BRs**	**BZs**	**IDPs**	**SDFs**	**EMPs**
Ecosystem Multi-functionality										
Sectoral Integration										
Scale and Awareness										
Co-operative Governance										
Multi-stakeholder Participation										
Capacitation and continual learning										
Compatibility and analysis										
Transparent monitoring and Access to information										

Table 2: Environmental management and spatial planning legal framework assessment table

This chapter has shown the explicit and purposeful links made by the legislature that reinforce the national adoption of spatial planning within an environmental context, as well as within the context of the ESP elements. One can argue that the South African environmental and spatial planning legal framework purposefully operationalises the principles of ESP to realise the goal of sustainable development. The next chapter will utilise the case study of Mapungubwe to show the practical issues that are present in the application of ESP legislation and tools.

CHAPTER SEVEN: THE STORY OF MAPUNGUBWE WORLD HERITAGE SITE AND NATIONAL PARK: A CASE STUDY IN SENSITIVE AREA PLANNING AND MANAGEMENT

7.1 *Introduction*

The Mapungubwe case study was selected due to the area's inherent value, complex history and importantly, the proliferation of spatial and environmental planning tools that are implemented over the region.[574] The case study serves as a prime example of the challenges of balancing conservation and developmental imperatives in sensitive areas. Moreover, the case study showcases how misaligned and often uncoordinated development leads to incompatible land-uses and, ultimately, the loss of areas of significance. The Mapungubwe story has become a cautionary tale for other sensitive areas regarding the far-reaching repercussions of adopting a developmental growth path that prioritises economic development over regional conservation. It is important to learn from the consequences of a rapidly transforming environment that ultimately impacts on the sanctity and sustainability of such irreplaceable sites.

A primary aim of the chapter will be to examine the myriad of spatial and environmental planning tools that are in force over the area with a view to understand the challenges that exist from a developmental and conservation related perspective. The extent of the adoption of the thematic elements of Environmental Spatial Planning (ESP) will form the basis of the enquiry set within the story of the development and conservation of the Mapungubwe. The ESP identifiers provide the lens through which the specific environmental and spatial plans will be approached in this case study chapter.[575] The hope is to present the challenges of the conservation and development agendas within the foil of the Mapungubwe story, using the knowledge and opinions of interviewees to provide context, support and a corroboration of positions.

[574] Refer to 'Methodology Chapter 3' above.

[575] The ESP thematic identifiers include: compatibility examination and analysis; scale and spatial awareness; multi-stakeholder collaboration and participation; ecosystem-driven integration and multi-functionality integration; sectoral integration; co-operative governance; transparent monitoring and access to information and finally, capacitation and continual learning.

7.2 ***Mapungubwe National Park and World Heritage Site***

7.2.1 *Geographic locality*

Figure 1: Location of Mapungubwe National Park and World Heritage Site

Mapungubwe is set directly against the northern border of South Africa, joining Zimbabwe and Botswana, falling within the Vhembe District and the Musina Local Municipality. A small part of the original 2009 gazetted Mapungubwe buffer zone falls in the south-western corner situated in the Capricorn District and the Blouberg Local Municipality. This northern region of the Limpopo Province is identified as an important region of potential growth due to its position as a transit region for two major Southern African Development Community (SADC) trading partners. The primary economic drivers of the area are mining, agriculture, game farming and tourism.

The current Mapungubwe core and buffer zone areas are a sprawling savannah type setting, located at the confluence of the Limpopo and Shashe rivers, a classified strategic water source area (SWSA) and somewhat of an oasis in an otherwise arid region.[576] Mapungubwe has also been recognised as having wide-ranging and important biodiversity; being granted not only the status of a World Heritage Site but also a National Park and Critical Biodiversity Area (CBA).[577]

[576] The Shashe and Limpopo confluence is listed as a Strategic Water Source Areas in terms of NWA.
[577] In terms of S20 of NEM: PAA and S52 of NEM: BA respectively.

7.2.2 *Historical context*

The story of Mapungubwe begins roughly one thousand years ago, where the site formed the birthplace of the first class-based Southern African kingdom. Between approximately 1200 to 1300 AD, a sophisticated community amassed extensive wealth by trading gold and ivory with traders from China, India and Egypt.[578] The area flourished until it was deserted in 1400 AD; many scholars believing that the climate shifted considerably making and the area no longer inhabitable.

Mapungubwe's modern discovery would prove to be just as intriguing and even more contentious. In the early parts of the 20th century, South Africa was still under colonial rule. This would have a considerable impact on shaping the developmental and conservation landscape of the greater Mapungubwe area for the next century. Recognition of the area's ecological beauty and value was present early on, when in 1922 the first nine farms in the current core and buffer zone area were combined and preserved as a botanical reserve. The modern discovery of Mapungubwe took place in 1932, where the discoveries were abundant, including the clearly constructed walls to the gold artefacts, including the famed golden rhino.[579] With the assistance of the University of Pretoria, the site was secured and research commenced. The University was even successful in requesting a postponement of prospecting, mining and related activities during the excavation period. The area was then formally declared a wildlife sanctuary in 1947.

A change of the governing party led to the repeal of the declared wildlife sanctuary in 1948, with white farmers settling in the area. The site became increasingly contentious during this time due to the evidence it provided of an indigenous civilisation that flourished before European occupation. The concern was that the discovery would discredit the philosophies of the Apartheid state that the black majority required European intervention to become 'civilised'. As a result, Mapungubwe remained hidden from public attention for many of the early years after discovery.

By 1967 there was a renewed lobbying for park status which led to a far smaller provincial nature reserve consisting of three farms being proclaimed.[580] This move was supported by De

[578] T Huffman 'Mapungubwe and the Origins of the Zimbabwe Culture' (2000) 8 S*outh African Archaeological Society Goodwin Series* 14.
[579] T Huffman 'Mapungubwe and Great Zimbabwe: The origin and spread of social complexity in southern Africa' (2009) 28 Journal of Anthropological Archaeology 37.
[580] Mapungubwe Park Management Plan 2008 (note 452 above) 14.

Beers, who then established Venetia Diamond Mine to the South of Mapungubwe in 1990. The relationship between the park and De Beers has been intertwined since its inception as the majority of the land on which the park is located was previously owned by the company and was donated to the state for the purposes of conservation.[581]

The new African National Congress (ANC)-led government viewed the protection of the site as a national priority, actively pursuing an agreement between the various spheres of government and other stakeholders to reach consensus on the future of the site. Agreement was achieved in 1995 when SANParks was mandated as the managing authority. The Mapungubwe National Park was established in 1998.[582]

Mapungubwe was declared a World Heritage Site by UNESCO in 2003. The importance of the site was shared by neighbouring countries Botswana and Zimbabwe and after years of engagement between the parties the Greater Mapungubwe Transfrontier Conservation Area (GMTFCA) was established in 2006.[583] The GMTFCA negotiation was facilitated by Peace Parks Foundation and secured the entire cross-boundary area around the Mapungubwe National Park.

The establishment of the Vele Colliery is an important moment in the development of the broader area, as it became the flash-point behind the public outcry and call for better protection. The establishment of Vele Colliery was the catalyst for many of the ESP tools that are present in the area today.

[581] See https://www.peaceparks.org/tfcas/greater-mapungubwe/.
[582] Mapungubwe National Park was established through an interdepartmental government transfer and a number of land acquisitions commencing in 1996 which finally lead to declaration of the protected area on 9 April 1998.
[583] 'A memorandum of understanding (MoU) on the TFCA's establishment was signed on 22 June 2006 and an international coordinator was appointed. On 19 June 2009, the Limpopo / Shashe TFCA was renamed the Greater Mapungubwe TFCA.' See Mapungubwe Park Management Plan 2008 (note 452 above) 16.

7.2.3 *The entry of Vele Colliery*

Figure 2: Proximity of Mapungubwe National Park to Vele Colliery

In 2008 it emerged that an Australian-based coal company, Coal of Africa Limited (CoAL)[584] had been granted a mining right 7 km from the north-east boundary of the park.[585] The initial approval by the Department of Mineral Resources (DMR) issued in 2010 was challenged by a coalition of NGO's under the banner of the Save Mapungubwe Action Group (SAVE).[586] On 3 August 2010, SAVE interdicted Limpopo Coal (Pty) Ltd (the holding company of CoAL) believing that the nature of the mining activities, and associated infrastructure, would negatively impact the universal value and sensitivity of the landscape. SAVE was also concerned that there was a lack of consultation, the EIA was deficient and that a water use licence (WUL) had not been approved.[587] The mine had also breached the NEMA EIA regulations by initiating mining activity and related activities without receiving the requisite EA.[588] As a result, the DEA issued a compliance notice to the company on 5 August 2010 to terminate activities that were in violation of NEMA.[589] Activities were stopped while further studies were conducted.[590]

[584] Now trading as MCMining (Pty) Ltd.
[585] Y Groenewald 'Mapungubwe Mining Go-ahead' *Mail and Guardian* 5/08/2010. Available at: https://mg.co.za/article/2011-09-02-mapungubwe-mining-goahead.
[586] The Coalition comprised of the Endangered Wildlife Trust (EWT), the Association of Southern African Professional Archaeologists (ASAPA), Peace Parks Foundation, World Wildlife Fund South Africa (WWF-SA), Birdlife South Africa and the Wilderness Foundation of South Africa.
[587] Peace Parks Foundation 'Mining in the Mapungubwe area ceases-for now' Press release 11/09/10 http://www.ppf.org.za/news.
[588] Ibid.
[589] 'Activities include the construction of roads, above ground storage of dangerous goods, activities within a 1:10 flood line, the construction of a sludge dam and the installation of a water pipeline network.' See Media briefing on Environmental Authorisation Granted for Section 24G application by Coal of Africa. https://www.environment.gov.za/mediarelease/environmentalauthorisation_section24gapplication_coalafrica.
[590] This was, at the time, the largest coalition of specialist NGOs that were formed to combat a mining development in South Africa. See Centre for Applied Legal Studies '*Changing corporate behaviour: The Mapungubwe case study: A research report'* (2014) 18.

> *The development of Vele Colliery posed the single biggest threat to the preservation of the sensitivities surrounding Mapungubwe. The worry is that if one mine is permitted it will open the floodgates for more extractives that will permanently destroy the sanctity of the site.*
>
> *Save Mapungubwe Coalition member*

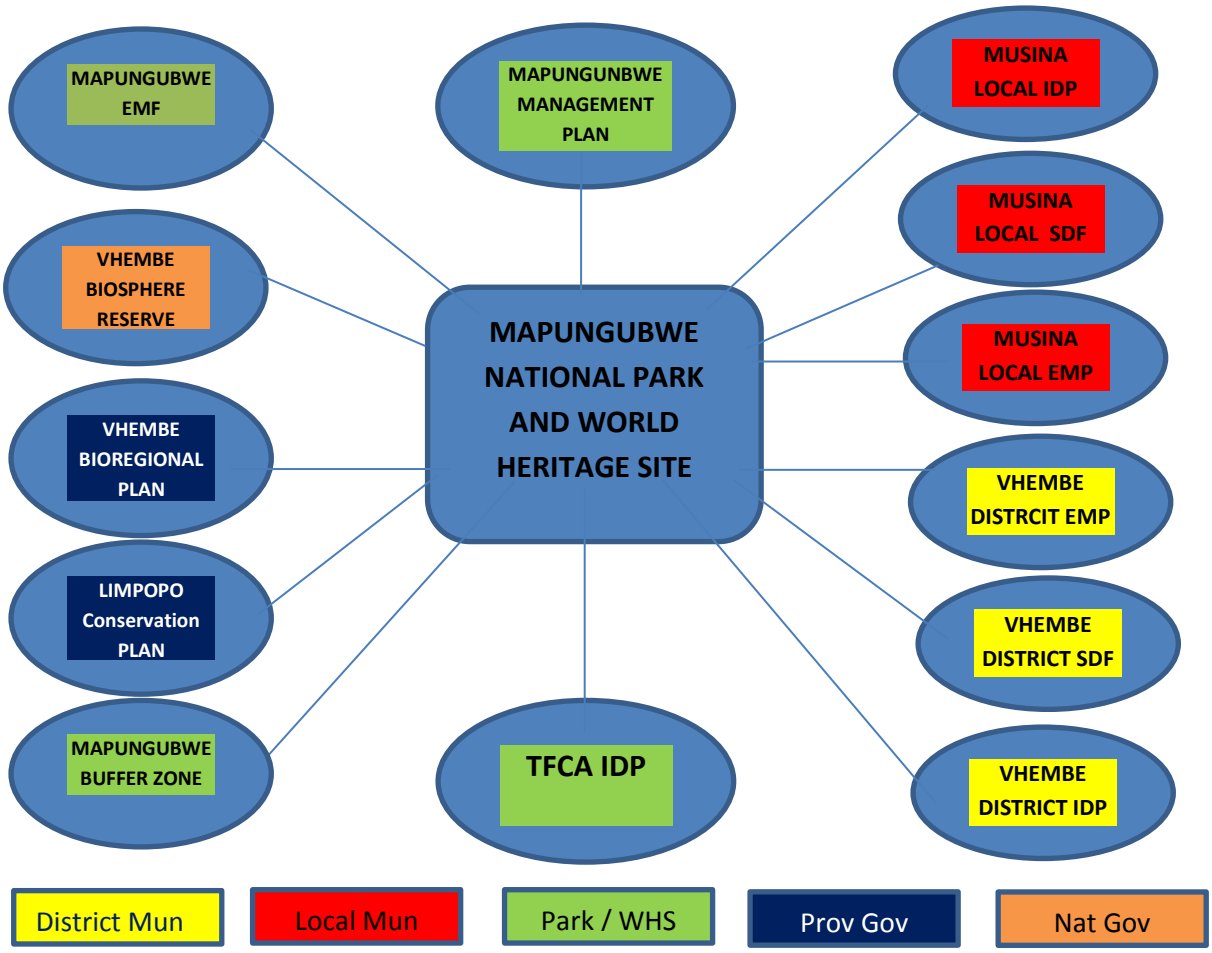
Surprisingly, in 2011 the DEA reversed its suspension, approving the Environmental Management Plan (EMP) and agreed that CoAL could continue with the development of Vele Colliery. CoAL, DEA and SANParks signed an agreement in August 2011 stating that 'the integrity of the heritage site would be conserved and sustained by comprehensive biodiversity offset programmes and would optimise benefits to local communities'.[591] SAVE did not object to the second approval for Vele Colliery, instead, signing a Memorandum of Understanding (MoU) whereby the company and all parties would pledge to work in partnership to ensure sustainable development and the protection of the site.[592]

Although halting the mining operation was not successful, what was positive was the amendment of the EA to include a variety of progressive conditions for heightened compliance and strict controls. The decision not to pursue a litigation strategy and to rather enter into negotiation is a decision that remains contentious today. Out of this adversarial relationship came the condition to engage as part of a multi-stakeholder compliance monitoring body, as well as the requirement for a comprehensive multi-million rand biodiversity and heritage offset agreement.[593] These would be the first of its kind within the extractive sector in South Africa, offering a different approach to dispute resolution within the NGO sector. All the activities at Vele Colliery have since resumed and been suspended again due to a long-term plant modification process driven by CoAL.

[591] Mail and Guardian 'Mapungubwe mining go-ahead' 02/09/11 https://mg.co.za/article/2011-09-02-mapungubwe-mining-goahead; Peace Parks Foundation, Annual report (2012) 11.
[592] Ibid.
[593] See:https://www.environment.gov.za/historic_biodiversity_offset_agreement_signed_department_environmental_affairs_sanparks_and_coal_afr.

7.3 *Environmental Spatial Plans Declared Over the Areas*

7.3.1 *Chronological Overview*



Graph 3: Applicable Environmental Management and Spatial Planning Instruments

As seen by Graph 3 above, the environmental tools in place over Mapungubwe National Park include the declaration of two buffer zones; a biosphere reserve; an EMF; the Mapungubwe National Park and World Heritage Site Management Plan; the Greater Mapungubwe Transfrontier Conservation Area Integrated Development Plan; and finally, the newly formulated Vhembe bioregional plan. From a spatial planning perspective, the region has both district and local IDPs, as well as SDFs and EMPs. Each of the above sector plans have different responsible authorities mandated for their construction and implementation. These are distinguished by a different colour codes.

In order to create a timeline in understanding the various tools a brief chronological overview is provided to present the initiation of the planning tools that were declared over the greater Mapungubwe area, giving context to when and how these processes were initiated and for what reasons.

The contestation and renewed public interest in the area arose with the establishment of the Vele Colliery by CoAL in the predominately farming and conservation landscape around the banks of the Limpopo river. Once the Vele Colliery was approved the national regulatory agencies, including DEA, DMR and DWS came under much scrutiny from civil society stakeholders, in particular social justice organisations, many of which escalated their concerns to the international UNESCO body.

To appease UNESCO and other concerned stakeholders, the DEA hastily and without thorough scientific assessment, completed the declaration process of the buffer zone around Mapungubwe in 2009.[594] This, however, did not quell the public and international discontent surrounding the approval of an extractives operation in such close proximity to Mapungubwe and other valuable and sensitive biodiversity areas.[595]

Recognising the interest of mining companies in all three countries to exploit the valuable coking coal resource in the greater Mapungubwe area, local stakeholders (including the Peace Parks Foundation, the National Parks Trust and WWF-SA) worked tirelessly with state agencies and local companies to declare a transboundary protective layer around the site.[596] Through a collaborative effort between Peace Parks Foundation, De Beers, the National Parks Trust and WWF-SA, SANParks amalgamated the core area of the South Africa's portion of the proposed Transfrontier Conservation Area (TFCA) between Botswana and Zimbabwe.[597]

The Limpopo/Shashe TFCA was the officially renamed the Greater Mapungubwe Transfrontier Conservation Area (GMTCA) on 19 June 2009. In the same year another group of concerned residents and civil society organisations, working for many years, succeeded

[594] The 2009 buffer zone covered various historical nature reserves, including the Venetia Private Nature Reserve and Vhembe Game Reserve, standing at 237 000ha in size. The Buffer Zone and was formally adopted and approved by UNESCO later in 2009.
[595] The UNESCO World Heritage Committee was of the view that if mining activities were to continue in the area, the inscription of Mapungubwe as a World Heritage Site might be in danger, furthermore stating that they were 'extremely concerned' about the potential impact of the proposed mine. See Decision 35 COM 7B.44 of the World Heritage Committee https://whc.unesco.org/en/soc/106.
[596] The state was represented by SANParks and the De Beers mining company was also critical to the process.
[597] A memorandum of understanding on the TFCA's establishment was signed on 22 June 2006 and an international coordinator appointed.

when UNESCO sanctioned and formally declared the Vhembe biosphere reserve, which includes Mapungubwe and the South African portion of the GMTCA, in May 2009.[598] With all these declarations and reserves in need of concurrent management plans, the GMTFCA Integrated Development Plan was formulated in October 2010.

In 2013 the Mapungubwe National Park and World Heritage Site Management Plan (Mapungubwe Management Plan) was adopted by SANParks. The Mapungubwe Management Plan was 'designed to achieve the desired state for the park and focuses 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'.[599]

There had been a dramatic upturn in land-use conflicts during this time of political negotiation, which was creating difficulties for decision-makers, regulators and developers. This pressure ultimately resulted in the commencement of the Mapungubwe Cultural Landscape Environmental Management Framework (Mapungubwe EMF) process in August 2013.[600] The intention was to take all the relevant plans and declarations into account and create an over-arching and collaborative guide to development, assisting in pre-empting land-use conflicts.

A land-use audit was also commissioned by the DEA during this time in order to assess the applicability and practicality of the declared 2009 buffer zone.[601] The 2013 Land Use Audit recommended that the size of the 2009 proclaimed buffer be reviewed in order to align the land-uses to the advancement of conservation in the core and adjacent areas to Mapungubwe. On 26 June 2014 UNESCO approved the new buffer zone boundaries (now referred to as the 2014 buffer zone).[602] The 2014 buffer zone attempted to correct the errors of the 2009 buffer zone which was rushed and uninformed by the natural and cultural characteristics of the area, but ended up being significantly smaller than the 2009 buffer zone.[603] To date, the 2014

[598] 'The VBR covers five local municipal areas of the Limpopo province, including: Blouberg, Musina, Makhado, Thulamela and Mutale; a portion of the Kruger National Park, north of the Shingwedzi River, is also included.' The size of the VBR is approximately 30 701 km2. See http://www.vhembebiosphere.org/about-vbr
[599] Mapungubwe Park Management Plan 2008 (note 452 above) viii.
[600] The Vele Project Background Information Document (BID) was sent out later that year in August 2013.
[601] See 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 (2013).
[602] The proposed 2014 Buffer Zone which is 104 800ha in size is significantly smaller than the 2009 buffer zone.
[603] The existing 2009 buffer zone was 237 000ha in size, thus being cut by more than half.

buffer zone has yet to be formally gazetted in South Africa, even though it has been approved by UNESCO.

In February 2017 the Mapungubwe EMF was finally gazetted and published. The Mapungubwe EMF should be consulted before any development can be approved in the greater Mapungubwe area. In 2018 the Vele Colliery Environmental Management Committee (Vele EMC) was notified by the Limpopo Department of Economic Development, Environment and Tourism (LEDET) that the department had initiated the development of a bioregional plan for the greater Mapungubwe area, a draft of which was published for comment in December 2017.

These plans which have been declared over the same areas must work in alignment with one another in order for there to be a common growth path for the entire region. With such a plethora of planning instruments, there needs to be clarity as to how each operates, in which functional area these plans operate and which plans supersede others in a case where conflict arises. What will follow is an examination of each of these plans within the context of the Mapungubwe case study, incorporating views and inputs from interviewees who occupy different roles and responsibilities in relation to Mapungubwe, both public and private. The analysis will be taken directly from what is contained in the plans and instruments themselves. This analysis will then assess the plans' incorporation of the ESP elements as discussed in the previous chapter with a view to understanding the incorporation of ESP elements in to the plans that are in place over the case study area.

7.3.2 *Mapungubwe Buffer Zone*

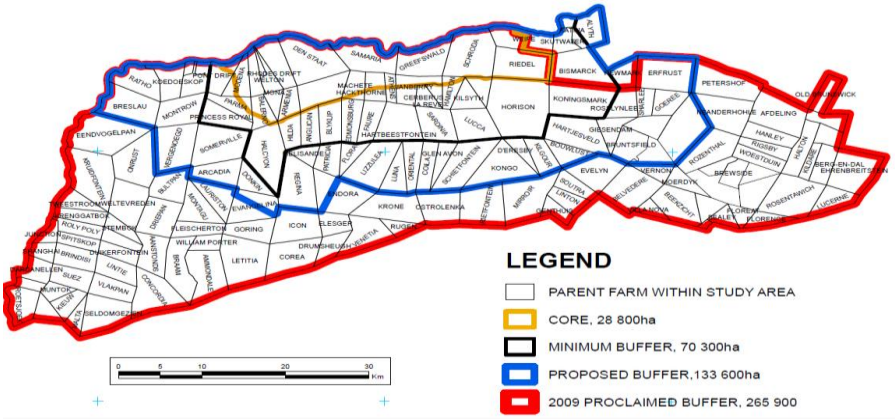


Figure 3: Mapungubwe National Park existing and proposed buffer zones

7.3.2.1 *Background*

The Mapungubwe buffer zone has had a significant impact on the conservation of the site, being an area of disagreement between stakeholders for many years. Many stakeholders see the advantages that come with an additional layer of protection for properties outside of the park; while others see the buffer zone as an unnecessary and unjustified limitation on real rights, curbing the developmental future the land.

The 2009 buffer was initiated by DEA in response to the great concern raised by UNESCO.[604] Due to the rushed reactive process of declaring the initial 2009 buffer zone, there was a strong view that the area was 'too large and not practical for a coherent environmental management plan', especially given the staff and resource constraints raised by SANParks.[605] Operationally, the buffer also suffered from the fact that very little consultation with the landowners had taken place before the proclamation of the buffer zone, meaning that any developmental limitations that were to be placed on the privately-owned lands would be uninformed and met with a high level of resistance.

A final issue that was at the heart of many of the concerns by social justice organisations, was that the 2009 buffer, although extensive in size, did not cover the north-east border of the site between the park and the Vele Colliery. This lead many to believe that the lines drawn were politically motivated and the process was being used to appease the growing public discontent. In response to these concerns, 'a study was commissioned to review the size of

[604] While not an express requirement of the World Heritage Convention, UNESCO buffer zones have been adopted in the Convention Guidelines. See *World Heritage Convention Guidelines* (2011) Clauses 103,107.
[605] Land Use Audit (note 601 above).

the 2009 buffer zone in 2013 and align land-uses to the promotion of conservation and biodiversity around the site'.[606] The review of the 2009 buffer aimed to lay the ground work for the creation of an approach considerate of the development priorities around the site in the context of competing land-uses. The 2014 buffer zone which is 104 800ha in size is significantly smaller than the existing 2009 buffer zone which was 237 000ha in size, and importantly extended the vulnerable north eastern boundary.[607]

> *'The authorities are dragging their heels when it comes to finalising the buffer zone guidelines. They're in the pipeline but far from finalisation. There is a desperate need for these guidelines, the longer they're outstanding the more likely a mine will again be developed'*
>
> *Local Land Owner*

The buffer zone and its associated policy, as it pertains to the protected area of Mapungubwe, cannot be comprehensively assessed against the thematic elements of the ESP approach, as there is currently no specific guideline for the management of the Mapungubwe buffer zone. This is probably due to the protracted process that has been undertaken over the last decade and the fact that the 2014 buffer zone has yet to be gazetted.

Additionally, no plans or documents were handed out during the limited consultation undertaken before the buffer zone was gazetted. Yet, what is applied in the area is the gazetted Strategy on Buffer Zones for National Parks.[608] This has been assessed as part of the legal framework section, as well as a Park Management Plan that will be assessed below.[609] What will be presented here is a summary assessment in line with the thematic identifiers, focusing on the available information given and the process undertaken in delineating the buffer zones.

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[606] NEMAI Consulting '*Environmental Management Framework (EMF) for the Mapungubwe Cultural Landscape World Heritage Site*' (2014) 6. https://www.environment.gov.za/sites/default/files/reports/mclwhs_emf.pdf.

[607] The approval of the proposed 2014 buffer zone was reliant on the adoption of the EMF and any other land-uses and regulatory tools to the UNESCO Committee. See Letter dated 22 July 2014, from UNESCO Cultural Sector Division for Heritage to Director General Department of Environmental Affairs for South Africa, entitled 'Minor boundary modification of Mapungubwe Cultural Landscape' (C 1099 bis).

[608] Biodiversity Policy and Strategy for South Africa: Strategy on Buffer Zones for National GN R 106 in GG 35020 of 8 February 2012.

[609] See 6.3.3.2 above.

7.3.2.2 *Assessment*

As established above, ESP aims to support regionally appropriate ecologically-centred sustainable development within sensitive areas through the adoption of core principles such as, amongst others: co-operative governance; sectoral integration; collaborative multi-stakeholder participation; and transparent monitoring. From this base, one can confidently assess the buffer zone process as falling short in the case of Mapungubwe. The lack of consultation (with particular reference to the 2009 buffer zone), the demarcation of boundaries without rigorous scientific assessment, limited knowledge of specific land uses, the extended time taken to reach finality of the buffer zones, and lack of available information, all point to a very limited adoption of the principles as set out by the Strategy Buffer Zone Policy for National Parks and the ESP approach.

A buffer zone has far-reaching impacts on the manner in which areas neighbouring core protected areas can develop, and without any certainty on how these areas can and should develop, the implementation of the buffer loses its efficacy and ultimately leads to further confusion regarding how activities are to be managed. This confusion could ultimately lead to activities being subject to unguided developmental planning with complete discretion falling to authorities.

A main policy objective of the buffer zone is to 'integrate biodiversity considerations into land-use planning procedures and environmental assessments that impact the core and surrounding areas'.[610] That being said, with no specific guidance as to how the buffer is to be implemented, the buffer's applicability loses any site-specific credibility.[611] In an already contentious area like Mapungubwe, the primary planning documents such as the SDFs and IDPs have failed to adequately consider the buffer zone's existence.

The failure to provide a guideline on how the buffer zone applies is a fatal flaw as specific sensitivity cannot be taken into account adequately and infused into decision-making.[612] The fact that the buffer is a powerful tool that increases spatial awareness and regional collaboration is overshadowed by the political and developmental uncertainly that has plagued its construction, recalibration and ultimate stalling of the process.

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[610]D Macfarlane & I Bredin 'Buffer Zone Guidelines for Rivers, Wetlands and Estuaries' Water Research Commission (2017) v.

[611] Amongst others, the major policy and legislation instruments listed include the NBSAP, the NEM: BA, CBD and the NHRA.

[612] The IDPs unfortunately fail to recognise the park management plan, and by association the buffer zone.

7.3.3 *Mapungubwe Environmental Management Framework*

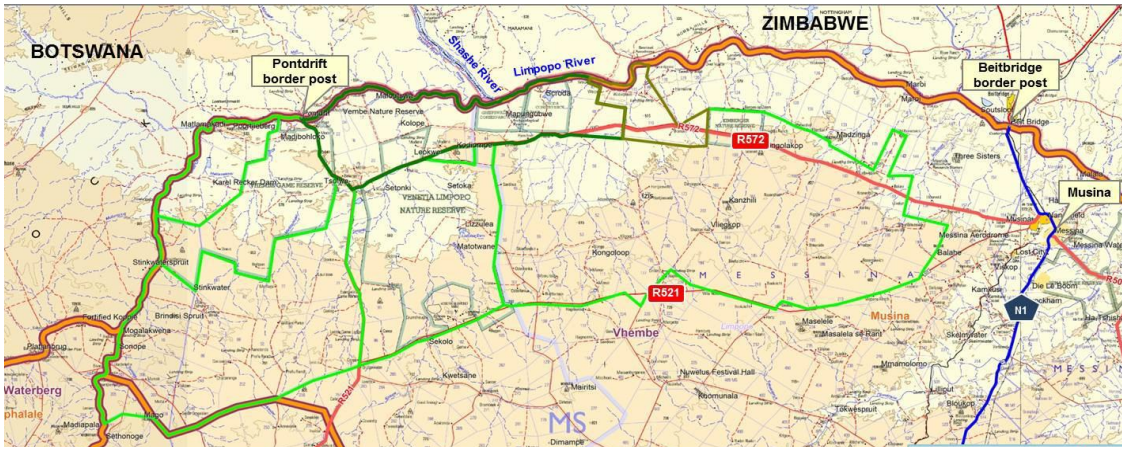

Figure 4: Mapungubwe Environmental Management Framework study area

7.3.3.1 *Background*

In 2013, the DEA, in cooperation with the Limpopo Department of Economic Development, Environment and Tourism (LEDET) and SANParks, undertook two distinct environmental spatial planning processes, the buffer zone revision and the initiation of the Mapungubwe EMF.[613] The Mapungubwe EMF specifically attempts to align with existing planning tools, in particular the Mapungubwe Management Plan, GMTFCA IDP, as well as with the Local and District Municipal SDFs and IDPs.[614]

The goal of the EMF was to create an integrated environmental planning resource, informed by the applicable spatial and environmental management plan in force over Mapungubwe. 'The environmental priorities emphasised in the EMF should serve as a thrust in formulating new plans and guide the decisions on existing planning arrangements.'[615] The Mapungubwe EMF states that 'the district and local municipality as well as key government departments,[616] must use the EMF as a tool for planning, environmental screening, regulatory functions and overall decision-making'.[617] On a spatial scale, the Mapungubwe EMF should form the' environmental layer of the SDF for the Vhembe District and Musina Local Municipality, providing valuable guidance in the regional planning process.[618]

[613] NEMAI Consulting CC was appointed to prepare the Mapungubwe EMF
[614] Mapungubwe EMF (note 606 above) 34.
[615] Ibid.
[616] Such as DEA, LEDET, SANParks, DWS, DMR, SAHRA, LHRA
[617] Mapungubwe EMF (note 606 above) 39.
[618] Ibid 34.

The current and potential land-use conflicts was the main catalyst behind the development of the Mapungubwe EMF.

DEA Official

A second and third EMF are currently being formulated for the entire Vhembe Biosphere Reserve and Vhembe District respectively. These two additional EMFs will include the smaller Mapungubwe EMF, aligning the broader developmental and environmental imperatives in the area. These studies are yet to be finalised and therefore information regarding the specific plan is not available. The EMFs have overlapping study areas, so what will be of interest will be how they relate to one another.

7.3.3.2 *Ecosystem-driven integration and multi-functionality*

The EMF aims to encourage sustainability, environmental security, and uphold cooperative environmental governance. The aim of the EMF is in itself a testament to its recognition of multi-functionality, stating it's 'a 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'.[619] The EMF strives to not only understand the regions spatially represented sensitivities, but more specifically, how they impact decision-making.

The EMF is unmistakably sustainable development-centred, with ecological processes and the balancing of the imperatives of the area at the centre of its construction and use. The EMF takes an ecosystem-centred approach to development as 'an irreconcilable activity in close proximity to ecologically sensitive areas or initiatives and wildlife industries compatible with a region's overall biodiversity objectives should be discouraged or strictly controlled'.[620]

The Mapungubwe EMF recognises that it was created out of the 'land-use conflicts that persist in the area' and that its primary function is to provide decision-makers with support when making developmental decisions over the area in light of the inherent sensitives and economic possibilities.[621] The EMF takes a pre-emptive planning approach to such conflicting land-uses as a key function of an EMF is to 'proactively identify areas of potential conflict between development proposals and critical or sensitive environments'.[622] A risk-

[619] Ibid 16.
[620] Ibid 27.
[621] Ibid 44.
[622] Ibid 53.

averse and conservative approach is furthermore adopted where any uncertainty exists as to the impact of any given activity on the receiving environment.

7.3.3.3 *Sectoral integration of planning instruments*

The EMF states that it should provide, 'context and guidance to policies, strategies and plans, where the environmental management requirements need to be taken into consideration'.[623] The EMF should align with existing planning tools, such as the Mapungubwe Management Plan, the GMTFCA IDP, as well as the Municipal SDFs and IDPs.[624] The intention is that the EMF should feed environmental information into these planning tools and serve as a 'thrust in formulating new plans and guide the decisions on existing planning arrangements'.[625] The manner in which the process was undertaken meant that, even with the effort taken to be inclusive, the plan remained un-integrated and unaligned with existing planning tools and susceptible to conflict as the implications of each instrument is not adequately ventilated.

The EMF recognises the importance of local government planning, identifying the alignment of the municipal SDF and IDP as crucial to the success of the EMF. The EMF foresees spatial data as being centrally aligned to all decision-making, providing baseline data for the SDF for the Vhembe District Municipality and Musina Local Municipality.[626] This is currently not the case where neither the Local nor District SDFs and IDPs formally recognise or mention the Mapungubwe EMF or the iterations of the buffer zones.

The EMF Study area includes the core of the site as well as the 2009 proclaimed buffer zone, and additional areas covered by the new buffer, particularly on the north eastern border. This exhibits an awareness of the status quo with regards to the 2009 and 2014 buffers. The EMF mentions on numerous occasions the real need for the DEA to develop a strategy for a buffer zone to guide development and activities in this area. Currently no such strategy or policy exists which critically impacts the efficacy of the proclaimed buffer. The EMF framework is silent on the relationship between EMFs and buffer zones, therefore, the Mapungubwe EMF and buffer zone are not sufficiently aligned to create a coherent system of spatial planning.[627]

[623] Mapungubwe EMF (note 606 above) 35.
[624] Other plans and instruments referenced include the LEDET C-plan; NBSAP; NBF; NPAES; and NBA.
[625] Mapungubwe EMF (note 606 above) 56.
[626] '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.' Ibid.
[627] The EMF provides information and maps illustrating environmental attributes in the core and buffer.

The other buffers which are required by law around specific resources, such as watercourses, wetlands, cultural resources and hotspots are recognised in the document.[628]

7.3.3.4 *Scale and spatial awareness*

The EMF is by design a regionally-focused environmental tool. A cumulative assessment approach is taken that considers, among other things, the regional catchments, water management areas and regional context of the area's activities and sensitivities. The spatially represented information presented includes ecological, social and economic parameters, such as ecology, hydrology, infrastructure and services. Additionally, all heritage, mineral potential, commercial agriculture and existing mining operations are spatially represented and mapped at scales ranging from 1: 350000 to 1: 75000.

The information captured by the Geographical Information System (GIS) was largely compiled based on desktop spatial information, yet a certain level of ground-truthing was undertaken where gaps were identified.[629] The EMF states that there is a need to 'develop and maintain a GIS database of all cultural heritage features within the core and buffer of Mapungubwe, as there is a distinct lack of GIS capability and capacity on a local level'.[630]

7.3.3.5 *Co-operative governance*

The DEA in collaboration with the LEDET and SANParks initiated the process to develop the Mapungubwe EMF. NEMAI Consulting was appointed as the specialist consultant to prepare the EMF. These authorities, together with the district and local municipalities as well as key government departments, such as DWS, DMR, SAHRA and LIHRA, were consulted in the process. This co-operative and consultative construction process was initiated to ensure that views from all spheres of government were included in the final EMF. This widespread consultation was initiated to encourage buy-in into the EMF, with the hope that it will be 'adopted as a tool for planning, environmental screening, regulatory functions and overall decision-making between sectors'.[631]

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[628] A mandatory buffer of 32 metres must be adopted from the boundary of a watercourse for specific incompatible acitvities. There is an additional regulation of inappropriate development within 50m from the buffer zone of National, Provincial and Local Heritage Sites.

[629] Refer to the Desired State Report for further elaboration on how to screen projects against the Environmental Constraint Zones (ECZs) and EMZs. See NEMAI Consulting 'Mapungubwe Cultural Landscape World Heritage Site EMF' Status Quo Report (November 2014) 33. Available at: https://www.environment.gov.za/sites/default/files/reports/mclwhs_emf_statusquoreport.pdf.

[630] Mapungubwe EMF (note 606 above) 46.

[631] Mapungubwe EMF (note 606 above) 38.

Each Environmental Management Zone (EMZ) includes a spatial description, lead mandated authority and both the status quo of the receiving environment and desired state. Additionally, there is a distinct call to 'maintain working relationships between the various spheres of government to ensure a collaborative effort to conserve the core and its buffer zone'.[632]

7.3.3.6 *Multi-stakeholder collaboration and participation*

The public participation process comprised of a series of systematic one-on-one and group stakeholder meetings, which occurred at every stage of the various report construction process, namely the inception phase, desired state report and Strategic Environmental Management Plan (SEMP) stages. These procedural stages were each subject to a 30-day comment cycle. Although the consultation itself was positive, there was a significant time period that passed once the process was completed. The final Mapungubwe EMF was made available in November 2014, but was only gazetted in February 2017. The cause for delay is not conclusively known but it may be attributed to the consultation between different departments and the impacts it may have in on their plans for the area, such as mineral exploitation. In terms of park-specific consultation, the Park Forum and Advisory Committee are seen as the central participatory functions for the purpose of constant engagement. The Park Forum, in particular, is a participatory structure that has community and CBO representation.

7.3.3.7 *Capacitation and continual learning*

The EMF states that the authorities should 'facilitate environmental and cultural education and contribute to environmental awareness'.[633] Yet, there is very little said regarding capacitation and continual learning regarding the EMF. The EMF not only recognises local government resource shortcomings but also acknowledges the ability of local government to integrate its planning with the various environmental planning and management tools.[634] That being said, the EMF itself does very little to suggest possible remedies to these admitted shortcomings.

[632] Ibid 166.
[633] Mapungubwe EMF (note 606 above) 13.
[634] Mapungubwe EMF Desired State (note 629 above) 168.

7.3.3.8 *Compatibility examination and analysis*

The sensitivity analysis methodology adopted by the EMF acknowledges that the environmental and developmental features intersect and there is a likelihood of conflict.[635] A rating system has thus been developed to assist decision-makers to reach conclusions informed by the sensitivities of the receiving environment, for instance, a feature with a 'very high' rating supersedes a feature with a 'high' rating.[636] These ratings are influenced by a number of factors, including, 'the ultimate vulnerability of a feature, the risks posed by one feature to another, and its contribution towards sustainable development principles'.[637] These levels of sensitivity are grouped into various Environmental Management Zones (EMZs), which have varying land management objectives.[638] The EMF furthermore looks to conform and abide by land management objectives established for Critical Biodiversity Areas (CBAs) and Ecological Support Areas (ESAs).

The delineation of EMZs is central to how sensitivity is understood as each of these zones requires 'active control to ensure that its potential is realised'.[639] From an operational perspective, the EMF should be used as a pre-emptive tool that can provide developers and decision-makers with an early indicator of the specific areas in which it would be suitable to undertake particular activity. 'If an area has been earmarked for a certain type of development incompatible with the desired state of the associated EMZ, the developer or applicant will need to undergo an environmental assessment to determine the potential impacts to the features of the zone.'[640] The EMZs represent the integrated sensitivity maps with the potential stressors, prospective developments and stakeholder ambitions. The ultimate goal of the EMF is to achieve the desired state, this cannot be achieved without specifically formulated guidelines that identify compatible activities in line with listing notices.[641] One of the main aims is thus for the EMF to be seen as part of the developmental application process, supporting evaluation and review of EIAs.

[635] Ibid 33.
[636] Mapungubwe EMF (note 606 above) 41.
[637] Ibid.
[638] 'As a general rule, the order of significance is as follows for the EMZ layers: Mapungubwe National Park and World Heritage Site, formally protected areas, surface water, groundwater, terrestrial biodiversity, agriculture terrain, buffer zone.' See Ibid.
[639] Mapungubwe EMF (note 606 above) ii.
[640] Ibid 39.
[641] Ibid.

The compatibility table of EIA activities lists whether the activity would be acceptable in the corresponding EMZ, not only screening the activity but also giving guidance as to what potential process and authorisations would be required. There is a caveat attached to this EIA screening table which states that it is only meant for preliminary non-binding screening. This reinforces the status of the EMF as a guiding tool in assessing compatibility of proposed activities with the intended receiving environment.

7.3.3.9 *Transparent participatory monitoring and access to information*

The EMF was submitted for consideration in November 2014, although only gazetted in February 2017. The delay in formalisation has a direct bearing on the accuracy of the information contained in the EMF, as environmental characteristics could have changed. This concern is exacerbated as some of the data derives from studies that date back to 2009. From an access point of view, the EMF and its various iterations can be found online in their complete form, with all previous reports, including status quo, desired state and inception volumes.[642]

In order to achieve the aims as set out above, EMF implementation requires on-going and regular monitoring. The EMF report states that, 'management actions need to be taken to ensure that the EMF is revised as needed and that new information and updated GIS data must also be incorporated into the EMF'.[643] That being said, there is no specific schedule set for any kind of mandatory monitoring or updating of information. According to the EMF Regulations, 'an EMF may from time to time, on the initiative of the Minister or an MEC, 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'.[644] The EMF does propose that the review of the document should be aligned with other relevant planning tools, such as the SDF and IDP. However, it is not currently found in any of the MSA or SPLUMA supported development plans.

The EMF does lay-out certain environmental performance indicators which can be assimilated into the reporting procedures by the municipality in the EMF area.[645] Some tools that can be used to monitor and review the EMF include: 'key performance indicators;

[642] Access the documents freely at: https://www.environment.gov.za/sites/default/files/reports/mclwhs_emf.pdf.
[643] Ibid 67.
[644] EMF Regulations (note 365 above).
[645] Mapungubwe EMF (note 606 above) 73. See the *Development of a Core Set of Environmental Performance Indicators* (DEAT, 2004).

sustainability indicators; environmental audits; environmental monitoring; community-based monitoring; interviews and workshops with stakeholder reference groups; and State of Environment Reporting (SoER)'.[646] In light of the fact that the municipal IDPs do not recognise the Mapungubwe EMF, it is difficult to believe that they monitor the implementation of the plans.

7.3.4 *Vhembe Biosphere Reserve*

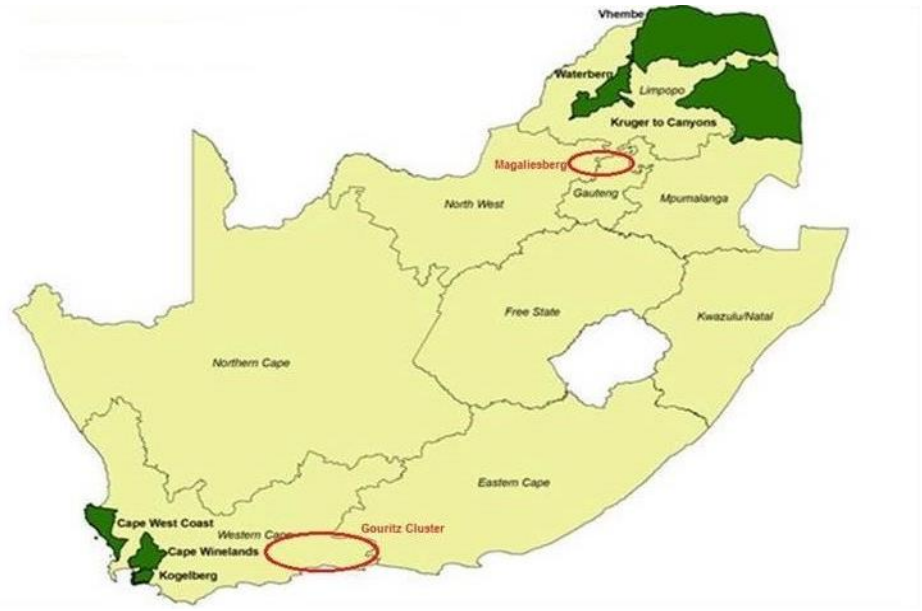

Figure 5: Proclaimed biospheres in South Africa

7.3.4.1 *Background*

The Vhembe Biosphere Reserve (VBR) consists of five local municipalities of the Limpopo Province, including Blouberg, Musina, Makhado, Thulamela and Mutale municipalities. The size of the VBR is approximately 30 701 km^2, making it a sizable area with a multitude of existing protected areas, including the Mapungubwe World Heritage Site and National Park. The Soutpansberg, bordering Mapungubwe, is one of the 'least known but most bio-diverse areas in Southern Africa, yet it has no formal protection'.[647] This apparent lacunae drove a collection of affected local community stakeholders to inaugurate the Soutpansberg Conservancy in the mid-1990s. From this positive initial step, it became evident that these issues extended to the entire Vhembe region and there was a need for a more expansive

[646] Ibid 47.
[647] See http://www.vhembebiosphere.org/about-vbr.

vision. Due to the desperate need for development and poverty relief, the adopted regional approach had to demonstrate practical sustainable development and not a purely protectionist nature conservation approach. In the Soutpansberg in particular, it had to be shown that poor local communities in the region could garner positive social benefits from this approach.

> *The initiation of the VBR has been a long and expensive process that has taken the collective effort of a team of committed people who love this land and want to see it preserved for our children's children.*
>
> *Community Activist*

The VBR was officially included into the UNESCO World Network of Biosphere Reserves in 2009, making it 'only the sixth South African biosphere reserve and the third in Limpopo Province'.[648] The VBR also recommends that it be accompanied by a regional EMF as there is currently no regional environmentally-focused spatial planning instrument in the area. The VBR is also in the process of creating a spatial database for the area that can be structured into an accessible geographic information system that can be consulted as part of developmental planning[649].

The last decade has brought significant interest in the Limpopo Valley, with an abundance of prospecting and mining rights being issued. These types of invasive activities are a top priority for the VBR, especially where the impacts of these activities are in close contact with ecological and cultural sensitivities. The location of current and proposed invasive developments is of concern, particularly when considering their cumulative impact, ramifications for future planned expansion of protected areas and eco-tourism operations. Both the direct and cumulative impacts would have negative impacts on the sustainability and appeal of local eco-tourism operations. In order to understand the regional sensitivities and compatible developmental potential, the VBR proposes that a regional EIA be undertaken.

To this end, the VBR has been promoting consistent engagement with mining companies and has registered I&APs, establishing partnerships with interested and affected organisations, including SANParks, the Peace Parks Foundation, Conservancy Committees and relevant NGOs regarding sustainable development in the region. The VBR has proven itself as a 'competent and representative body in the Vhembe District Municipality with its primary aim being the conservation of the areas uniquely bio-diverse environment, while simultaneously

[648] Ibid.
[649] Ibid.

supporting and promoting much needed sustainable development'.[650] This body developed the VBR strategic environmental management plan (SEMP), which is the subject of the assessment.

7.3.4.2 *Ecosystem-driven integration and multi-functionality*

The SEMP has a sustainable development focus stating that 'through partnerships between people and nature the VBR seeks to reconcile conservation of biological and cultural diversity and economic and social development'.[651] Environmental sustainability and an ecosystem focus forms the core of the plan, with ecological preservation and ecosystem connectivity stated as a primary goal. The VBR aims to support and maintain the vulnerable ecological corridors of the Soutpansberg and sensitive areas surrounding Mapungubwe in Northern Limpopo, understanding that these systems are reliant on each other for their sustained ecological health. The biosphere reserve aims to 'promote an integrated approach to sustainable development, ensuring that essential ecosystem services are maintained, education is improved, and human development and wealth creation are stimulated through better communication and training while conserving the unique ecosystems, species and cultural resources of the region'.[652]

The current conflict and emerging potential cumulative damage by the entry of proposed industrial development and raw material extractives is of central concern to the VBR and is reflected in the associated SEMP.[653] This emerging conflict and the irreversible loss that would flow as a consequence is one of the chief reasons for the creation of the VBR and the push to complete the regional SEMP. There are many proposed mining projects and the aim is to ensure that development progresses in a sustainable way and not at the cost of sensitive natural and cultural environments.

7.3.4.3 *Sectoral integration of planning instruments*

[650] VBR 'Background to the Vhembe Biosphere Reserve' Available at: http://www.vhembebiosphere.org/wp-content/uploads/2012/06/Background-and-current-work-VBR-May-2012.pdf.
[651] Strategic Environmental Focus 'Vhembe Biosphere Reserve Initial SEMP: Status Quo Report' (August 2016) 1.
[652] Biosphere Reserves Directory, UNESCO Man and Biodiversity Programme (2009) http://www.unesco.org/mabdb/br/brdir/directory/biores.asp?code=SAF+06&mode=all.
[653] Vhembe SEMP Status Quo (note 651 above) 32.

The VBR SEMP is intended to guide land-use development within the VBR and surrounding important biodiversity areas, emphasising connectivity of conservation areas.[654] This requires a substantial study of the impact on existing environmental and spatial development. Apart from referencing and linking the Limpopo C-Plan, bioregional plan and NSBA, the VBR SEMP does not mention any of the other environmental sector plans.

There is, however, a recognition that all NEM: BA listed ecosystems and CBAs must be considered and be integrated with existing environmental and developmental plans. Moreover, any conflict with municipal IDPs, SDFs and EMFs should be expressly avoided.[655] Additionally, the CBAs identified in the environmental plans must be aligned with integrated development plans in a configuration that is the 'least conflicting with other land-uses and activities'.[656] Unfortunately, the SEMP does not expressly incorporate or align to the Mapungubwe EMF or give the requisite protection to the contentious north eastern quadrant of the park.

A central goal of the SEMP is not only to visually present the biophysical priorities of the Vhembe area but also to assess existing buffer zones for possible expansion. The SEMP aims to form the basis for further analysis and the eventual creation of additional protected areas, such as the southern expansion of Mapungubwe.[657] It is regrettable that there is no specific information about the southern expansion of the Mapungubwe Park boundary lines. Additionally, the SEMP does not recognise the new 2014 buffer, only recognising the old 2009 buffer even though it is a 2016 document.

7.3.4.4 *Scale and spatial awareness*

The SEMP is a 'framework of spatially represented information, connected to parameters such as ecology, mining, hydrology, infrastructure and services'.[658] The SEMP displays a strong regional spatial awareness and spatially represented information. The SEMP does concede that the authorities currently have an inadequate repository of environmental

[654] Strategic Environmental Focus 'Vhembe Biosphere Reserve Initial SEMP: Desired state of the environment report with environmental management guidelines (September 2016) 1.
[655] Vhembe SEMP Status Quo (note 651 above).
[656] Ibid.
[657] 'An additional area equivalent to 85% of the current protected area network needs to be added to the protected area estate in order to achieve the biodiversity targets. How to achieve this objective is the subject of the Limpopo Protected Area Expansion Strategy (LPAES).' See Limpopo Environmental Outlook Report (2016) LEDET 6. http://www.ecoafrica.co.za/sites/default/files/project_resources/3%20LEO%201st%20DRAFT%20Chapter%201%20Climate%20Change%2020151209_0-3.pdf.
[658] Vhembe SEMP Desired State (note 654 above).

information. This has led to coarse mapping of biodiversity features which impose limitations on the efficacy of the plan.[659]

A map of priority CBA areas were identified and presented in the plan. These priority areas were categorised in accordance with the particular sensitivity of the receiving environment, taking into consideration their 'biodiversity characteristics, spatial configuration and requirements for meeting targets for both biodiversity patterns and ecological processes'.[660] The environmental detail is very specific, and the CBAs are extensively referenced. The maps are based on and add to the spatial data presented in the Limpopo C-Plan. Mapungubwe is recognised as a prime site, yet the Vele Colliery is not recognised on any of the maps or within the text, despite its proximity to the core area of Mapungubwe.

7.3.4.5 *Co-operative governance*

The co-operative structures that should ensure the implementation of the SEMP are not yet clear. There needs to be a more extensive explanation of how different spheres of government are co-ordinated to ensure the efficient implementation and support of the SEMP. There is an extensive listing of the various state departments and organisations that took part in the construction.[661] Although the state actors were sufficiently consulted there is very little information on how co-operative governance will be facilitated to ensure the goals and implementation of plans are executed.

7.3.4.6 *Multi-stakeholder collaboration and participation*

Due to the wide-ranging interests that are involved in the sustainable development of the region through this collaborative platform, biosphere reserves require an interdisciplinary approach to appreciating the impacts and the change to the social and ecological systems.[662] In order for this to be successful, there is a robust process of public and private collaboration that needs to be structured as part of the process. The SEMP, although not its intention, should at least have reference to some collaborative participatory process, which is not present.

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[659] The SEMP is designed to be used at a scale of approximately 1:50 000 yet the plan maps the features range from 1:150 000; 1:135 000; 1:125 000; and 1:120 000. See Vhembe SEMP Status Quo (note 651 above) 32.
[660] Ibid 33.
[661] The state participants include, amongst others: SANBI; LEDET; UNESCO; DEA; and SANParks.
[662] Ecological Sciences for Sustainable Development: Biosphere Reserves – Learning Sites for Sustainable Development, UNESCO (2017) http://www.unesco.org/new/en/natural-sciences/environment/ecological-sciences/biosphere-reserves/.

7.3.4.7 *Capacitation and continual learning*

Biosphere reserves are innovative in the sense that they attempt to practically operationalise sustainable development through the creation of awareness and education programmes. Biospheres create spaces where information is shared freely by specialists in the field, 'serving as learning sites for policy and decision-makers, research, management practitioners and stakeholder communities, to work together to translate global principles of sustainable development into locally relevant practices'.[663] This is an enormously onerous task given the contentious landscape and history of the region. The University of Venda is the appointed Research Chair of the Biodiversity and Change Research Committee in the Vhembe Biosphere Reserve.[664] The VBR facilitates and encourages research and education in the areas of biodiversity science and conservation from researchers, postgraduate and postdoctoral candidates.[665] Moreover, the research chair works closely with the VBR and LEDET to support capacitation and continual learning.[666]

7.3.4.8 *Compatibility examination and analysis*

As stated above, the SEMP is a framework of spatially represented information used in the examination of applications for EAs or developmental decisions within the region. The SEMP plans to also develop a more detailed land-use management guideline for potential land-uses that take place within the various sensitive environments within the core and buffer zones.[667] The SEMP divides the study area into Environmental Management Zones (EMZs), considering the existing and future core and buffer zones. The formulation of these EMZs are based on the spatial component and desired state of the environment and the identified biophysical limits and prospects. These EMZs facilitate future decision-making on the acceptability of EA applications.

The adopted sensitivity analysis methodology focuses on the ecological category of the specific area, dividing the analysis approach up from critically endangered, to endangered, and to vulnerable.[668] The SEMP extensively references the Mining and Biodiversity Guideline, stating that the guideline contains 'the best available biodiversity knowledge and

[663] M G Reed & M M Massie 'Embracing Ecological Learning and Social Learning: UNESCO Biosphere Reserves as Exemplars of Changing Conservation Practices' (2013) 11 *Conservation and Society* 391,392.
[664] Vhembe SEMP Desired State (note 654 above) 44.
[665] Ibid. Held by Prof. Peter Taylor. See http://vhembebiosphere.org/sarchi/staffmembers/prof-peter-taylor.
[666] Examples of such support include the Leshiba Centre of Indigenous Knowledge and Schoemansdal Environmental Education Centre.
[667] Vhembe SEMP Desired State (note 654 above) 4.
[668] Holness (see note 155 above) 178.

science in terms of the implications and risks for mining in a practical and user-friendly guideline for integrating relevant biodiversity information into decision-making'.[669] This guideline consists of a 'composite layer, which was developed based on a large number of individual biodiversity spatial datasets held by SANBI'.[670]

Just as is the case in the EMF, there is a proposed zonation of various areas where the classification will attach particular land-use guidelines. Biosphere Reserves have three interconnected zones, namely: core, buffer and transitions areas. '*Core areas* comprise of legally protected ecosystems that contribute to the conservation of landscapes, ecosystems, species and genetic variation.'[671] '*Buffer zones* surround or adjoin the core areas and are used for activities compatible with sound ecological practices that can reinforce scientific research, monitoring, training and education.'[672] '*Transition areas* are the parts of the reserve where the greatest activity is allowed, fostering economic and human development that is ecologically sustainable.'[673]

The linkage and integration with the EIA regime is purposeful as the mapped elements in SEMP are meant to meaningfully inform and strategically influence EA applications.[674] Land-use planning and EA guidance is therefore at the centre of the SEMP. The SEMP utilises a baseline threshold understanding to ecological evaluation and impact, mapping all legislatively categorised identified ecosystems. This would require a basic assessment, in terms of the NEMA listing notices, where any identified ecosystem is threatened by an impactful activity that could be perceived as exceeding the threshold of acceptable influence.

7.3.4.9 *Transparent participatory monitoring and access to information*

The reports that make up the SEMP were not publicly available, even though they were completed in 2016. Access to information and data constraints are identified as an issue, despite an official Vhembe biosphere reserve website existing with a document portal. Although monitoring and reporting in terms of NEM: BA is a requirement, the specific measures taken to complete such monitoring is not immediately present in the available documents.

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[669] Mining and Biodiversity Guideline: Mainstreaming biodiversity into the mining sector, DEA, (2013) vii. See Vhembe SEMP Status Quo (note 651 above) 52.
[670] Ibid. The categories include: biodiversity priority areas; legally protected; highest biodiversity importance; high biodiversity importance; moderate biodiversity importance.
[671] Vhembe SEMP Status Quo (note 651 above) 1.
[672] Ibid.
[673] Ibid.
[674] Ecology, mining, hydrology, infrastructure and services.

7.3.5 *Mapungubwe National Park (MNP) and WHS Management Plan*

Figure 6: Layout and boundaries of the Mapungubwe National Park

7.3.5.1 *Background*

With these various tools and protected areas in need of concurrent management plans, the Mapungubwe Management Plan was adopted by SANParks in 2013.[675] This plan aims to serve as the primary park management plan that strives towards achieving a continually adaptive 'desired state' through collaborative processes.[676] The plan recognises the outstanding universal cultural and ecological value of Mapungubwe, and focuses on ensuring the preservation and sustainability of the park as a World Heritage Site and National Park.

> *'The park management plan guides all development in the park. It holds a very high standard of protection for the site. Only activities that have no impact on the cultural and environmental resources will ever be pursued.'*
>
> *SANParks Representative*

[675] This approach is in line with the requirements of S39 of NEM: PAA, forming part of a national planning framework for protected areas. Protected Management Plans must also comply with related national legislation such as the NEM: BA, SANParks policy and international conventions that have been ratified by the state.

[676] "The term 'desired state' is now entrenched in the literature, but it is important to note that this rather refers to a 'desired set of varying conditions' rather than a static state. This is reinforced in the SANParks biodiversity values which accept that change in a system is ongoing and desirable." See Mapungubwe management plan 2008 (note 452 above) 9. Also see 'Coordinated policy framework governing park management plans' (2006) SANParks.

7.3.5.2 *Ecosystem-driven integration and multi-functionality*

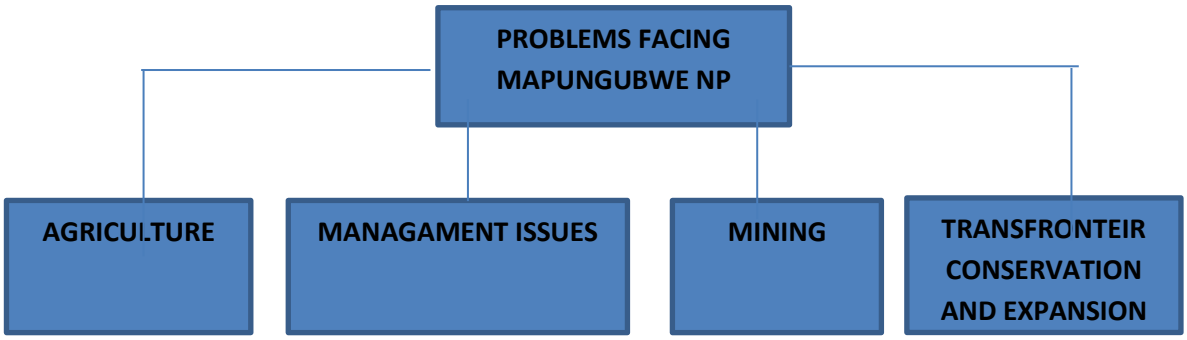

Figure 7: Illustration of issues facing Mapungubwe National Park

The Mapungubwe Management Plan recognises the unique and sensitive resources of the receiving environment, and by utilising baseline data the plan formulates a 'desired state' of the receiving environment.[677] All cultural and biodiversity issues are then identified, integrated and sequenced into key activities that would negatively impact the park and how existing impacts need to be mitigated and minimised.'[678]

The plan explicitly mentions the adoption of the precautionary principle when considering the impact on the receiving environment and particularly sensitive ecosystems.[679] Ecological connectivity is held as central, as safeguarding the fluid movement of biodiversity and ensuring the continued viability of ecological corridors are key goals. A cumulative impact approach is also a common theme as the 'added pressure of the primary, secondary and cumulative impacts of mining within the water catchment and buffer zone of the WHS will be detrimental site'.[680]

The Mapungubwe Management Plan takes the conflict with mining seriously, recognising that the expansion of mineral extraction is an obvious reality of the Vhembe region and must be considered in all future planning. The proliferation of new prospecting and mining rights in around the park is a 'definite threat to its integrity and that of the broader region'.[681]

[677] Mapungubwe National Park and World Heritage Site Management Plan, SANParks (2013-2018) 12.
[678] 'The strongest emphasis falls on well-structured cultural heritage management including relevant public access and education.' Ibid 7.
[679] Mapungubwe Management Plan 2008 (note 452 above) 12.
[680] Ibid 14.
[681] Ibid.

7.3.5.3 *Sectoral integration of planning instruments*

Effective management and appropriate development of the park can only be realised through suitable planning tools and controls.[682] These tools include the identification and categorisation of sensitivity zones which are each attributed developmental guidelines tools in line with the NEM: PAA and the SANParks policies. The local and district municipal SDFs and IDPs are considered and co-ordinated into all on-site management plans. Due to the fact that Mapungubwe lies on the border of neighbouring district and local municipalities, these local decision-making plans will also be considered and aligned into park management decisions. This conscious interaction aims to ensure that any prospective activities do not conflict with the delineated buffer zones or regional planning tools.[683]

The park recognises that it cannot successfully operate in isolation and that 'effective regional management and inter-governmental support' is critical to the attainment of the goals of the park.[684] It is thus imperative that SANParks partner with municipalities through the construction, and more importantly, the implementation of IDPs and regional growth strategies. Both the Vhembe and Musina municipalities are currently including 'SANParks poverty relief projects into their IDPs, projects include: roads, staff houses, rehabilitation of farm lands and archaeological sites'.[685]

In terms of the Mapungubwe Management Plan the park's consolidation remains important. The aim is to formally protect and re-zone a significant portion of the surrounding properties into protected areas as part of the Greater Mapungubwe Transfrontier Conservation Area (GMTCA) in line with the National Protected Areas Expansion Strategy. There is a plan to purchase land but due to the 'high costs, competing land acquisition priorities, unresolved land claims over the entire area and a shrinking land acquisition budget',[686] it is yet to be completed.

The expansion of protected areas requires significant capital expenditure. This is not an option for SANParks which admits to financial resource constraints. SANParks have thus undertaken 'a flexible approach' to expansion that does not require the direct purchasing of

[682] Ibid 58.
[683] 2013 – 2028 Mapungubwe Management Plan (note 677 above) 3.
[684] Ibid.
[685] The DEA, has in the past, contributed funds to these projects. Ibid.
[686] The total size of the protected area would be extended to the south of the park, it would include other previously declared nature reserves, such as the De Beers private nature reserve and Limpopo conservation area. The total land size would be approximately 33,000 ha once the process is completed. Ibid.

all identified land, but rather have adopted a multi-method approach. Examples of this approach include the entering into of negotiations with land-owners in an effort to come to contractual agreements, as well as facilitating a culture of stewardship in the area.[687] Developers and business leaders will also be approached as part of this strategic engagement process, especially those with high developmental impact such as prospecting or mining rights holders. The hope is that this process will be able to facilitate the finalisation of advantageous offsets arrangements.

Apart from the extension of the core park area, the delineation of the new buffer zone also forms part of the park's consolidation strategy.[688] It is accepted that the finalisation and proclamation of a functional and appropriate buffer is a significant planning challenge that must be prioritised in order to stem the negative impact of mining.

7.3.5.4 *Scale and spatial awareness*

The Mapungubwe Management Plan displays an impressive spatial understanding of the region, with every area mapped and measured with the utilisation of cadastral mapping for the delineation of boundaries. The Mapungubwe Management Plan maps the hydrological, agricultural, ecological habitats and social and tourism related concerns, as well as the potential developments compatible with the conservation objectives. The mapping includes 'scenic resources, and an assessment of the park's current and planned infrastructure and tourist routes'.[689] Water seems to be a central feature, particularly in light of the recognition of the parks position as a key role-player in the water user community.[690] The plan does, however, concede that more needs to be done to create a 'detailed and interactive GIS database that records the location, significance and conservation status of all the cultural and natural heritage resources in the park that contribute to the outstanding universal value of the site'.[691]

7.3.5.5 *Co-operative governance*

[687] Possible contractual extensions to the buffer zone include the 34,200 ha Venetia Limpopo private reserve, further protecting the Kolope drainage system, and properties to the west (Mapungubwe private nature reserve) and east (the property known as Bismarck) of the park. See Mapungubwe Management Plan 2008 (note 452 above) 2.
[688] 2013 – 2028 Mapungubwe Management Plan (note 677 above) 25.
[689] Ibid 17.
[690] RAMSAR sites recognised. Ibid 2.
[691] Ibid 15.

Cooperation with provincial departments such as the DEA, tourism, heritage resources and land claims are seen as essential and on-going in terms of the Mapungubwe Management Plan. SANParks has made a particular effort to remain involved in IDP and SDF construction and operation. On a more macro level, SANParks also aligns with the objectives of the Limpopo growth and development strategy.

Of all the national departments, the DMR is seen as one of the most critical role-players due to the impact of the mining on the park and the wealth of diamonds and coal resources that are present both around but also within park boundaries. 'SANParks therefore must liaise closely with the DMR and provincial planning departments to ensure that the integrity and universal value of the site is retained.'[692] An initiative that is making an impact on aligning the management objectives of SANParks and local and district municipalities is the targeted briefings in local and provincial government planning forums. Through this process the park hopes to comment meaningfully on the EIA processes within the region that could have an impact on the park and become more collaborative with designated decision-making authorities at all levels of government.

7.3.5.6 *Multi-stakeholder collaboration and participation*

There is a strong emphasis on 'building cooperation between stakeholders, good neighbourliness and the effective management of the park'.[693] The park is seen as part of the regional community, and as a major land owner, cannot achieve its mandate if it does not foster a culture of co-operation. The park views regional collaboration and the building of lasting positive relationships with all stakeholders as central in achieving long-term sustainable socio-economic benefit.

A responsive and considerate public participation framework ensures that the stakeholder concerns and aspirations are included in the construction and revision process of any management plan.[694] The public participation framework understands that stakeholders are not equal in their ability to meaningfully participate. The plan states that individualised methods of notification and engagement will be used to notify different stakeholders of participation processes. These engagement processes provided the 'opportunity for input from all stakeholders within reasonable timeframes, with the emphasis on the sharing of

[692] Ibid 15.
[693] Mapungubwe Management Plan 2008 (note 452 above) viii.
[694] Ibid 9. 'Processes were also aimed at recognising all knowledge, indigenous, ordinary and expert, as well as the diversity of values and opinions that exist between stakeholders'.

information and joint learning'.[695] A positive mechanism within the process is that stakeholders that have participated in the engagement are afforded an opportunity to provide their response as to how their inputs were captured and considered.[696]

The establishment of the Park Forum has enabled relationship building between Mapungubwe and the members of the Park Forum which meet on a quarterly basis.[697] The Limpopo Province, De Beers, Friends of Peace Parks, neighbouring land owners, land claimants and local municipalities and descendant groups are notable partners of this group.[698]

7.3.5.6 *Capacitation and continual learning*

One of the important goals listed in the objectives hierarchy is public education and research. This requires well-resourced administrative support services so that the park can create a foundation of knowledge and experience. 'The shortage of capacitated and experienced staff for implementation, as well as a lack of resources limits their ability to resource and fund environmental education programmes and activities adequately.'[699] Educational programmes have been identified as an important element in an effort to develop the park as an educational and research facility that not only raises awareness of the site but also increases the knowledge of local culture and biodiversity of the region. The overall educational objective is "to build constituencies amongst people in support of the parks' cultural and conservation endeavours by providing a variety of educational opportunities and initiatives".[700]

The park has also established an employee-specific development plan. This goal-orientated plan sets objectives for each employee in the relation to their specific role and how this can be improved and grown.[701]

7.3.5.7 *Compatibility examination and analysis*

[695] Ibid.
[696] Ibid 9. This is also supported by the 'Framework for Developing and Implementing Management Plans for South African National Parks, SANParks (undated) 27.
[697] The Mapungubwe Park Forum charter was adopted in June 2011. See 2013 – 2028 Mapungubwe Management Plan (note 677 above) 53.
[698] Ibid.
[699] Ibid.
[700] Ibid 56.
[701] Ibid 61.

The Mapungubwe Management plan has employed many innovative strategies in order to achieve its mandate of balancing the needs to develop and grow the popularity of the site.[702] Such innovative strategies begin with understanding the sensitivities of the receiving environment. Such a scientific baseline understanding forms the foundation on which management decisions are made. As a starting point, sensitives and issues must be acknowledged before they can be managed. This is particularly important on 'properties that have only recently been incorporated into the park, those that could be developed for tourism, and those that are managed on a contractual basis with private land owners and successful land claimants'.[703]

The sensitivity analysis methodology adopts special management overlays, comprising of special conservation areas and cultural heritage zones. Core to the land-use compatibility of the Mapungubwe Management Plan is the identification of various zones[704] in a zoning plan that play an important role in 'minimising conflicts between different users of a park by separating potentially conflicting activities'.[705] The zoning plan, furthermore, defines what the parks role is in relation to the prescribed land-use controls in the buffer zones, including SDFs and IDPs.[706]

The zones and the associated guidelines act as EIA screening and guidance mechanisms for park staff. [707] The zones serve as 'red-flags' for any planned development, providing a pre-emptive indication of regional aesthetic, cultural or biodiversity impacts.[708] Additionally, the zones serve as 'the basis for integrating the long-term protection of a national park into the SDFs and IDPs of local authorities'.

The buffer zones are given specific mention in the zoning plan, aligning with the regional sensitive area mapping.[709] Although the zoning plan is not a legal standard it must inform any development in the Mapungubwe area. Tied to the zoning plan is the formulation of a Conservation Development Framework (CDF), which includes its own zonation plan. The

[702] Ibid 2.
[703] Ibid 15.
[704] The zoning plan breaks up the areas into a primitive zone, low intensity leisure zone and high intensity leisure zone. See Ibid.
[705] Ibid 17.
[706] Ibid 17.
[707] Ibid 19.
[708] Ibid.
[709] This alignment is supported through the National Environmental Management: Protected Areas Act (57/2003): Biodiversity Policy and Strategy for South Africa: Strategy on Buffer Zones for National Parks GN R 106 in GG 35020 of 8 February 2012.

CDF 'details the spatial targets and constraints through the specification of strategic land-use targets for the park for the next 20 years'.[710] However, for Mapungubwe, 'a comprehensive spatially-based regionally-embedded framework, which includes multiple scales of detail, still needs to be compiled'.[711]

7.3.5.8 *Transparent participatory monitoring and access to information*

The Mapungubwe Management Plan is in its second five-year iteration, identified as the 2013-2018 Park Management Plan. In terms of the SANParks policy all plans must be reviewed every ten years, yet this is dependent on the nature of the site, external influences and other pertinent variables such as costing and resources. The practise has been to review such plans more frequently, generally every five years or more often if required.[712] Due to the park's status, there are many authorities that must be reported to, including SANParks internal reporting, DEA and the UNESCO Committee for Cultural Heritage.

Monitoring is set against park specific thresholds, which are assessed and measured frequently. As a World Heritage Site, 'the park is obligated to supply information for periodic reporting required in the operational guidelines set out by UNESCO to retain the significance and outstanding universal value of the site'.[713] As a national heritage site, 'the park must work closely with SAHRA, which is responsible for monitoring the heritage resources, establishing heritage management policies and agreements, and issuing of permits for research and conservation interventions'.[714]

SANParks has a clear policy on the transparent management and collection of on-site data. SANParks is of the opinion that data must be accurate and that such data is core to the operation of the site and therefore all relevant staff must be allowed access. 'Such data is not only essential for formulating effective long-term management objectives, plans, programmes and systems, but also for educating and informing stakeholders'.[715]

[710] 2013 – 2028 Mapungubwe Management Plan (note 677 above) 11.
[711] The Mapungubwe Management Plan states that the CDF will be available at the first iteration of this plan in five years' time. It is yet to be developed. See Ibid 88.
[712] In the case of the park, the planning cycle is also governed by the World Heritage Convention Act, which has a five-year horizon (or longer as determined by the Minister). Ibid 7.
[713] Thresholds of potential concern See 2008 Mapungubwe National Park (note 449 above) 22.
[714] Ibid 2.
[715] 2013 – 2028 Mapungubwe Management Plan (note 677 above) 63.

7.3.6 *Greater Mapungubwe Transfrontier Conservation Area Integrated Plan*

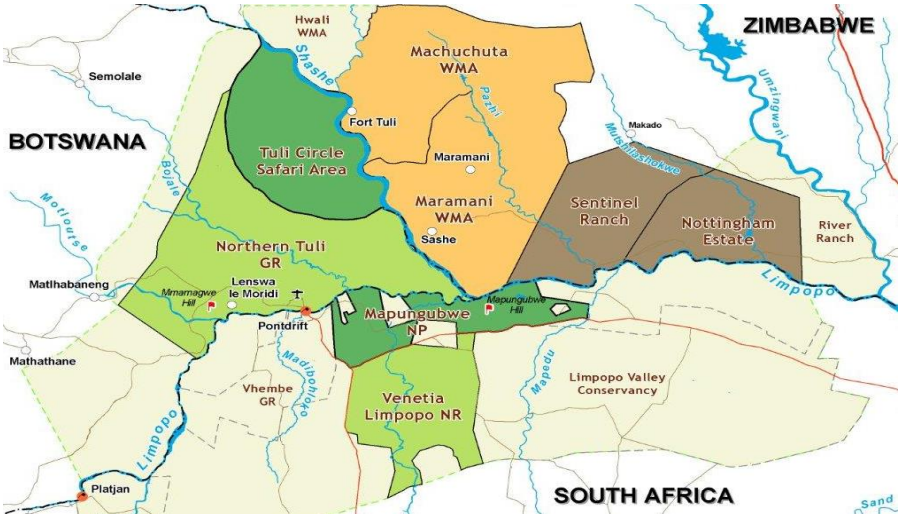

Figure 8: Boundaries of the Greater Mapungubwe Transfrontier Conservation Area

7.3.6.1 *Background*

In the late 1990s pressures of invasive developments were beginning to encroach into the confluence of the Limpopo and Shashe rivers that traverse Botswana, South Africa and Zimbabwe. The area had been previously identified as a possible transfrontier conservation area (TFCA) due to the landscapes inherent aesthetic, biodiverse and cultural value.[716]

Due to the importance of the area, a transfrontier conservation initiative was suggested by an NGO called the Peace Parks Foundation. After a decade long struggle to prove the viability of the concept and attain the requite cross-border buy-in the Greater Mapungubwe Transfrontier Conservation Area (GMTFCA) was officially established in June 2006.[717] A Trilateral Technical Committee (TTC) was established to coordinate and drive the objectives set out in the memorandum of understanding (MOU).[718] The TTC was supported by thematically-orientated working groups that would feed in the TTC structure.

> *'The formulation of the GMTFCA took an enormous amount of negotiation in order to meet agreement.'*
>
> *Local Landowner*

[716] See 'Greater Mapungubwe Transfrontier Conservation Area Integrated Development Plan' Peace Parks Foundation (February 2010) 1.
[717] Initially the GMTFCA was known as the Limpopo/Shashe TFCA but was renamed in 2009 after a proposal submitted by the Trilateral Technical Committee (TTC) met with approval by a Ministerial Committee of the 3 countries. The TFCA is now known as GMTFCA. See Ibid.
[718] Ibid.

An IDP for the GMTFCA was then adopted to provide context and a plan for managing and developing the area. The GMTFCA IDP provides both developmental decision-making and governance related guidelines in an effort to maintain and improve ecosystem stability and ecologically-considerate development. The purview of the GMTFCA IDP includes the provision of, 'institutional arrangements, integrated management and planning, policy harmonisation, the sustaining of landscape dynamics, and sustainable financing of TFCA related development'.[719]

7.3.6.2 *Ecosystem-driven integration and multi-functionality*

Sustainable development and ecological balance is centrally recognised in the plan. The plan has a strong ecological and cultural prerogative, squarely interested in conservation of the sensitive areas, while encouraging compatible low impact development in the buffer areas. The aim is that the GMTFCA can operate as a balanced collective regional development plan attaining ecological, social, and economic objectives.

The conflict between conservation and development, in particular mining is recognised as a threat to the ecological stability of the area. The GMTFCA states that, 'mining poses a significant threat to the region, with large areas being targeted, which could significantly change the character of the area as the change will be permanent and irreversible'.[720] Both existing and proposed diamond and coal mines are identified in the GMTFCA plan; there is also on-going prospecting occurring throughout the region, especially within the buffer zone areas.[721] The cumulative impact of such large-scale operations is seen as a risk, with these coal mines bringing new coal fired power stations. These developments are being monitored and opposed by many local community members and rights-based organisations. Certain stakeholders believe that an over-exploitation of the sensitive natural resources could have a detrimental impact on the area, ultimately changing the entire character of the Soutpansberg valley.

7.3.6.3 *Sectoral integration of planning instruments*

The GMTFCA IDP presents all applicable legislation as it pertains to the operation of the region. What is not present is how the partner country legislation aligns with that of the South

[719] Ibid.
[720] Ibid 45.
[721] Two diamond mines exist within the area, namely, Venetia and River Ranch, while a small coal mine is located on Nottingham Ranch.

African legal framework. Many aspects pertaining to the constant changing landscape of the TFCA have been identified, this includes the expansion of Mapungubwe; inclusion of additional land into the core area, as well as dropping the fences to benefit wildlife movement. The phasing of these expansion discussions and opportunities is graphically presented.

The GMTFCA divides its application into two separate management areas, namely, the core and buffer area. The core area 'focuses primarily on conservation, with strict and clear operational procedures and management standards, while the buffer area allows for multiple and mixed land-use options'.[722] The GMTFCA IDP makes an admission that there is a need to create spatial continuity, this requires consolidating the strategies, plans, and programmes in the broader Mapungubwe region, especially between the core and buffer areas.[723]

There are multiple identified sensitive areas within the expanse of the GMTFCA, some of these areas have been proclaimed as protected areas of various classifications. These protected areas are all required to have individual management plans. A primary objective of the GMTFCA is to 'achieve harmonisation between the protected areas by ensuring that the individual protected area management plans are aligned to the GMTFCA IDP'.[724] The construction of the plan entailed a thorough examination of all existing regionally relevant management plans. The alignment of sectoral planning tools undertook a gap analysis process in an attempt identify obstacles and add missing spatial components. The alignment with the Mapungubwe Park Management Plan, in particular, is seen as central to attaining the targets as set out by the GMTFCA IDP. Identified areas of sensitivity that did fall within any pre-existing protected areas or have not been subject to study were studied and mapped to create a comprehensive overall picture of the potential and inherent sensitivity of the broader landscape.

There is no mention of the 2009 gazetted buffer, or any other environmental planning tools in the GMTFCA IDP. This could be due to the fact that the plan was only finalised in 2010, but this does not explain the failure to mention the relevant spatial planning documents, including the specific local and district IDPs and SDFs.

[722] GMTFCA IDP (Note 713 above) 73.
[723] Ibid 52.
[724] Ibid 64.

3.6.4 *Scale and spatial awareness*

The regional characteristic of the GMTFCA IDP is clear as it is by its very nature a regional cross-boundary conservation and development plan. The plan admits that 'very little focus has gone into the analysis of regional development strategies and plans, thus the strategy must entail a broadening of the analysis aimed at ascertaining whether there are synergies or gaps regarding regional development'.[725] This is a concerning admission. For any cross-border plan to operate successfully there needs to be an alignment of planned activities in order to create synergies between products and support programmes.

Of all the plans assessed, the GMTFCA has the widest variety of extensive spatial and visual representative maps available. The elements mapped include: ecological planning; infrastructure; geology; soil types; soil drainage and depth; temperatures, rainfall; catchments; hydrology; vegetation; heritage; prospecting and mining; fences; tenure; land cover; protected status; landscape sensitivity; habitat value and environmental character. The maps spatially represent all the characteristics, threats and opportunities at a scale of 1:162000. The strategy is meant to serve as a platform for 'joint planning on the resources shared between the three countries, developing and sharing cross-border data sets, as well as collective agreement on conservation objectives, methodologies, plans and programmes'.[726]

7.3.6.5 *Co-operative governance*

A Core achievement of the TFCAs is the ability of the relevant governments to work together.[727] The government at all three spheres are involved in the governance structures within the GMTFCA.[728] The TTC, and the associated supporting working groups, 'play the coordinating function between the countries in an effort to ensure co-operative transboundary governance'.[729]

7.3.6.6 *Multi-stakeholder collaboration and participation*

The GMTFCA IDP stresses that successful conservation planning is reliant on informed decision-making and stakeholder involvement, as creating spatial continuity requires the

[725] GMTFCA IDP (note 713 above) 70.
[726] Ibid 51.
[727] The Minister of Environment, Wildlife and Tourism of Botswana, Minister of Water and Environment Affairs of South Africa, Minister of Environment and Natural Resources Management of Zimbabwe all signed the GMTFCA plan into operation. Ibid i.
[728] This includes the Beit Bridge and Gwanda Rural District Councils in Zimbabwe, the provincial and national Government departments in South Africa, and relevant structures within Botswana.
[729] GMTFCA IDP (note 713 above) 210.

engagement and participation of local stakeholders. The GMTFCA IDP was prepared based on 'various stakeholder inputs, TTC Working Group deliberations and specialist reports'.[730]

All strategies developed for the conservation and development of the region are based on consultation with affected stakeholders. The aim is to confirm that each important stakeholder 'clearly understands the implications of being either in the core or buffer area of the TFCA'.[731] The goal of the GMTFCA IDP is to facilitate an environment of engagement where stakeholders are active participants and can influence all developmental planning discussions. The stakeholder map extends across the entire region, including those who are part of the core conservation area as well as those within the catchment affecting the core area. The intention of the participation process is to ensure that stakeholders falling within the core ad buffer zone areas appreciate the overall aim of the plan, but importantly so that they themselves understand their own impact and how they fit in to the broader region.

The MoU contains a participatory strategy that 'promotes public-private community partnerships and establishes and addresses the needs and expectations of the various stakeholders'.[732] The TTC drives the engagement process by creating participatory structures in which each country is represented. Each country will also establish country-specific stakeholder structures and workshops which will use local knowledge in order to respond to particular issues and needs.

Within the South African context there are existing governance structures in place to support the TCC and associated working groups, namely the SANParks Mapungubwe Park Forum,[733] the Joint Management Committees with De Beers,[734] LEDET and additional national stakeholder meetings.[735] The national stakeholder meetings provide a flexible avenue to engage with other stakeholders, such as land claimants, non-resident land owners and universities.[736]

3.6.6 *Capacitation and continual learning*

There is no reference to any capacitation or learning initiatives present in the GMTFCA IDP.

[730] Ibid 5.
[731] Ibid 52.
[732] Ibid 42.
[733] With representatives from the following communities/sectors: Organised farming; Land owners; Tourism; Local authority; Labour; and Communities with cultural/traditional links with Mapungubwe
[734] De Beers also plays the role as a land owner, conservation business partner.
[735] GMTFCA IDP (note 713 above) 42.
[736] Ibid.

3.6.7 *Compatibility examination and analysis*

The adopted sensitivity analysis methodology takes the following factors into consideration, namely: 'habitat value, landscape sensitivity, cultural value, aesthetic sensitivity, ecosystem sensitivity, agricultural suitability and land use-propensity'.[737] The GMTFCA intends to use these factors to influence developmental and conservation related decision-making in the region. These factors from part of a compatibility assessment in order to judge the acceptability of certain proposed activities, ensuring accountability and appropriate placement of the interventions. This specifically pertains to the 'access, use, development, and infrastructure planning parameters, the planning environment and its sensitivities and land-use propensities'.[738]

The working groups assess land-use compatibly and sensitivity in line with these factors, placing recommendations and inputs on record as part of the land-use planning exercise. These inputs are then included into the GMTFCA IDP and practically translated into mapped impacts and the environmental status quo of the receiving environment.

3.6.8 *Transparent Participatory Monitoring and access to information*

The GMTFCA IDP is dated March 2010 and is available freely on the online platform. The version assessed is the draft that was sent for review, as the final version could not be located. The GMTFCA recognises that monitoring such a plan is a complex and time-consuming exercise. The TCC conducts its own monitoring and utilises its objectives and overall vision as the benchmark against which success of individual projects, plans and programmes is measured against. More specific targets are also set where required, these targets are allocated timeframes, individual responsibilities and resources. [739]

[737] GMTFCA IDP (note 713 above) 33.
[738] Ibid.
[739] Ibid 48.

7.3.7 *Vhembe Bioregional Plan*

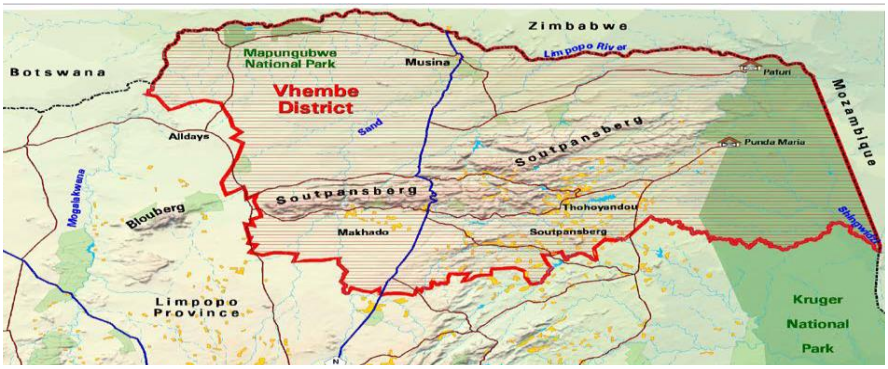

Figure 9: Vhembe district municipal boundaries

7.3.7.1 *Background*

The broad purpose of a bioregional plan is to act as the primary biodiversity platform 'informing land-use planning, environmental assessment and authorisations, and natural resource management, by a range of sectors whose policies and decisions impact on biodiversity'.[740] The Vhembe bioregional plan is the first plan of its kind for the district, covering the entire region, which includes the Musina, Makhado, Thulamela and Collins Chabane local municipalities. The plan 'does not replace any planning and decision-making processes and does not grant or limit land-use rights',[741] but rather serves to support existing processes related to planning and development within the Vhembe District Municipality. The Vhembe bioregional plan is based on a systematic biodiversity planning, mapping the priority areas and attributing specific land and resource-use guidelines to the area.[742]

> *'The Vhembe bioregional plan is the go-to document for all biodiversity related screening for the district, assisting developers and conservation authorities as to where detailed sensitivities can be found.'*
>
> *Provincial Planner*

This Vhembe bioregional plan was developed in 2017 and is based on data sets and information derived from the 2013 Limpopo C-Plan. 'During the construction process, real

[740] Limpopo Department of Economic Development, Environment and Tourism 'Vhembe District Bioregional Plan' (December 2017) vii.
[741] Ibid i.
[742] Published by the Minister or MEC in terms of s 40 (2) of the NEM: BA of the Vhembe region. Ibid 4.

and potential threats and non-alignment between various instruments and informants were identified.'[743]

7.3.7.2 *Ecosystem-driven integration and multi-functionality*

The bioregional plan is ecosystem and species-specific, being based on and adding to pre-existing CBA maps presented in the Limpopo C-Plan. The knowledge of the location and state of ecological process within the broader vulnerabilities of the study area makes the plan a key supporting tool to decision-makers on the sensitivities that exist within the district. The continued functioning and management of ecological processes and infrastructure within the district is critical for 'ensuring long-term persistence of biodiversity and the delivery of ecosystem services, especially in the context of climate change'.[744] 'Well-functioning, largely undisturbed and natural ecosystems improve a natural resilience to the negative impacts of climate change and the vulnerability of people thereto.'[745]

The main environmental issues listed as threats to the district are: agricultural and human settlement expansion, as well as new mining developments.[746] More specifically, 'uncontrolled creep of rural and urban settlements and associated land-uses threaten to encroach on CBAs and ESAs alike'.[747]

The mining sector is considered to be one of the three economic mainstays of the Limpopo Province and is, therefore, strategically important to the expansion of the district economy. There is recognition of the mining that takes place in the area, with the six active mining operations and a number of abandoned mines scattered throughout the district with clusters occurring at both Musina and Makhado.[748] The mining-conservation conflict is recognised, as the presence of coal underneath the park may lead to future land-use conflict.

7.3.7.3 *Sectoral integration of planning instruments*

The Vhembe bioregional plan is intended to feed biodiversity related information into multi-sectoral planning, assessment and authorisation procedures such as EMFs, SDFs, SEAs and

[743] Vhembe Bioregional Plan (note 737 above).
[744] Ibid 12.
[745] Ibid.
[746] Ibid 2.
[747] Ibid 2.
[748] There are six active mines in the VDM, where the Venetia mine, one of the largest, is located just outside of Mapungubwe National Park. Mining is also concentrated around Musina Local Municipality.

EIAs.[749] The Vhembe bioregional plan considers all relevant instruments and platforms relating to nature conservation and planning within the region. These include protected areas planning, multi-sectoral planning and any other informants.[750] The integrated sectoral nature of the plan is displayed by the recommended users of Vhembe bioregional plan. These users include: environmental and planning consultants undertaking SEAs, EIAs, IDPs, SDFs or EMFs for a municipality; as well as provincial and local departments responsible for spatial planning and SDFs.[751]

The Limpopo C-Plan was one of the central sources utilised in the construction of the Vhembe bioregional plan to update existing biodiversity targets and classifications, such as the state and classification of CBAs and ESAs.[752] The Vhembe bioregional plan aligns CBAs and ESAs with existing planning instruments and requires alignment by existing instruments and municipal planning tools. The guidelines of compatible and incompatible land-uses are 'designed to aid planners to identify the appropriate zones and controls to impose on areas designated as CBAs or ESAs when developing SDFs, Land Use Management Schemes, EMFs or similar strategic land-use planning tools.'[753]

The Vhembe bioregional plan recognises the Vhembe biosphere reserve and the Mapungubwe buffer zone. The Vhembe bioregional plan states that, 'integrated management of municipal and environmental planning tools such as, SDFs and EMFs will be the other significant role-player for the conservation and management of biodiversity'.[754] There is no specific mention of the Mapungubwe EMF or Vele Colliery.

7.3.7.4 *Scale and spatial awareness*

The aim of a bioregional plan is to provide a 'regionally specific map of biodiversity priorities with accompanying land-use planning and decision-making guidelines to inform land-use planning, environmental assessment and authorisations, and natural resource management'.[755] The bioregional plan is therefore by design a regional spatial tool used to understand regionally-specific sensitivity, showing all important ecological features integral

[749] S 3.1.3 of National Environmental Management: Biodiversity Act No. 10 of 2004: Draft National List of Threatened Ecosystems GN R 1477 in 32689.
[750] These other informants include, for example, Biosphere Reserves and Important Bird Areas. Vhembe Bioregional Plan (note 737 above) vii.
[751] Ibid 3.
[752] Secondary sources included adapted stakeholder comments, concerns and stated possibilities.
[753] Vhembe Bioregional Plan (note 737 above) 23.
[754] Ibid 2.
[755] Vhembe Bioregional Plan (note 737 above) vii.

to the conservation of ecosystems and biodiversity. RAMSAR wetlands, water management areas and the catchments areas are all recognised which adds to the regional characteristic of the plan. All land that is encumbered by developmental limitations and constraints, such as protected areas are mapped and identified.[756] The bioregional plan, as a systematic biodiversity plan, is designed to be used on a 1:50 000 scale which provides a broad overview of the entire region, yet specialist on-site interpretation will have to be sought for any additional detailed spatial sensitivity analysis to be accurately undertaken.[757]

Data collation and management is a central enabler in the creation of a successful bioregional plan, as appropriate land-use decision-making is informed by the accessibility of accurate, up-to-date information. The Vhembe bioregional plan does concede that 'discrepancies between the databases exist, and ultimately for the purpose of the bioregional plan, the SANBI data was utilised'.[758] Due to this disconnected nature of the protected and sensitive areas in the region, the Vhembe bioregional plan tries to recognise what can be done to synthesise the existing information on a GIS platform.[759] The limitation of input data needs to be acknowledged during development planning processes, particularly at the site-level. Interestingly, Vele Colliery is not recognised, in either the text or in the maps contained in the plan.

7.3.7.5 *Co-operative governance*

This Vhembe bioregional plan was compiled by environmental consultants,[760] with support from the LEDET, SANBI, SANParks and various stakeholders within the Vhembe District Municipality. The bioregional co-ordination committee played a key role in feeding information into the process. This structure was represented by 'local, district, provincial authorities and other key stakeholders with the purpose of ensuring that the Vhembe District Bioregional Plan remains current, effective and in force'.[761] Additional state departments that were consulted include DMR, DWS, DAFF. The Vhembe District Municipality is assigned as the lead implementing agency for the bioregional plan, with LEDET remaining the agency

[756] Protected Areas Maps are authored by SANBI are used to identify protected areas.
[757] Ibid.
[758] Vhembe Bioregional Plan (note 737 above) 14.
[759] An example is the one ecological corridor within the District Municipality, spanning the width of the District from Pafuri in the east at the Kruger National Park, through the Soutpansberg Mountains in the west and continues into Capricorn District. A branch leads off of the main corridor, through Waterval in the south into Mopani District.
[760] NuLeaf Planning and Environmental (Pty) Ltd.
[761] Vhembe Bioregional Plan (note 737 above) 38.

responsible for the review of the plan.[762] It has come to light through the interviews that the bioregional plan has been driven by the Biodiversity Directorate, while the Vhembe EMF has been pushed by the EIA Division within the same LEDET department. It appears as though there has been no consultation between departments on the integration of the plans.

7.3.7.6 *Multi-stakeholder collaboration and participation*

The public participation process was aimed at arriving at mutually agreed upon resolutions with key stakeholders, specifically, the local and district municipalities in response to potential threats to biodiversity conservation.[763] Although state role-players at various levels and sectors were consulted, community and land-owner involvement seem to be minimal. The bioregional co-ordination committee is well represented with state officials, and is well integrated into government decision-making structures. The process of development is not presented in the Vhembe bioregional plan, only who was involved.

7.3.7.7 *Capacitation and continual learning*

Few of the objectives presented in the bioregional plan can be achieved without inclusive and meaningful capacity building and training at local and district level. Within LEDET, the role of the bioregional plan, the correct and efficient use and dissemination of spatial information and supporting documentation, as well as the effective update of databases must be part of a detailed training programme. 'An improved awareness of the importance of biodiversity conservation and legal requirements associated with the natural environment and water is essential to minimising impacts on CBAs and ESAs within the District.'[764]

Moreover, essential to the realisation of the plan is 'continuous communication, education and public awareness which are key to building and maintaining support for biodiversity conservation initiatives and to ensure the importance of sustainable development'.[765] The biodiversity plan suggests that an overall communications strategy should be developed 'to guide action plans and activities in various sectors'.[766] Although mentioned as important, no specific education initiatives in the bioregional plan are put forward in the text, the goal is only mentioned broadly.

[762] Ibid.
[763] Ibid i.
[764] Ibid 37.
[765] Ibid.
[766] Ibid.

7.3.7.8 *Compatibility examination and analysis*

Core to the function of the bioregional plan is a tool that supports the protection of identified biodiversity priority areas that are not formally protected.[767] The bioregional plan includes specific land-use planning and decision-making guidelines that are developed using the biodiversity priorities of the receiving environment. These guidelines must be used to 'inform land-use planning, environmental assessment and authorisations, and natural resource management'.[768] The bioregional plan is therefore an environmentally-focused spatial planning tool that informs all planning and land-use authorisation processes, guiding decision-makers and developers on ecologically-compatible land-uses. The guidelines are not only meant to guide development activities but are also designed to support conservation activities within the landscape. The bioregional plan is not prescriptive in nature as it only provides guidance to decision-makers, informing the planning processes on appropriate land management activities; and therefore, does not 'grant or remove existing land-use rights or take the place of development application authorisation processes'.[769] The guidelines have an additional benefit of feeding into the EIA evaluation process, providing decision-makers insight into appropriate land-uses within the landscape .

The sensitivity analysis methodology includes the presentation of a map of inherent sensitivities 'based on biodiversity characteristics, spatial configuration and requirements for meeting targets for both biodiversity patterns and ecological processes'.[770] The sensitivity mapping divides the region into zones, which include: Protected Areas, CBAs, ESAs, Other Natural Areas (ONAs) and No Natural Areas (NNA). Each category has a description; a land-use objective and management recommendation; statutory recommendation; and compatibility guidelines.[771]

The illustrated CBA and ESA categories are purposefully integrated into the land-use objectives and guidelines, providing specifically assigned compatible land-uses with each category of sensitivity.[772] The guidelines are designed to 'aid planners to identify the appropriate zones and controls to impose on areas designated as CBAs and ESAs, supporting

[767] Ibid vii.
[768] Ibid.
[769] Ibid 1.
[770] Ibid 18.
[771] The guidelines comprise of general, protection, rehabilitation, development sections and aquatic ecosystems.
[772] The ecosystem categories are divided into: 'not protected, poorly protected, moderately protected or well protected, based on the proportion of each ecosystem type that occurs within a protected area recognised under the NEM: PAA'. See Vhembe Bioregional Plan (note 737 above) 11.

the principles of integrated development planning and sustainable development by ensuring that the identified CBAs are not in conflict with other land-use activities'.[773]If conflict arises between the land-use guidelines 'the least environmental impact should be adopted as the recommendation'.[774]

7.3.7.9 *Transparent participatory monitoring and access to information*

The draft document was released in December 2017 and is available publicly. The document was a final draft for comment and could be found on a public platform.

The district is in charge of monitoring, reviewing and implementing the bioregional plan, while LEDET is in charge of reviewing and updating the plan.[775] Establishment of a biannual or annual monitoring and reporting programme as well as the compilation of an annual audit report on the effectiveness of the bioregional plan must be set up.

The bioregional plan will be subject to an automatic five-year review where an assessment of its efficacy will take place.[776] If the review demands an update of the entire plan or any of the individual components, the review can be completed and re-submitted to the MEC for approval.[777] This should be 'timed to precede the revision cycle for municipal SDFs and feed into IDP proposed projects'.[778]

It is also recommended that a 'database be developed and maintained on a GIS platform to track the loss of biodiversity and inform decision-making around rezoning and development applications'.[779] This database must be used as an integrated planning platform that incorporates and overlays all relevant environmental planning instruments for the region.[780] It would be useful if this was available to the public as such a database would allow for fully integrated and supported decision-making. The platform should include a consolidated and coordinated database of approved rezoning applications within each local municipality, environmental authorisations, prospecting rights, mining permits and mining rights, as well as land claims. It is recommended that these elements should be updated at least annually.

[773] Ibid 23.
[774] Ibid.
[775] For example, the Limpopo Conservation Plan (C-Plan).
[776]Vhembe Bioregional Plan (note 737 above) 39.
[777] Ibid 40.
[778] Ibid.
[779] Ibid 33.
[780] The bioregional plan must be updated at least once a year. See Ibid.

7.3.8 ***Limpopo Conservation Plan***

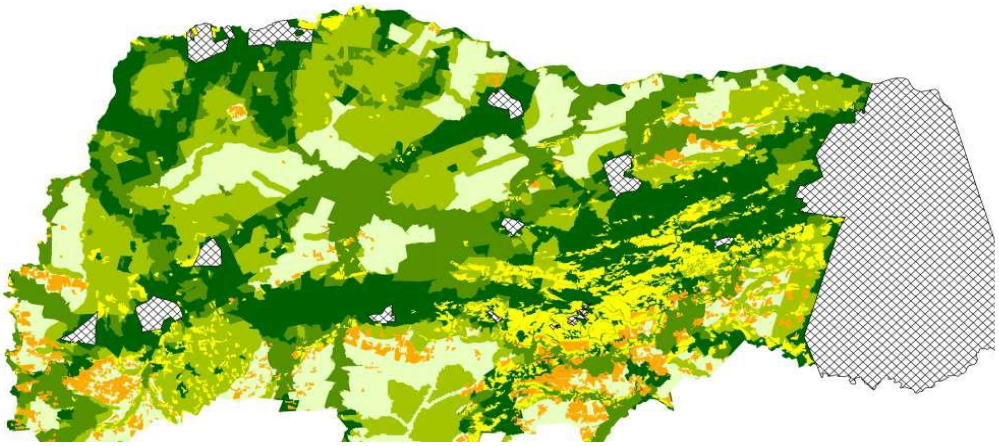

Figure 10: Limpopo Conservation Plan Critical Biodiversity Plan

7.3.8.1 *Background*

The Limpopo Conservation Plan (C-Plan) provides 'an integrated biodiversity sector input layer to multi-sectoral decision-making processes for the Limpopo Province'.[781] The 2013 C-Plan is a revision of the 2009 C-Plan plan that uses quantitative systematic spatial biodiversity planning methodology, conforming to the bioregional planning guidelines.[782] The C-Plan establishes the CBA map and views it as a central determining factor in the classification of sensitive areas. The C-Plan also recommends that the district CBA map and guidelines be used in conjunction with existing municipal managements schemes to be used as a minimum environmental input to any strategic plan or land-use planning decision.[783]

> *The land management objectives that are found in the Limpopo C-Plan take the sensitivities of the given area, combine it with the possibilities for growth and put forward ways to integrate development into the area given it sensitives.*
>
> *Provincial Planner*

7.3.8.2 *Ecosystem-driven integration and multi-functionality*

The conservation planning approach adopts a systematic and detailed data-driven province-wide planning process that is spatially-focused and represents the 'minimum area necessary

[781] P G Desmet et al (2013) 'Limpopo Conservation Plan v.2: Technical Report' Report for LEDET by ECOSOL.
[782] Ibid.
[783] Ibid 51.

to maintain the biodiversity pattern and ecological processes in the landscape'.[784] The focus on NEMA principles such as ecologically functional landscapes, natural ecological process and ecosystem-based adaptation guide the formulation of the C-Plan. There is also a protected area focus, with expansion, assessment and analysis seen as central facets to the plan.

Unlocking the regional mineral belt is seen as a priority for the province in the C-Plan and the conflicting developmental objectives of such an approach is recognised.[785] The C-Plan has made an effort to avoid conflict by carefully considering existing incompatible land-uses and aligning the classification of areas with existing conservation initiatives, such as biospheres and transfrontier conservation areas. The C-Plan attempts to avoid areas in the vicinity of developed areas, such as roads and mineral deposits.

What is interesting is the areas to the north east of Mapungubwe (area between Vele Colliery and the park) that were previously unprotected and left out of the 2009 buffer zone are identified as sensitive areas with a CBA 1 rating (highest possible rating). One can only conclude that this was due to the political sentiment at the time as the area is a continuation of the yet to be exploited valuable Thuli Coal Seam.

7.3.8.3 *Sectoral integration of planning instruments*

The C-Plan acts as the bioregional plan for the Limpopo Province and aims to support the sustainable management of unprotected priority areas, 'aligning the methods and terminology of the plan with the national guidelines for the development of bioregional plans'.[786] The C-Plan is sectorally conscious, both in its construction and operation. As part of its methodology of its construction the C-Plan integrates all relevant pre-existing spatial biodiversity plans (including neighbouring C-Plans). Operationally the plan 'feeds into a range of multi-sectoral planning and assessment processes such as EMFs, SDFs, SEAs, EIAs, biosphere reserves, and to support and streamline environmental decision-making'.[787]

Importantly, it is recommended by the 2013 C-Plan that the title of the conservation plan should be changed to a 'biodiversity assessment' as a conservation plan implies that there is a

[784] Ibid 4. The key characteristics of a systematic conservation plan as being representation, persistence, quantitative targets, and efficiency and conflict avoidance.
[785] Ibid 7.
[786] Ibid 1.
[787] Ibid 4.

'spatial assessment, a spatial plan; and, a strategy to implement the plan'.[788] This recommendation is made as the C-Plan only purports to have conducted as spatial assessment and changing the name 'would bring the terminology plan in line with what is being used by other provinces'.[789]

There are multiple datasets, and corresponding land-use guidelines, that exist over the Limpopo Province, the most useful of these are the NBA and national land-use guidelines. These tools can be used alongside the C-Plan and provide a helpful holistic perspective of the protected areas in Limpopo.[790] These tools have been assessed in the C-Plan GAP Analysis, where it is found that certain discrepancies are found between national and provincial data sets. Where such a conflict is found to exist it is 'assumed that the provincial data is more accurate as it considers the landscape at a finer scale and the datasets used reflect the most up-to-date information on vegetation and protected areas'. These discrepancies could be seen as creating confusion between the national and provincial datasets, yet the intention of the C-Plan is not to exacerbate any confusion or reinvent existing guidelines but is to rather update, align and streamline all relevant environmental and spatial tools.

Municipal sectoral integration is a key feature of the C-Plan, as the adopted CBAs are to remain consistent between all applicable IDPs, EMFs and SDFs. The CBAs act as the constantly applied reflection of sensitive areas across the sectoral planning tools.[791] Spatial biodiversity planning in South Africa is moving towards this position where a uniform configuration of CBA categories and recommendations for land-use exist across the spheres of government.[792]

The nature and specificity of the C-Plan also enables the plan to be a foundational informant in the construction of the protected area expansion strategy for the Limpopo Protected Area Expansion Strategy (LPAES).[793]

7.3.8.4 *Scale and spatial awareness*

The C-Plan is a regional assessment, referencing catchment, ecological processes and bio-diverse connectivity for the study area. All protected areas are designated by authority and

[788] Ibid 62.
[789] Ibid.
[790] Driver et al (note 383 above) iii.
[791] Limpopo C-Plan (note 781 above) 4.
[792] Ibid 51.
[793] Ibid 17. The C-Plan is not the only informant and does not replace the need for a national assessment

size with land cover percentages, including an illustration of declared protected areas. This shows a good spatial understanding of the region. The main categories of maps presented are: land cover and land use, protected areas, biodiversity patterns and ecological process features, as well as current and potential mining areas. This C-Plan is 'designed to be used at a scale of approximately 1:50 000 although it can be used at a finer scale, yet this would require specialist interpretation.'[794]

A gap identified is that the 'LEDET consolidated geo-referenced database of the protected area system in the province is based on a rapid compilation of information'.[795] This gap has led to datasets that can be considered course and incomplete. This finding impacts the comprehensiveness of the C-Plan which ultimately has bearings on the extent to which LEDET can accurately manage development. The C-Plan suggests that LEDET have 'strategies in place to formalise the collection and curation of essential spatial data sets in preparation for future iterations of the assessment in order to improve key datasets and achieve a more comprehensive set of data and development controls'.[796]

7.3.8.5 *Co-operative governance*

The C-Plan states that it is important to 'market the product' to both relevant public and private stakeholders.[797] The C-Plan, its associated biodiversity assessment, CBA map and land-use guidelines need to be presented to these stakeholders in order for the necessary awareness to be raised so that the spatial biodiversity tool is incorporated into land-use planning and decision-making processes. This encouragement and awareness creation between different departments and spheres of government is the responsibility of LEDET. This does not seem sufficient as there should be a corresponding obligation on all other departments to also recognise the information contained the C-Plan and not just the option to do so.

7.3.8.6 *Multi-stakeholder collaboration and participation*

The C-Plan identifies the Biodiversity Planning Forum as the event where the tool would be presented and workshopped with biodiversity planners from across the country in all levels of

[794] Ibid 23.
[795] 'The informal conservation area network in the province is very difficult to estimate as many areas registered as private nature reserves are no longer operated as such, moreover, many active private conservation areas are not on any official register.' Ibid 6.
[796] 'Site visits by biodiversity specialists are necessary for confirming the accuracy of data and identifying the specific location and condition of the biodiversity features when decisions are made at a site level.' Ibid 23.
[797] Limpopo C-Plan (note 781 above) 62.

government. However, the participatory structures and the outlining of the development process seems wholly insufficient to encourage collaboration and buy-in. Special attention needs to be given as to who will be impacted by the plan, how it can be used effectively and what barriers there are to meaningful participation. The Biodiversity Planning Forum, while a useful forum in which to disseminate the details of the plan, more direct training needs to be provided for.

7.3.8.7 *Capacitation and continual learning*

The C-Plan involves a structured skills transfer, primarily focuses on engaging with LEDET staff through the development of the CBA map and assessment methodology. The C-Plan does accept that 'spatial data and planning are a core component of biodiversity conservation in the province and it is important that LEDET have GIS and spatial biodiversity planning capacity within the department with the ability to collate and manage the essential datasets required for planning'.[798] LEDET capacity building is a core mission in the fulfilment of the goals of the plan, yet there is no mention of user or community capacity building.

7.3.8.8 *Compatibility examination and analysis*

The sensitivity analysis methodology references two primary products, namely, the CBA map and associated land-use guidelines.[799] The sites identified in the plan are assigned to 'CBA categories based on their biodiversity characteristics, spatial configuration and requirement for meeting targets for both biodiversity patterns and ecological processes'.[800] The CBA categories that stem from these primary products are described in detail and feature prominently in the sensitivity analysis. The C-Plan identifies three biodiversity categories of CBAs, from the most sensitive to the least. These include: 'protected areas'; 'CBA 1' areas which are considered irreplaceable; and 'CBA 2' areas where conservation is optional but highly desirable.

A central aim of the CBA map is to 'identify a network of areas, which if managed according to the land-use guidelines would meet the pattern targets for all important biodiversity features, while at the same time ensuring the areas for supporting necessary ecological processes remain functional'.[801] The evaluation methodology used in the National

[798] Ibid 62.
[799] Ibid 1.
[800] Ibid 48.
[801] Ibid.

Biodiversity Assessment (NBA) was mirrored in this C-Plan assessment to create alignment between the sectoral plans.[802] The CBA map connects the land-use guideline graphs which are based on a combination of environmental and sectoral plans from various provinces.[803] 'These guidelines and recommendations are aimed at informing strategic decision making and facilitating biodiversity conservation in priority areas outside the protected area network.'[804]

The C-Plan prides itself on basing its conclusions and targets on up-to-date and relevant contextually sound data, and an explicit set of biodiversity conservation targets (not protected area targets) necessary to maintain ecologically functional landscapes.[805] Specifically, the CBA map contains categories and classifications in a table form. The categories include land management objectives; land management recommendations; compatible land- use; and incompatible land- use that corresponds with the CBA map categories.[806]

The C-Plan does not supersede, obstruct or substitute any legislatively required site-specific environmental assessment, such as EIAs and EMPs, but rather intends to provide a compatibility guide to land-use through the provision of biodiversity management objectives of each CBA map category.[807] The guidance presented in the C-Plan is therefore a further tool to be used in addition to existing provincial or municipal spatial and environmental management tools. The multi-sectoral nature and detailed data driven guidelines of the C-Plan makes it perfect to be superimposed onto future planning instruments.[808]

7.3.8.9 *Transparent participatory monitoring and access to information*

The C-Plan document was published in September 2013. Access to information was promising as the plan can be found on the SANBI website,[809] however it is not immediately apparent that the plan can be accessed there from a general search engine enquiry. Only after contacting SANBI directly was the plan found. There was no cost to access. In terms of monitoring, evaluation and review, it is general practice to update the conservation plan every 3-5 years.

[802] Driver et al (note 383 above) 153.
[803] Mpumalanga, KNZ, and Gauteng provinces.
[804] Limpopo C-Plan (note 781 above) 1.
[805] Ibid 4.
[806] Ibid 51.
[807] Ibid 5.
[808] Ibid.
[809] See https://www.sanbi.org/.

7.4 ***Spatial Plans Declared Over the Area***

7.4.1 *Limpopo Provincial, Vhembe District and Musina Local Development Plans*

Figure 12: Musina, Vhembe and Limpopo municipal boundaries

7.4.1.1 *Introduction*

IDPs are the principal developmental documents for integrated planning and development in all spheres of government. The Mapungubwe case study area is further confused by the location of municipal planning boundaries. The park falls primarily within the Vhembe District and the Musina Local Municipality, yet a small part of the original 2009 buffer zone in the south-western corner is situated in the Capricorn District and the Blouberg Local Municipality.[810] Thus, there are two local and two district IDPs that must be consulted during developmental or environmental planning processes.

> *You can never underestimate the power of the drivers [of an economy], because they are central to the decision-making authorities which you have to engage. I sit at provincial planning, I have no power as to when and where mining takes place but I must plan for the province. If there are areas of sensitive endemism which have rich mineral properties in a province which views extractives as a principle driver of the economy, we all know who will win.*
>
> *Provincial Planning Official*

[810] Mapungubwe EMF Status Quo (see note 629 above) 20.

Even though the Blouberg and broader Capricorn municipalities also claim the world heritage site as an important site, the Limpopo Development Plan, Vhembe District IDP and Musina Local IDP will be the subject of the assessment. These IDPs are presented together as they are formulated directly from one another and must align; there is also duplication across the plans, which lends the assessment to a collective analysis.

Analysis tables were used, where each plan was categorised and cross-referenced with each thematic identifier. This allowed efficient identification of central points, themes and conflicts between the plans. The analysis tables also acted as a central analysis tool for the assessment of the planning documents, which range between three hundred to five hundred pages.

7.4.1.2 *Background*

The Limpopo Province comprises of five district municipalities,[811] namely, Capricorn, Greater Sekhukhune, Mopani, Vhembe and Waterberg, together with 25 local municipalities.[812] Vhembe, with which we are concerned, consists of four local municipalities: Makhado, Thulamela, Collins Chabane and importantly, Musina where Mapungubwe is found. The Limpopo Development Plan 2015-2020 (LDP)[813] operates in a very similar fashion to both the district and local municipal IDPs, operating in five-year cycles and identifying both the threats and developmental opportunities that exist in the region, each having specific applicability over their demarcated area.

The regional growth potential of the area in which the Mapungubwe finds itself is squarely focused on agriculture, natural eco-tourism and, most centrally, mining. These three drivers are the focus of the entire province, district and local municipalities. Mining is evidently the dominant sector in the region, contributing more than a third of the value of total production and GDP of the province, with the Vhembe and Musina Municipality serving as core to this overall contribution. Many of the potential new projects in the region are related to mining with much of the focus for growth at all levels directed at supporting and growing the sector. The initiation of the mining related Special Economic Zone (SEZ) in Musina is a testament to

[811] Vhembe district municipality is a Category C municipality, established in the year 2000 in terms of Local Government Municipal Structures Act No. 117 of 1998.
[812] Musina local municipality was established as a category B Executive council, in terms of the Municipal Structures Act, 117 of 1998, which provides for the establishment of municipalities, their categories, competencies, powers and functions.
[813] The LDP builds on the Limpopo Provincial Growth and Development Strategy (PGDS) and the Limpopo Economic Growth and Development Plan, attempting to align and support growth plans on all levels of government.

the focus on the mining sector in the hopes that it acts as a catalyst for the growth of small businesses and the resultant accumulating employment.[814]

Additionally, the region is historically comprised of numerous agricultural developments. This is especially true in and around the greater Mapungubwe area due to the rich nutrients that can be found along the Limpopo river flood plains and the confluence of the Shashe river. The impacts of decades of intensive mining and agriculture cannot be underestimated. As mentioned above, the region is endowed with immensely valuable natural biodiversity of flora and fauna; this rich ecological landscape can be accredited to the regions unique topography and location. 'These and other factors have produced a unique assortment of ecological niches which are in turn occupied by a wide variety of plant and animal species.'[815] The relevant development plans all see the areas under conservation as a core part of the developmental possibilities that exist in the region, identifying three centres of endemism[816] that need to be carefully managed.

The environmental and developmental challenges of the area are common between the planning frameworks, and include: ageing infrastructure; serious water supply and quality concerns;[817] droughts; the recurrence of heavy flooding; pollution; destabilisation of wetlands and service delivery challenges.[818] Water is clearly a central concern to this dry and arid region, as both ground and surface water is in short supply. The few available catchment areas are under increasing pressure from domestic and industrial activities such as agriculture and mining. Inappropriate and incompatible land-uses in water source areas, poorly maintained infrastructure and inadequate monitoring are aggravating the imbalance between the supply and demand for water.[819] The Limpopo and its tributaries are critical to the livelihoods of the local economy, yet many of these rivers are heavily polluted.[820]

[814] The hope is that the mining sector could become even more dominant in the production structure of the Limpopo provincial economy in the foreseeable future.
[815] IDP for Vhembe District Municipality (2016/17) 35.
[816] The three centres of endemism Soutpansberg, Wolkberg and Sekhukhune.
[817] The quality of service delivery is worryingly poor, in particular the quantity and quality of water service. Vhembe District Municipality Blue Drop performance was poor in 2014, most notably for the considerable decline in performance compared to 2012. This deterioration in drinking water quality management was associated with the lack of key drinking water quality management documentation.
[818] Limpopo Environmental Outlook Report (note 657 above) 13.
[819] Vhembe IDP (note 815 above) 122.
[820] DWS Blue Drop Certification Programme which in Vhembe District Municipality was disappointingly poor in 2014, most notably for the considerable decline in performance compared to 2012.

The region, additionally, 'has water demand management challenges and a great need exists for the implementation of water demand and conservation management projects'.[821] It is not just the region's water sources that are under pressure, as the biodiversity and cultural resources[822] are also under constant threat.[823] This is primarily due to uncontrolled development activities and resource consumption which protrude into sensitive ecosystems negatively affecting the stability of the systems, impacting many endangered species.[824]

7.4.1.3 *Ecosystem-driven integration and multi-functionality*

The LDP, district and local IDPs all specify that environmental management is a central concern and strategic objective. The environmental approach adopted by the IDP seems to be influenced by sustainable development and the management of ecosystem services. Sustainable development is presented as a core principle of the operation of the province and municipalities, refer, in multiple instances, to the balance that needs to be found between ecological stability and development.[825] The planning framework also directly links the reliance of communities on the stability and continual existence of the natural resources and functionality of ecosystem services.[826] The biodiversity of the region is considered a strategic resource, as it provides rural communities with natural products which sustain their livelihoods, such as shelter, food, fuel and medicinal plants.[827]

Ecosystem-based adaptation and resilience are not mentioned in the local and district IDPs, however the Provincial IDP presents it as a core principle. The province and municipalities recognise that 'growing public awareness of the consequences of climate change and unconstrained consumption of the natural resources has led to a refocusing of political priorities towards the protection and rehabilitation of the region's natural assets'.[828] The LDP

[821] The vast number of problems identified seems to be institutional in nature. Amongst others, staff members of Vhembe DM are still on the DWA payroll, resulting in a spirit of poor accountability and lack of direction. Compounded by the lack of an organisational structure, the municipality seems to find itself in a space of worker dissatisfaction and confused roles and employers.
[822] These uncontrolled developments are negatively affecting tourism development due to deterioration of unprotected heritage sites entire district and lack of coordination of from local municipalities. See reference.
[823] The regional planning framework collectively recognises how rich and bio-diverse the province is, admitting that the systems are under severe pressure and require conservation and formal protection.
[824] This is particularly true in the Vhembe Biosphere Reserve next to Mapungubwe.
[825] In accordance with s 83(3)(d) of the MSA, 'a district municipality must seek to achieve the integrated, sustainable, and equitable social and economic development of its area as a whole by promoting the equitable distribution of resources between the local municipalities in its area to ensure appropriate levels of municipal services within the area'.
[826] The recognition of how valuable ecosystem services extend to the identification of the RAMSAR wetlands and the appreciation of the specific function that wetlands have in the dry and arid area.
[827] Vhembe IDP (note 815 above) 116.
[828] NDP (note 511 above) 216.

and the district IDP reinforce the NDPs stance on the transition to an environmentally sustainable low carbon future, which requires the 'decoupling of economic growth from natural resource degradation and depletion'.[829]

The only concerted response to uncontrolled resource consumption and incompatible land-use is contained in the provincial LDP. The LDP presents a goal orientated phased plan aligned with the NDP objectives to transition Limpopo to 'an environmentally sustainable, climate-change resilient, low-carbon economy by 2030'.[830] The environmental response plan envisages a phased trajectory over the three successive five year IDP cycles. 'The first planning, piloting and investing phase[831] focuses on the creation of a framework for implementing the transition to an environmentally sustainable, low-carbon economy.'[832] This phase will include 'unblocking regulatory constraints, data collection and the establishment of baseline information, testing some of the concepts and ideas to determine if these can be scaled up'.[833]

The baseline information stage is strictly related to environmental planning, in that data collection, baseline information and indicators are the core and first step to successful environmental spatial planning. The development of a spatial information system is seen as a priority, as this is a gap that exists on the district and local level.

The second phase[834] focuses on the implementation of sustainable development programmes in an effort to reduce poverty and unemployment. The focus of the IDP is clearly on heavy industry and extractives which is at odds with this planned 'decoupling', and would take significant balancing to successfully achieve.

The final phase[835] involves the final steps in the transition and drives socially sustainable development, while being environmentally conscious, building on the gains made by the previous phases. What cannot be ignored is that the new investments being focused on, including extractives and heavy industry, have lifespans that are in excess of thirty to forty years, far beyond this third and final phase.

[829] The NDP has identified outcomes such as that ecosystems must sustained and natural resources are used efficiently through enhanced governance systems, capacity and sustainable human communities.
[830] NDP (note 511 above) 236.
[831] 2015-2019.
[832] LEDET 'Limpopo Development Plan' (2015-2019) 68.
[833] Ibid.
[834] 2020-2024.
[835] 2025-2029.

The IDPs speak about decoupling resource use and increasing investment in green sectors, so as not to expose future generations to significant environmental risks or ecological scarcities. The plans recognise the wealth of natural resources in the region, identifying resource over-exploitation and land degradation as central threats.[836] Taking the phased approach and the alignment with the NDP's sub-outcomes and actions into account, these plans seemingly only pay lip-service to the environmental concerns as the accelerated developmental drive is not aligned to these environmental objectives. All plans, except the LDP, are silent on the inherent conflict that exists between mining,[837] heavy industry, agriculture[838] and nature-based conservation related activities proposed in the area, even though these activities would impact the main site and buffer zone if the proposed developments take place as planned.

The LDP does recognise that this focus on mining development could present a serious long-term risk due to the cyclical nature of the mining sector. The promotion of the diversification of the economy and multi-skilling of the workforce in an effort to mitigate these risks associated with commodity price dips and mine closures must be kept at the forefront of developmental decision-making. However, this is not likely to impact the prevalence of extractive operations, given the focus on the sector and the need to invest, given the unemployment and poverty related concerns.

In response to these concerns, the LDP calls for all heavily industrialised areas to have strategic environmental frameworks, and every district and local municipality to have an EMP. The LDP stresses the need for the provincial environmental authorities, in this case LEDET, to foster an 'Environmental Accumulative Study' approach, which takes a holistic and cumulative approach to impact. It identifies that the three mega-conservation areas[839] and the three centres of endemism[840] that exist in Limpopo should have specific development plans, yet there is no further direction is provided as to how these plans should be developed and within which legislation or framework.

These plans seem to have been drafted by a different set of authors to the economic growth and opportunities sections. The plans seem to differ on the proposed environmental

[836] Small Enterprise and Human Development, 2008.
[837] 'Existing mining and its waste dumps are already responsible for terrestrial, hydrological and atmospheric pollution in the region. Poorly managed coal mines can leak methane into the atmosphere, and coal waste dumps contains materials that can burn on their own (self-combustion) and produce poisonous particles and gases.' See Vhembe IDP (note 815 above) 114.
[838] Agricultures impact on the environment, includes increased methane, air and soil pollution and water usage.
[839] Waterberg, Soutpansberg and Drakensberg.
[840] Soutpansberg, Wolkberg and Sekhukhune.

approaches and seem to act in isolation which calls in to question their implementability. The LDP and District IDP, furthermore, mention the decoupling of mineral-based extraction, yet intend to grow mining channels with additional sites. These plans appear to mention all issues and possibilities but not how they align to each other.

Heavy industry presents a major concern in terms of pressing threats to water and biodiversity resources, yet this has not been stated as an issue. This may be because the need for employment and focus on mining are seen as a critical part of the development future, and the politics associated with identifying a chief driver of the local economy as being harmful is problematic. An example is the development of coal and diamond mining clusters over sensitive areas that are also identified as growth areas for tourism.

Finally, although the challenges identified in the different planning documentation are similar, the planned interventions are not, and do not appear to be aligned between the spheres of government.

7.4.1.4 *Sectoral Integration of Planning Instruments*

Due to the plethora of planning documents that apply over the same area, there needs to be sufficient alignment in order to have integrated planning frameworks which feed into a common growth path. The IDPs must be integrated between spheres of government, and the various supporting policies and plans must also be aligned and recognised in order to avoid conflict that leads to inefficient resource use. The local economic development (LED) strategy prioritises the initiation of 'methods to enhance co-ordination, integration and participation in local economic development decision-making', with all departments aligning their plans to the IDPs.[841] Stating this as an aim is encouraging as it is recognised that sectoral integration is central to the development of strategies and plans.

The IDP reflects the structured horizontal alignment, referring to 'cooperation, coordination and co-planning between national and provincial sector departments and municipalities'.[842] Moreover, the horizontal application applies to how the projects are aligned to the objectives, strategies, sector plans and resources of the sphere of government itself. Collaboration and

[841] Vhembe IDP (note 815 above) 355.
[842] Ibid 101.

configuration between all sector departments and relevant municipalities are prescribed and actioned through alignment mechanisms.[843]

> *The IDPs are the Bible, if it's not in the IDP, it's not done. I follow my IDP, that's my job.*
>
> *Local LED Manager*

The development plans list all relevant environmental and spatial panning legislation, as well as all plans and programmes from other spheres of government.[844] The integration of sector plans and the consultation with municipalities and sector departments is given particular prioritisation.

All the relevant planning documents under review contain a framework for how integrated development planning is undertaken, as well as a list of important developmental sector plans. These development plans express details regarding specific sectors or development focus areas so that they become extensions of the development plans. The relevant sector plans that are consulted are the SDFs,[845] C-Plans, local government EMPs, IWMPs and biosphere reserves. However, these plans are listed inconsistently, with some plans, such as buffer zones and EMFs not being presented. This is surprising as the status of these environmental instruments have a direct impact on the ability to develop these areas, especially if the area concerned has been identified as a strategically important mineral and eco-tourism area.

The integrated development planning framework is not only informed by these sector plans, but the reverse is also true in that sector plans must be informed by all integrated development plans. In this manner, district and local governments will also contribute towards the achievement of objectives and targets, specifically from within their respective geographic spaces.

One of the issues with alignment is the time it takes to review the various developmental and environmental planning documents. For instance, the Musina municipality is currently doing

[843] These structures include engagement clusters which comprises of all local municipalities of the district and relevant sector departments, IDP Representative Forum which, District Planning & Development Forum, IDP Management Committee.
[844] Limpopo Employment and Growth Development Strategy, NSDP, the New Growth Path, NDP, LDP, SDF alignment is recognised.
[845] SDFs must be aligned to the NSDP, Spatial Rationale, National Development Plan and LDP.

a major review of their spatial planning instruments but, despite this review being seen as a critical goal for the IDP, the available drafts have been in draft form since 2018.

The sectoral integration of planning instruments is critical to developing a common growth path and objective, yet is a heavily saturated space. It is also not sufficient to just mention the instrument; one must consider what the implications of each plan are. The inconsistencies observed were wide-ranging in this case. Examples include the recognition of the Vhembe biosphere reserve on the provincial and district level, but not on the local level (which is arguably the most critical level). Moreover, there was a call by the provincial LDP, but not the district or local plans, for strategic environmental frameworks and assessments for the three mega-conservation areas as well as each industrial cluster.[846] It appears that there is little alignment between these planning tools.

7.4.1.5 *Scale and spatial awareness*

The greatest influences in the shaping of spatial development and the pattern of the broader region are economic and political processes and forces.[847] The Limpopo Spatial Rationale indicates that the region has a dual economy comprising of a 'commercial' component largely located in urban areas and a 'non-commercial' rural component.[848] The mapping and spatial awareness exhibited in the IDPs shows a definite focus and detail within the urban and peri-urban areas that is not present in the rural areas. Admittedly the region is scattered, with the majority of economic development taking place in and around the economic centres, of which Musina is a central point of expansion.

The spatial awareness reflected by the development plans, particularly the LDP is encouraging.[849] There is a thorough analysis of the state of the receiving environment, mapping each asset both individually and in a layered fashion, albeit inconsistently. There is a good understanding of mineral, biodiversity and conservation assets exhibited through the spatial mapping, with the LDP having a complete set of individual and overlaid maps, and the

[846] From a regional perspective, each industrial cluster is also tasked with having individual strategic environmental frameworks that ultimately feed into the development plans once revised.
[847] Limpopo Spatial Development Framework (2007) Chapter 11: Spatial Determinants and Objectives. Available at:http://policyresearch.limpopo.gov.za/bitstream/handle/123456789/1092/LSDF02Pi%20Provincial%20Document.pdf?sequence=1.
[848] Ibid.
[849] For instance, the illustration that 13.7% of the entire province is under some sort of conservation is a testament to its importance in the area.

district and local municipalities only having site of the mineral potential[850] and water resource maps, and not the sensitive and protected area maps. The provincial LDP has a detailed presentation of the sensitivities that exist in the area, in particular the categories of CBAs, ESAs and protected areas.

The province, district and local government are aware of the places where mineral deposits are found, and in the provincial context these are even overlaid with sensitive and protected areas. Despite the potential conflict being clear to see, it remains unrecognised by the integrated planning framework.

Finally, there is an admission that both the local and district municipality have not yet undertaken a regional heritage survey; this is essential as the heritage information on record is very limited and the area possesses great cultural significance.[851]

7.4.1.6 *Co-operative governance*

Integrated development planning is a 'process through which local government and other role-players compile a blueprint outlining how services will be rolled out to the community'.[852] The management of the integration of different levels of government is essential to create effective and responsive governance. Meaningful co-operative governance is not only achieved through an understanding of the contents of the plan but through the influence that local, district and provincial departments and municipalities have in the construction of the plan.[853] After adoption, all departments and sub-structures should align their strategic and annual performance plans to the provincial, local and district IDPs.[854] Structural intergovernmental platforms are in place to ensure that each level of government and relevant departments are kept abreast of developments and feed into each other so that the plans remain relevant to local realities and in touch with regional objectives and goals.

From a provincial level, there are co-operative structures of intergovernmental relations that operate on a multitude of levels and include a number of multi-governmental entities. One

[850] Mining areas have also been mapped, the mineral occurrences and zones within the district include: The Beitbridge Complex (Limpopo Belt) which hosts mineral; ranging from iron, diamonds, graphite, marble and, in particular, the Vele coal field close to Mapungubwe.
[851] There are heritage sites that are currently recorded, namely, the Mapungubwe site on the Pondrift Road which has been developed as a Mapungubwe International Heritage Site and Rock Art Site.
[852] Vhembe IDP (note 815 above) 15.
[853] The inter-governmental stakeholders have access to important information, official statistics and locally relevant knowledge that form the base of such integrated planning.
[854] Progress with regard to implementation at the departmental level, is reported to National Government via the Ministers and Members of Executive Councils.

such entity is the Inter-governmental Forum, which serves as a channel for the Premier to report progress on LDP implementation to district and local municipalities as well as traditional authorities, mobilising their support towards the achievement of implementation targets.[855] Another important structure is the Head of Department (HoD) Planning Forum which meets once a year to review LDP implementation progress and to consider operational adjustments. Annual Legotla's are also planned to ensure a mid-term assessment takes place, specifically focused on the review and improvement of the LDP.

Another multi-government entity is the Cluster Working Group, which is an important specialist structure formed by the relevant government department for each development proposal. Their primary function is to forge stakeholder contributions between governments at all levels, including, business, labour and civil society, towards the cluster value-chain development process of a specific kind of focus area.[856] The clusters hold meetings once a month in preparation of the IDP steering committee meetings, however full attendance does seem to be a recurring issue.

The final important platform for effective co-operative governance and integrated developmental planning in Limpopo is the Provincial Development Planning Forum (PDPF). This multi-government entity provides a platform for the planning managers of all provincial departments, district and local municipalities and state-owned enterprises to facilitate the implementation of the LDP.[857] A very similar platform exists on a district level, namely the District Development Planning Forum (DDPF).

In an attempt to produce effective and representive IDP outputs, district municipalities have institutionalised the construction process, giving stakeholders access to contribute to decision-making, such as in the IDP Rep Forum,[858] District Joint Portfolio Committee Forums,[859] IGR Technical Forum[860] and Mayors Forum.[861]

[855] It should meet at least twice a year and LDP implementation should be a standing agenda item.
[856] Such clusters feed into the structures mentioned above to update government representatives on progress and challenges of each focus area, such as the Coal and Energy Cluster.
[857] The PDPF meets every quarter to discuss planning and operational progress with regard to LDP implementation, within the context of the five permanent subcommittee clusters.
[858] The IDP Rep forum, which is chaired by the Executive Mayor and composed by the district municipality, local municipalities, district, provincial and national governmental departments, traditional leaders, organized business, service providers and civil society.
[859] Another structure is the district joint portfolio committee forums, both district and local, the forums deal with the ratification of framework and IDP/ budget process plan.
[860] The IGR Technical Forum undertakes the consideration of framework and IDP/ budget process plan, housed within the Office of the Municipal Manager and attended by the District and Local Municipal managers and GM, Senior Manager and Directors.

Taking the above into consideration, there seems to be enough integration and co-operative governance mechanisms to ensure constant and meaningful engagement between the local and district municipalities.

The provincial mandate of LEDET does seem to be somewhat confusing, in that both economic development and environmental protection rest within the same department. An example of this confusion is seen in the cluster value-chain and beneficiation programmes where LEDET is driving economic mineral boosting clusters as well as playing a convening and co-ordinating role to implement the Provincial Green Economy Strategy. Exploitation of mineral resources and beneficiation are referred to alongside the exploitation of biodiversity resources for tourism and ecosystem service payment without any suggestions on how to practically balance the imperatives.

7.4.1.7 *Multi-stakeholder collaboration and participation*

'The IDP process, being consultative and participatory in nature, necessitates specific roles and responsibilities for various structures within and outside the municipal jurisdiction.'[862] Within this process, the Public Participation Programme is an important communication platform that enhances participatory democracy. LED is the core to the local integrated development planning process, striving to be locally relevant and regionally aware in order to provide a platform for local people from all backgrounds and interests to drive collective socio-economic development in a sustainable and environmentally conscious manner.

Local government, as the face of development on a local level, aims to create an enabling local economic environment through infrastructure led growth and development that attracts investment, generates economic growth and job creation. In order to manage IDP outputs effectively, local government consults primary stakeholders at different levels of government, business, organised labour and civil society in order to achieve acceptable levels of buy-in and collective input.[863]

As stated above, municipalities have attempted to institutionalise the participation process to create a participatory decision-making process. The IDP Representative Forum allows public participation in local government matters to take place in a structured manner. The IDP Rep

[861] The Mayors Forum makes recommendations for the framework and IDP/ budget process plan to Mayoral committee and Executive Council. This structure is comprised of the district & local municipalities Mayors.
[862] Vhembe IDP (note 815 above) 128.
[863] Ibid 286.

Forum create a connection between the municipality and representatives of the public, and is the main entry point for communities and their representatives as well as civil society and CBOs. It aims to ensure that priority issues of constituents are considered and that communities participate in the designing and review of IDP project proposals, so that communities feel a part of the final product of IDP. Apart from the IDP Rep Forums there are Imbizos, IDP consultative meetings[864] and traditional leaders engagements that are held to give communities adequate notice and information to enable them to meaningfully input on IDP and service delivery processes.[865]

All government departments are expected to actively engage citizens in their development processes as part of their strategic objectives.[866] Each of the integrated development plans has similar communication strategies which includes a Communication Plan and Communication Forum. The aim of the Communication Plan is to keep stakeholders updated on progress of developmental implementation and facilitate continuous feedback in preparation for the annual,[867] mid-term and five-yearly reviews. The Communication Forum comprises of the Communication Managers of all departments and municipalities and supports the implementation process through a dedicated communications strategy. A communications strategy is a document that expresses the goals and methods of the municipality's outreach activities, serving as a guide for any public relations activities.

The provincial, district and local website is a constantly updated source of information, with a specific tab for the IDPs where the document and all related sector policies are uploaded. It provides a channel for feedback, which must be sent to the Planning Directorate in the Office of the Premier for urgent response.[868] Television, radio, printed and electronic media is used to convey regular updates on progress and challenges with the implementation of the IDPs.[869]

The district conducts quarterly assessment and monitoring of the state of service delivery in each local municipality. It seems that the District Communicators Forum is functional,

[864] There is one fully functional Thusong Service Centre at Madimbo village. Local Inter-sectoral steering committee holds bi-monthly meetings at the centre.
[865] IDP Representative Forum meetings and Imbizos are held once per quarter.
[866] Limpopo Department of Cooperative Governance, Human Settlement and Traditional Affairs is responsible to provide guidance on the facilitation of greater citizen participation in the provincial development process.
[867] The IDP needs to be reviewed annually as stipulated in S34 of the Municipal Systems Act.
[868] Provision is made to monitor and evaluate the effectiveness of the communication strategy every six months, preferably with the assistance of an external review agency.
[869] The medium of communication takes the form of utilising DSAC television station; SABC Radio drama and 'My Councillor and I' radio programme; and Monthly provincial newspaper – Baobab News and SMS facility for citizen feedback.

holding quarterly meetings and annual communication conferences for capacity building. Through the Local Government Communicators Forum, information is gleaned from various sector departments, NGO's and the private sector. There is also a bulk SMS line and WhatsApp group which serves as one of the important tools which keeps communities informed. 'The development of the Facebook page has also given the municipality a platform to communicate with communities on social media.'[870] On the basis of the analysis, the municipality seems responsive to the concerns raised in district and local consultations.[871]

7.4.1.8 *Capacitation, adaptive management and continual learning*

The IDP process can be complex and intersectional and the information technical and overwhelming if it is not broken down and taught in a manner that can be easily understood. This is especially true in areas of low literacy and education. There is therefore not only a need for promoting awareness campaigns on IDP process, but also for training on how the process is undertaken. This is especially true for rural communities, but the same can be said for intergovernmental knowledge and skills transfer, especially on a local government level where the scarcity of resources and low levels of training are present. LDP district stakeholder consultation confirms the need to prioritise the improvement of institutional capacity.

The Provincial Skills Development Forum is tasked with the facilitation and co-ordination of all skills development objectives, including skills for improved institutional efficiency in the cluster value-chain. An additional structure identified in the LDP is the Provincial Infrastructure Strategic Planning Hub, which provides further professional support for departmental infrastructure projects. It is hoped that this facility will be extended to include municipalities.

On a local level, the local IDP identifies the facilitation of IDP capacity building trainings for all IDP stakeholders, including IDP representative's members, the IDP steering committee, ward committees, and organised and unorganised structures who represent community needs and interests. Of particular importance here is that the ward committee members undertake annual capacitation programmes on municipal planning processes.

[870] IDP for Musina Local Municipality (2018/19) 179.
[871] Some of the main concerns raised are need for thorough planning, improved public participation, as well as enhanced private sector participation in IDP processes.

7.4.1.9 *Compatibility examination and analysis*

The district and local municipality do not have access to accurate developmental and environmental baseline information. Critical phases of the IDP review and development are important to understanding how compatibility and analysis is built into the process, with particular reference to the analysis and integration phases.

IDP development contains an analysis phase which 'involves an assessment of the existing level of development with specific reference to service gaps, key development priorities and challenges that culminates in drafting the IDP Status Quo or Situational Analysis Report'.[872] The information that goes into an IDP is made up of existing information, including demographic data, comments, meetings and workshops. The regional analysis looks at the economic, environmental and institutional analysis. This phase focuses on the identification and examination of gaps within the region, taking economic data, trends and potential problems into consideration; including the environmental problems or risks as well as the institutional strengths and weakness. This information is discussed at meetings and workshops of the Municipal Manager and Steering Committee.[873]

The outputs include 'assessments of existing levels of development, information on causes of priority issues and problems, and information on available resources'.[874] The status quo assessment identifies sensitivities and vulnerabilities and incorporates them into the development of the plan during the integration phase. This information is used in compatibility analysis to match the correct developments to the suitable areas.

The collection of baseline information and the setting of thresholds and targets are explicitly referred to in the LDP. Interestingly, targets are set in line with specific development plans for the three mega-conservation areas and the three centres of endemism within the province. The LDP states that the provincial environmental authorities, in this case LEDET, must follow an 'Environmental Accumulative Study' approach.[875] This approach aims not only to understand the impact of current developments, but also how these impacts relate to one another cumulatively.

[872] Vhembe IDP (note 815 above) 271.
[873] This structure includes, DDPF, IDP Representative and Clusters members (Municipalities, Sector departments, Parastatals, Traditional Leaders, Private sectors, NGOs, CBOs
[874] Musina IDP (note 870 above) 136.
[875] LDP (note 832 above) 97.

In this vein LEDET is tasked with developing an index of environmental concerns and to annually publish the index related status of each municipality. This index would also give an overall assessment of the state of the environment within each municipality and what environmental frameworks and plans are in force in order to manage the identified impacts. The LDP is somewhat threshold orientated, however the local government IDPs do not reflect this provincial perspective. A biodiversity map has been compiled for the province, which describes the compatible and incompatible land-uses associated with each biodiversity category.

In order to achieve overall sustainable development of the region, the LDP calls for 'a strategic environmental assessment facilitated by the Environment Branch for the Coal, Energy and Petro-Chemical Cluster in which the cumulative impacts are assessed and the sensitive areas are identified'.[876] This enables EIAs at the project level in order to fast-track developments in non-sensitive areas. It is important that the various Cluster Working Groups mitigate the environmental impact of their respective clusters.

The zoning of spaces for mega-conservation projects has been listed as a challenge. The proposed solution is to engage with contending land-users, such as agriculture, mining and settlement development agencies, to agree on how these areas can be zoned for protection and management.[877] Public-private institutional models are proposed for the development of these mega-conservation projects. The Environment Branch can assist 'with the application of environmental legislation with regard to industrial cluster development proposals'.[878] Although a progressive and positive move, no direction is given as to how this is to be undertaken. This is an enormous project, with multiple interests, both personal and financial. These types of complex engagements, particularly around re-zoning for conservation purposes, touch on a variety of issues that speak directly to the intersection between spatial planning and environmental management. This requires more direction to be given to the roles and responsibilities of the departments and stakeholders in the process.

A broad capital intensive environmental assessment and mass re-zoning proposal such as this requires multi-stakeholder input and agreement. 'In order to contribute towards achieving these targets, the province would need to improve decision-making and governance, and harness research and information management capacity to identify, develop and maintain

[876] Ibid.
[877] LDP (note 832 above) 98.
[878] Ibid.

datasets to generate policy-relevant statistics, indicators and indices.'[879] Furthermore, the LDP plans to increase land under conservation to 35 000 hectares from 25 000 hectares. This is also not reflected in any of the IDPs, which could cause the same problem of land-use conflict driven by incompatible sectoral and development planning.

The differences in planning and detail could be attributed to the availability of baseline data and the ability to collect information, particularly on a local level. Ensuring that baseline information is regularly reviewed and updated is a definite issue, with a geographical information system (GIS) not currently being in place at a local level. Specifically, the issues range from data collection, data capturing, mapping and plotting, and database management and administration. The appointment of a service provider to compile and install a GIS system has been prioritised, as well as the in-house appointment of a competent GIS officer.

7.4.1.10 Transparent participatory monitoring and access to information

All IDPs were found online or available on request, yet final versions were not always available due to only having draft or reviewed versions. The Musina IDP states that 'Local government, in particular, aims to promote a culture of accountability, participatory, responsiveness, transparency and clean governance.'[880] These IDPs are annually updated and revised every 5 years. There is a Performance Management Systems framework in place to assist in facilitating learning and improvement and provide early warning signals. On a quarterly basis, the cluster coordinators provide reports on the actual outputs and outcomes relating to LDP implementation. According to the LDP, the provincial government will also aim to strengthen monitoring and evaluation capacity both at provincial and district level.[881] To ensure that the LDP Action Plan is implemented in partnership with local and district municipalities, a Provincial Integrated Planning Framework (PIPF) has also been established.[882]

[879] Ibid 97.
[880] Musina IDP (note 870 above) 174.
[881] LDP (note 832 above) 113.
[882] Ibid 114. Monitoring and evaluation of the LDP Implementation Action Plan will be coordinated by the premier.

7.4.2 *Limpopo Provincial, Vhembe District and Musina Local SDFs*

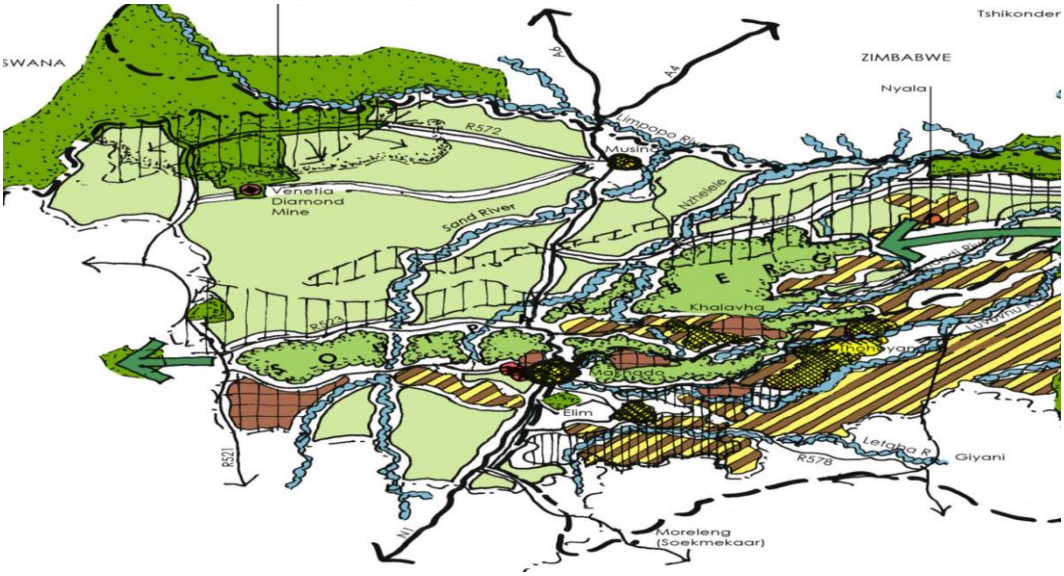

Figure 13: Illustration of Vhembe District SDF spatial characteristics

7.4.4.1 *Background*

As stated above, there are many factors that have influenced the settlement pattern of the regions within the Limpopo Province, none of which are as influential as the political and economic processes.[883] The settlements are characteristically scattered and fragmented due to the unnatural and forced manner in which they came about. Almost all these settlements, specifically in the former homeland areas, 'have no or very small economic basis and function as dormitory settlements, dependent on subsistence agriculture'.[884]

Divisive policies of the previous government, in particular the policy of separate development, had a severe and lasting impact on the settlement and urbanisation processes of the area.[885] Forced removals from farms and urban areas had the largest impact on the existing settlement pattern in the province, a leading reason behind the high number of land claims over the area.[886] The implication of this settlement pattern is that the vast majority of settlements within the former homelands are economically unsustainable. The past land

[883] Limpopo Provincial Government 'Spatial Development Framework' (2007) 84.
[884] Ibid.
[885] Many black people were relocated from towns and farm areas to land in the former homelands, such as Lebowa, Venda and Gazankulu as well as former development trust land. Ibid.
[886] Regional development policies such as the industrial decentralisation policy, were largely politically motivated in order to support the settlement pattern in the former homelands, which were not economically sustainable.

policies are a direct cause of insecurity, landlessness and the massive racial imbalances with regards to land ownership.[887]

This history has resulted in the receiving environment in Northern Limpopo around Mapungubwe being a generally untransformed landscape, with the majority of activities manly centred near the Limpopo river and the large scale mining operations. There is an admission in the SDFs that the spatial issues are likely to deteriorate rather than improve if the status quo is maintained. Any meaningful change in the existing spatial pattern is only possible with specific intervention to establish a more optimal and functional spatial pattern over time in terms of the hierarchy of settlements.[888]

The economic activities that form the catalysts of growth include agriculture, coal and diamond mining and eco-tourism. Musina sits at the pinnacle of the settlement hierarchy and has been accorded the status of a Special Economic Zone (SEZ) in order to accelerate growth within the region through industrial development, agro-processing and manufacturing. The SEZ is focused on extractives and industrial-based growth, hoping to leverage this stimulus onto the SMMEs. The clear message is that municipalities are trying to accelerate mining and beneficiation in this water scarce area.

Land claims appears to be a serious obstacle to growth, as it appears as an issue in every integrated development document for the region. The land claims in the area seem to be a major limitation on the growth plans for the area, as once encumbered by a land claim the property cannot be sold or developed until the Land Claims Commission settles the claim. Due to the extensive time period needed for the conclusion of a land claim, no plans can be made over the area for many years.[889]

7.4.4.2 *Ecosystem-driven integration and multi-functionality*

The SDFs explicitly recognise the fact that natural systems are the primary layer on which all of the others rest, acknowledging that the natural ecological base makes all other socio-economic opportunities possible. There is extensive reference to the core principles of NEMA, with sustainable development recognised as the core principle against which all

[887] The 'permanency' of black people in urban areas, and also acknowledgement of permanent land rights was only introduced in 1987, with the 99-year leasehold system from the mid-1980s and abolition of influx control.
[888] LSDF (note 883 above) 102.
[889] This is of particular importance in relation to the Mapungubwe National Park as part of the Vele Colliery Biodiversity offset agreement was the extension of the park as a direct biodiversity offset, yet this process cannot be completed due to the land in and around the park encumbered by a variety of land claims.

developmental decision-making must be measured. The Vhembe SDF, in particular, makes reference to, 'optimising the rich and balanced mix of the region's agriculture, tourism, heritage, natural and mineral resources, and ecosystem services within their scenic settings'.[890] That being said, all the SDFs under review identify the mineral resource base as core to the economic potential and a principle driver of the region's economy. This presents a conflicting developmental path, with no tangible solutions for the impasse.

The region has a vision to conserve the scenic and pristine settings contained in the sacred sites and important bio-diverse, catchments and landscapes of the Soutpansberg, Mapungubwe and Kruger National Parks. The SDFs take a holistic and ecosystem-centred perspective, stating that impacts resulting in 'natural environmental processes and ecosystems functioning should be a priority'.[891] The Musina SDF in particular mentions that endangered and vulnerable ecosystems are of utmost importance, with conservation, heritage and sense of place being the central principles of decision-making. The SDFs encourage local government to focus on the proximity of invasive development to vulnerable areas, minimising developmental footprints and providing alternatives that ensure the preservation of indigenous ecosystems and species.

The Vhembe SDF was prepared using the Ecological Socio-Economic Relationship (ESER) Framework. This framework is based on the principle that the 'relationship between economic efficiency, social justice and human wellbeing, and ecological integrity is not one of equal and overlapping spheres where losses in one area can be set off by enhancements in another. It directly connects these principles to the spatial component'. [892]

This ESER Framework recognises, firstly, that economic efficiency is wholly dependent on the quality of human resources and their capability to add to the economy. Secondly, economic activities and social development are wholly dependent on the availability of ecosystem services, yet they cannot demand more from these services than they are able to deliver on a long-term sustainable basis.

The two clearly stated important regional planning considerations are highly valued mineral resources and areas of critical biodiversity. This poses difficulties in terms of conflicting developmental planning and imperatives. For example, the possibility of mining the Vhembe

[890] Vhembe District Municipality 'Spatial Development Framework' (2014) 217.
[891] Ibid 96.
[892] Ibid.

coalfields, within which Mapungubwe is squarely located, brings with it other ancillary invasive projects such as coal fired power stations. A specific example of this is the failed attempt to establish the Mutsho Power Station on the eastern border of Vele Colliery 15 km from Mapungubwe.[893]

The SDF states that 'open cast coal mining can have a major impact on biodiversity and agriculture, particularly if there are no strict mine environmental management and closure plans governing the maintenance of top soil seed banks, land profiling and after uses'.[894] There is pressure on water resources and biodiversity, with agriculture and mining listed as the chief threats to environmental stability, with focus on pollution of soils and watercourses from fertilisers and mining related air emissions.[895]

Continued mining in the area seems to be a foregone conclusion, evidenced by the focus of the SDF on the successful rehabilitation of old and new sites, and ensuring compliance with mining after use plans.[896] The idea is to proactively identify existing and potential mines in the Vhembe District Municipality and assist with the formulation and compliance with mining after use plans, strictly aligning these plans with the SDF proposals. It is hoped that successful rehabilitation would assist in resolving land-use conflicts between the proposed southward extensions to Mapungubwe National Park (including land claims) and the Soutpansberg, and the possible exploitation of the coalfields in this area. This plan would involve local municipalities, the DMR and mining applicants, who would need to formulate EMPs where such 'post mining' areas are planned.[897]

Much is said in the Vhembe SDF regarding mine rehabilitation, yet nothing is said about the DMR's involvement, as this falls under their exclusive mandate. While this is seen as the environmental solution to the conflict, this can only happen after the life of the mine has ended, which can be upward of thirty years. Also, mining permitting is mentioned frequently, which confuses mandates, as only national government in the form of DMR has the mandate in mineral regulation, provincial and local government have no mandate in mining matters.

[893] ESI Africa 'R39 Billion power station in Musina' 13/11/14 Available at: https://www.esi-africa.com/r39-billion-power-station-in-musina-limpopo/
[894] Vhembe SDF (note 890 above) 216.
[895] The solution to this issue, as presented in the SDF, is the establishment of eco-industrial parks within the already disturbed areas. See Musina Local Municipality 'Draft Spatial Development Framework' (2014/2015) 159.
[896] Including careful storage of top soil seed banks for future rehabilitation works.
[897] Vhembe SDF (note 890 above) 110.

7.4.4.3 *Sectoral integration of planning instruments*

The SDFs state that planning, heritage and environmental policy are the three main areas of concern in all developmental decision-making.[898] An SDF 'must assist in integrating, coordinating, aligning and expressing development policies and plans emanating from the various sectors of government as they apply within the demarcated region'.[899]

Integrated development planning, by its very nature, must give cognisance to any and all environmental management instruments that are applicable and have relevance within the specified region. Synergy amongst the sector plans and the SDF is vital to ensure that development directions and plans complement each other.[900] Therefore, the SDF becomes the 'spatial presentation of the IDP objectives that guide projects funded through the municipality'.[901]

The Musina SDF states that, 'effective implementation depends on its alignment with the district SDF, as misalignment can create conflicting processes that would negatively impact on the municipality and ultimately be to the detriment of the people'.[902] The SDF must guide all of the municipality's departments and be informed by the various line departments, both vertically and horizontally. The district and local SDFs both do a thorough job of cross-referencing each other.

The SDF guides the different sector plans which form the core component of the municipal IDP, such as EMFs, and assists in alignment between these plans.[903] While the SDFs recommend an EMF be constructed over the local and district municipality, they do not reference the Mapungubwe EMF, despite alluding to the extension of the Park area. Both the biosphere reserve and GMTCA IDP are mentioned and thoroughly discussed in the district SDF, while the Musina SDF only refers to their existence and not to their implications.

The Vhembe SDF also envisages the south-ward and east-ward extensions of Mapungubwe along the Limpopo river, something that the provincial and district government explicitly

[898] Ibid 63.
[899] S 12(5) of SPLUMA.
[900] Musina SDF (note 895 above) 169.
[901] Vhembe SDF (note 890 above) 6.
[902] Ibid 44.
[903] S 21 (m) SPLUMA. See Ibid.

mention but nothing is mentioned in the local SDF.[904] The implications for this Vhembe SDF is that there will be a considerable increase in the conservation area,[905] involving various farms and impacting a multitude of landowners.

With future mining in this area almost certain, the buffer zone is seen as a critical factor in halting and managing impacts in the greater Mapungubwe area, but no details are provided. The Mapungubwe buffer zone alignment and review is not considered or mentioned, this is especially interesting in the case of the local Musina SDF, as it comprises of a significant land-mass of the local municipality and would have far-reaching restrictions on proposed developments.

The 2014 buffer zone is only mentioned in the Vhembe SDF, with both the local and provincial SDFs remaining silent on the specific demarcated area. Although this buffer has been defined using scientific sensitivity analysis and cadastral mapping, the Vhembe SDF states that a buffer should be maintained at roughly ten to fifteen kilometres around Mapungubwe National Park in order to protect the area from the possible exploitation of the surrounding coal field, which adds to the confusion. Although Mapungubwe, TFCA and the Vhembe biosphere reserve are all recognised, there is no guide as to how to engage the documents and what the implication and extent of their application is.

The identification of both blue and green corridors in the Vhembe SDF is also an ambitious and welcomed strategy.[906] The Limpopo river would act as a possible eco-corridor linking Mapungubwe National Park to Kruger National Park and into the neighbouring Mutale municipality to the east. Although positive, the plan lacks any formality or process of execution. This process would also need to involve extensive consultation, re-zoning and submissions, as it impacts many land owners and huge tracts of land, just as is the case in the extension of the buffer zone.

7.4.4.4 *Scale and spatial awareness*

The SDF echoes the Limpopo Spatial Rationale, in that creating a practical and responsive spatial pattern for the Limpopo province requires effective spatial planning and information. The plans take a regional approach to presenting the characteristics, threats and opportunities

[904] The proposed expansion includes 15 311 hectares of land managed by SANParks, 4 499 hectares of contractual land, managed by SANParks and 12 703 hectares of privately owned land within the boundary of the core area of the World Heritage Site, but not managed by SANParks. See Vhembe SDF (note 890 above) 215.
[905] This is approximately 32 000ha.
[906] Vhembe SDF (note 890 above) 20.

of the landscape. Water management, in particular, is recognised through regional water source and catchment management areas as a pressing issue.

The Vhembe SDF maps the mines and mineral deposits over the entire area, overlaying the formal and informal conservation areas, biodiversity, land claims, agriculture and important water sources of the region.[907] While the Vele Colliery is not recognised, other mining potential is extensively mapped. This is very encouraging as the overlaying processes exhibit an understanding of the spatial character of the region and its specific attributes. One of the clear gaps is the lack of heritage mapping, a notable gap in an area where the Mapungubwe World Heritage Site is located. Percentages are also given with regards to how much of the region is under a protected area status.[908] Specific hectares are given to each imperative, yet planning is heavily bias towards towns and urban nodes.

Inconsistencies exist between the maps contained in the various SDFs. For example some SDFs reference proposed 2014 buffer zone while other reference the 2009 buffers.[909] This all within different SDFs but also within the same SDF document. This inconsistency, even within the same plan, could lead to confusion should the plans be consulted as part of new developments in the area.

The Vhembe SDF specifically identifies the role of SDFs as embodying a spatial planning approach which must ensure that a regions resources are managed sustainably, in particular, 'that the assets for one sector are not damaged for their use by another'.[910] Open cast mining is used as an example here, where land should be 'carefully rehabilitated so that the land can be used for conservation, agriculture or tourism afterwards'.[911] Interestingly, after this statement it is noted that the Vhembe SDF is silent on the spatial implications of these mineral deposits or how it will impact or contribute to development. This is a confusing approach to the inherent land-use conflict which exists in the area.

7.4.4.5 *Co-operative governance*

[907] Additional elements include: Hydrology and aquatic ecosystems, biodiversity, vulnerable ecosystems, land capability and soil potential all extensively mapped. RAMSAR areas are also mapped, with detailed conservation and protected area maps. See Musina SDF (note 895 above) 28.
[908] Vhembe SDF (note 890 above) 34.
[909] The Vhembe SDF reflects the 2009 buffer zone at page 9 while on page 25 the 2014 buffer zone is used. The Musina SDF reflects the 2009 buffer zone. While the LSDF does not reflect any of the buffers.
[910] Vhembe SDF (note 890 above) 2.
[911] Ibid.

The SDF must 'guide planning and development decisions across all sectors of government; guiding a provincial department or municipality in taking any decision, ensuring that there is a coherent, planned approach to spatial development in the national, provincial and municipal spheres'.[912] 'All spheres of government must participate in the spatial planning and land-use management processes that impact on each other to ensure that the plans and programmes are coordinated, consistent and in harmony with each other.'[913] In order to achieve this type of integration there needs to be the establishment of a regular forum where plans and conflicts can be discussed openly and transparently.

The SDFs lay out the power and functions of each sphere, where the process for SDF construction is presented with each phase having a co-operative government function and associated structure. An extensive legislative breakdown shows how each piece of legislation is incorporated into decision-making during SDF formulation.

SDFs are by their very nature participatory and consist of multi-stakeholder structures, being 'prepared jointly by project committees comprising local, district and traditional authority officials, as well as sector departments concerned with land-use planning in their different disciplines'.[914] During the SDF construction process, the principal municipality should undertake a broad-based engagement process where buy-in is garnered from each of the relevant stakeholder departments. Strategic interventions include the 'District Development Summit, Mayors Forum and the Champion Forum for SDFs, as well as other strategic spatial plans in the district'.[915]

These structures have presented issues, such as the lack of coordination and limited engagement between traditional authorities and local municipalities in the land-use allocation process,[916] as well as the lack of participation in the formulation of SDFs by national and provincial government sector departments and municipal line departments.[917] Where engagement was facilitated there seemed to be 'a lack of experience with or poor

[912] Musina SDF (note 895 above) 28.
[913] Ibid.
[914] The Departments of Agriculture and Water Affairs should have officials available to support the local municipality and advise the traditional authorities with regards to land-use and natural resource management. See Vhembe SDF (note 890 above) 58.
[915] Ibid 46.
[916] 'An extra land use management challenge in addition to the one created by the very complex land use pattern described above is the presence of essentially two parallel land use management systems in the traditional authority areas.' See Vhembe SDF (note 890 above) 22.
[917] Ibid 57.

understanding of spatial land-use management concepts relating to rural development'.[918] A lack of understanding persists with regard to how agriculture, tourism, biodiversity conservation, and mining must be balanced.

The construction phase therefore attempts to instil both vertical and horizontal sectoral alignment. The second phase of the SDF construction process is highly co-operative and aims to find agreement amongst the different 'stakeholders, including sector departments, on the spatial vision and issues'.[919]

7.4.4.6 *Multi-stakeholder collaboration and participation*

The SDF is required to provide 'clear and accessible information to the public and private stakeholders',[920] integrating the conclusions of this engagement into the final product. This engagement process is achieved through the creation of participatory structures such as 'public meetings, public exhibitions, public debates and discussions in the media and any other forum or mechanisms that promote such direct involvement'.[921] Successful environmental governance cannot be achieved without direct public engagement with informed and capacitated I&APs. The SDF process must therefore support an understanding of the complex area of spatial planning through the development of the 'understanding, skills and capacity necessary for achieving equitable and effective participation, and participation by vulnerable and disadvantaged persons.[922]

As the product of multi-stakeholder engagement which must be representative of communities and other stakeholders in each municipality in the country, the SDF process must be considerate of the interests, needs and values of all I&APs.[923] Such representative outcomes can only be achieved if traditional knowledge is seen as influential in final products.

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[918] 'For example, traditional leaders, COGTA officials, local councillors, and civil society organisations such as business, farming or communal property associations.' See Ibid.
[919] 'This will be driven by a steering committee, consisting of representatives from local and district municipalities; representative of all provincial sector departments (such as representatives from the Office of the Premier, CoGHSTA, Rural Development & Land Reform, LEDET, LEDA, Agriculture, Water Affairs, Roads &Transport, Safety & Security, Public Works.); representatives of SALGA; and any other required stakeholder.' See Musina SDF (Note 895 above) 15.
[920] Ibid 27.
[921] Vhembe SDF (note 890 above) 27.
[922] Musina SDF (Note 895 above) 33.
[923] Ibid.

In order to assess the collaborative and participatory nature of the SDF, the construction and review process should be examined. In terms of the SDF Guidelines, the first 'start-up phase' establishes structures of institutional support that will define the role and terms of reference of the SDF.[924] The second 'vision and issues phase' is driven by the relevant municipal SDF steering committee. This committee aims to reach consensus with stakeholders on the broad spatial vision and issues as developed by the SDF steering committee.[925]

The 'spatial analysis and synthesis' phase is the third phase which focuses on examining the status quo of the regional spatial issues. Here specific issues are mapped, and requirements assessed against the desired spatial form and principles. This phase produces a 'synthesis map or set of maps indicating key spatial challenges and opportunities'.[926]

The fourth 'draft phase' is where SDF proposals are formulated for public consultation. The public consultation process obtains inputs and comments from the various stakeholders on the draft, upon which a final draft can be published.

The fifth phase known as the 'support or buy-in phase'. This phase is where the SDF proposals are given to all relevant private and public stakeholders for their input.[927] These stakeholders are given an opportunity by the relevant municipality to critically assess the draft SDF. During this phase stakeholder's may ask questions and gain clarity before giving their support. This should be done as 'extensively as possible to solicit buy-in from a wide range of stakeholders; this is the second round of public participation.'[928] During this phase all neighbouring SDFs are considered to make a determination on potential conflicts. If any conflicts are found between SDFs, development proposals will be assessed and reconciled to create alignment.[929]

The sixth phase is known as the 'approvals phase'. This phase involves the 'analysis of the comments and proposals for amendment, finalisation of the SDF and the approval of the SDF

[924] Ibid 14.
[925] 'The project steering committee (PSC) will amongst others consist of representatives from: Vhembe District Municipalities; Representative of all Provincial Sector Departments (i.e. Office of the Premier, CoGHSTA, Rural Development & Land Reform, LEDET, LEDA, Agriculture, Water Affairs, Roads &Transport, Safety & Security, Public Works, etc.); Representative of SALGA; and any other stakeholder the municipality may deem fit.' See Ibid.
[926] Musina SDF (Note 895 above) 16.
[927] Ibid.
[928] The desired outcomes of this phase include a record of written and oral submissions from the public with comments on the draft SDF. See Ibid 17.
[929] All comments and inputs from affected government departments will be recorded as part of this phase. Ibid 18.

by the relevant authorities'.[930] Once these inputs are considered by the relevant authority they are combined and included in the final draft of the SDF in order to reflect the views and concerns of all I&APs.

The seventh and final phase, is known as the 'implementation phase'. This phase 'provides guidelines on the implementation and monitoring of the SDF and the revision of the SDF, which should be coordinated with the IDP cycles'.[931] This final phase sets out the framework for how the SDF will be monitored. This includes this identification of short and medium-term goals and key performance indicators to assess the implementation of all SDF.

Even though there are express requirements to involve communities and other stakeholders, this has not been reflected in any of the interviews.

7.4.4.7 *Capacitation and continual learning*

The production of an SDF that reflects the meaningful input of all private and public stakeholders requires express provisions of capacitation and support in such a technical area. Such capacitation is critical to ensure an 'effective developmental local government which is capable of dealing with all developmental issues in local and district municipalities'.[932] All participants in SDF processes are encouraged to attend training courses in SDF implementation, including one-day programmes for traditional leaders and councillors, and one-week programmes for officials from national and provincial sector departments.[933]

Additionally, the Vhembe SDF states that the Biosphere Reserve personnel promote education in order to achieve 'improved, human development and wealth creation are stimulated through better communication and training while conserving the unique ecosystems, species and cultural resources of the region'.[934]

7.4.4.8 *Compatibility examination and analysis*

One of the central SDF visions is to 'optimise the rich and balanced mix of the regions agriculture, tourism, heritage, natural and mineral resources, and ecosystem services within

[930] Ibid.
[931] Ibid.
[932] Vhembe SDF (note 890 above) 57.
[933] Especially from Departments of Transport, Infrastructure, Agriculture, Water Affairs, Environment, Tourism, Minerals and Energy. See Ibid.
[934] Vhembe SDF (note 890 above) 217.

their scenic settings.'[935] The SDF promotes the principle of spatial sustainability, efficiency and resilience in municipal planning; as well as activities that are compatible with the characteristics of the area and mindful of its sensitivities. This aligns with the SPLUMA principles and is applied to the specific needs of the district.

As mentioned above, the third phase of the SDF construction is the 'spatial analysis and synthesis phase, which focuses on the analysis of the current state of spatial issues within the region'.[936] The anticipated outputs of this phase are data driven and spatial in nature, including the collection and analysis of relevant information, as well as the mapping of municipal wide and area specific spatial challenges and opportunities.

The status of CBAs seems to permeate the local development planning documents, as the SDFs identify this classification as central to decision-making from a planning perspective. Areas such as river corridors and wetlands are prioritised for protection from urban, agricultural and mining activities.

The SDFs reference the National Biodiversity Strategy and Action Plan (NBSAP) in detail, which requires local government 'to develop a plan of action for the conservation and sustainable use of the country's biological diversity'.[937] The implications include ensuring that sensitive areas are mapped, and their on-going protection ensured. The provincial and district SDFs follow this directive and outline the environmental sensitivity classes identified for specific development sites on the maps. For each sensitivity classification there are specific explanatory notes giving an indication of development nodes and areas outside nodes.[938] Within each node of sensitivity the preferred types of ecologically-compatible development are provided, as stipulated in NEM: BA and NEM: PAA.[939] For example, low sensitivity areas should be considered as preferred development areas inside development nodes compared to area of moderate and high sensitivity. The distinction made between sensitivity within developmental nodes and that of outside, sets thresholds for sensitivity, from high, to moderate, to low. This assists with the correct placement of proposed

[935] Ibid.
[936] Ibid.
[937] Vhembe SDF (note 890 above) 14.
[938] 'The LSDF rationalises and promotes the optimal use of land and protection of natural resources by considering high and moderate potential agricultural areas, high and moderate environmental sensitivity areas and mining and mineral deposit areas, as well as other relevant factors.' See Ibid.
[939] 'The spatial planning categories include: Core 1a, which are formally protected conservation areas; Core 1b, which are CBAs outside of formally protected conservation areas; Core 2-River, which refer to corridors and wetlands. Buffer zones are also referred to as part of the decision-making criteria. The SDFs bring two new classifications, namely, urban settlement and urban edge-outer.' See Vhembe SDF (note 890 above) 14.

developments from a strategic perspective, these classifications are common amongst the SDFs.

The Musina SDF proposes certain zonal declarations which would have an impact on the compatibility and land-use close to Mapungubwe, for example the Pontdrift Border Post Environmental Management Zone (EMZ). The proposal of the EMZ is a major shift of the developmental landscape round the Mapungubwe area, however this is only mentioned in the local corresponding IDP. The Pontdrift EMZ focuses on the Mapungubwe cultural and biodiversity features of the landscape. The hope is that the EMZ stimulates the tourism economy and acts as a gateway into Botswana. This extensive development is not mentioned in the any other District Plans, IDPs or SDFs.

7.4.4.9 *Transparent participatory monitoring and access to information*

Accessing the SDFs was much more difficult than the IDPs, with most not being publicly available, out of date or currently under review. The public participation process was not as robust as the IDPs with fewer representative forums at the disposal of the communities. Some of the documents were only available in draft form and have been in draft form for an extensive period of time, some even exceeding a year. The LSDF takes spatial data and accessibility seriously, stating that information contained in available databases to assist with decision making at strategic and project level must be included.

The seventh 'implementation phase' of SDF formulation provides guidelines on the application and monitoring of the SDF. This phase includes the 'monitoring of the goals or key performance indicators, as well as the implementation of capital investment and policies'.[940] The monitoring portion commences once the SDF is initiated. Although SPLUMA requires the 'specification of implementation targets, including dates and monitoring indicators', there is little evidence of municipal monitoring and evaluation strategies.[941]

[940] Musina SDF (Note 895 above) 17.
[941] Ibid.

7.5 ***Environmental Management Plans***

7.5.1 *Musina Local and Vhembe District Integrated Environmental Management Plans*

7.5.1.1 *Background*

The Vhembe region is an environment in a rapid state of change, with developmental pressures exerting a number of impacts on the biophysical as well as socio-economic environment in the form of water quality, loss of natural land, loss of agricultural land, inadequate service supply and delivery, lack of enforcement and several other impacts.[942] The pressure of farming and mining development in the study area are likely to increase in the short-term and it is therefore imperative that systems and plans, such as EMPs, are to be put in place to manage and mitigate these impacts.[943]

7.5.1.2 *Ecosystem-driven integration and multi-functionality*

The EMPs encourage pre-emptive planning, holding both sustainable development and ecosystem stability as core principles, explicitly referring to the 'natural balance that must be maintained, preserved and protected'.[944] The mitigation hierarchy is central to managing impacts, with various sustainability indicators providing for the purpose of assessing environmental performance. Both local and district EMPs recognise the rich and bio-diverse environment that the regions possess.

The EMPs list soil erosion, deforestation, poaching, pollution of water resources and improper waste management as environmental issues facing the region.[945] The EMP focuses much of their energy on pollution prevention and management. The EMP also recognises that many sensitive areas are found in the district, this is witnessed by the number of identified nature reserves and game reserves. In terms of the EMP, an environmentally-sensitive area is an area which, 'needs special protection because of its landscape, wildlife, flora or historical area value'.[946] The EMP describes and provides a management plan for the following environmental aspects: the biodiversity; water quality; integrated waste; air quality; and

[942] Vhembe SDF (note 890 above) 13.
[943] Vhembe District Municipality 'Draft Integrated Environmental Plan' (2008) 37.
[944] Ibid 22.
[945] Ibid 1.
[946] Ibid viii.

heritage resources.[947] There is however no reference to conflicting land-use or the threats of mining in sensitive areas.

What is interesting is that both EMPs refer to how sensitivity extends beyond protected areas, and how no effective environmental enforcement is taking place over these areas, such as wetlands and riparian forests.[948] There is a very limited understanding of the link between pollution-causing activities and the spatial understanding of where and how pollution is being caused. The sensitive areas are listed by name, yet there is no visual or spatial presentation of the sensitivities. An example of this is the extensive naming of the individual RAMSAR sites with no indication of where they are geographically located. While there is a clear focus on cultural heritage, stating that, 'the cultural and historic features of the area should be retained in their current form and rehabilitated to ensure their preservation'.[949] Unfortunately, the exact location of such resources are currently unknown.

7.5.1.3 *Sectoral integration of planning instruments*

The method used for developing the district EMP was laid out as a thorough review of the existing data, such as the Limpopo State of the Environment Report, the existing IDPs of local municipality, as well as the existing plans that address environmental issues from government departments.[950] EMPs must be included into future revisions of the IDP. The Vhembe EMP refers to the Vhembe 2007/2008 Integrated Development Plan for Vhembe District Municipality, which is completely out-dated.

The Local Municipality references the waste management plan, storm water management plan and integrated catchment management plan. None of these plans are discussed in detail, with the relationship ostensibly unknown, as well as the implication of this plan on other sectoral and environmental planning documents. There is no reflection of the context in which these plans must function.

The Musina EMP states that it requires that the state compile a 'detailed inventory of all the core areas, and establish a management framework for the protection and utilisation of these areas'.[951] The EMP furthermore requires an EMF to be finalised to assist in establishing more

[947] Ibid 4.
[948] Musina Local Municipality 'Environmental Management Plan' (undated) 37.
[949] Ibid 13.
[950] The local EMP stating that Limpopo Spatial Development Initiative is used to provide information on the occurrence and diversity of biota.
[951] Musina EMP (note 948 above) 8.

effective management, monitoring and reporting systems, incorporating and aligning the principles of the EMP into the required EMF.[952] Nothing is said as to how the EMP ties in with either the IDP or SDF.

The buffer zone is only referenced in the statement that an adequate 'buffer area should separate the floodplain from developments' and a 'buffer zone area for wetlands, pans and sensitive ecosystems should be provided for'.[953] The EMPs do not discuss how these buffers will be incorporated into existing planning, as there are no references to other plans or the extension plans for Mapungubwe. These are significant omissions.

7.5.1.4 *Scale and spatial awareness*

The EMP has a regional focus, for example catchment management seems to be a priority, with the regional cumulative management of sewage a central issue. From a spatial representation perspective, the Vhembe EMP states that, 'sensitive natural environment, areas unsuitable for developments, degraded areas, cultivated/potential suitable for agriculture, existing land uses, areas of geological significance and locations of archaeological sites are spatially represented by means of maps'.[954] Despite this, there is no spatial representation or mapping present in the EMPs, particularly in terms of the buffer zones. Rather, there is a listing of important features, sensitive areas and heritage resources, in particular Mapungubwe is identified.

The EMPs do, however, identify a need to compile a detailed inventory of all the core areas and call for a municipal EMF that would set a more precise management, monitoring and reporting system in place. Due to how outdated the information is, there is also no mention of Vele colliery and Venetia mining developments. While the acknowledgement of a need for an EMF shows recognition of a more spatially orientated approach to be taken in the future, the current EMP is very basic.

7.5.1.5 *Co-operative governance*

Roles and responsibilities of each sector and department are presented in the Vhembe EMP. The EMP states that, 'existing institutional structures that influence the maintenance and enhancement on natural resources are government departments such as DEDET, DMR,

[952] Vhembe EMP (note 943 above) 34.
[953] A buffer zone of 25m or more and building/development space of 5m is recommended for wetlands.
[954] Vhembe EMP (note 943 above) 2.

DWAF, Agriculture, and traditional councils.'[955] It proposes that these structures be consulted to ensure effectiveness of the report and to assist in enforcing existing environmental legislation.[956] It is proposed that the EMP be adopted by the municipal environment section of the Department of Finance and Economics for the purpose of reviewing development applications and sustainably managing the environment in line with the spatial planning goals.

Both EMPs under assessment have identified the roles of the various sectors departments, yet when the EMP was discussed with these departments during the interviews, none of the government representatives recognised it as a document that formed part of any developmental or conservation related decisions.

7.5.1.6 *Multi-stakeholder collaboration and participation*

The EMPs state that relevant stakeholders were consulted in the creation of the documents, however no details on the manner in which these consultations were conducted are present. This, together with the lack of participation reflected in the interviews casts doubt on the veracity of the participation process. The Musina EMP states that 'consultation with the relevant authorities and organisations for the purpose of implementing the recommendations in the EMP is a prerequisite during the formulation of any EMP'.[957] The consultation envisages the process to include, 'interviews with the provincial EMIs, rangers and nature reserve managers, officials of LEDET and DWAF'.[958] Due to the importance of water quality and quantity in the region, the EMPs recommend that, 'a through robust engagement and an integrated catchment management plan be developed to assist in the planning and management of river systems'.[959]

The drafters of the EMP, supposedly, travelled to the region to corroborate the issues and identify sensitivities on multiple occasions. During the visits the drafters of the EMP also engaged with local stakeholders.

7.5.1.7 *Capacitation and continual learning*

[955] Ibid 2.
[956] Ibid 2.
[957] Musina EMP (note 948 above).
[958] Vhembe EMP (note 943 above) 3.
[959] This plan would culminate in the development of relevant by laws for the control and management of storm water, water quality, runoff and flooding.

The Musina EMP requires that the municipality 'educate and inform' the public of relevant guidelines, sensitive areas and invasive species.[960] The promotion of environmental education and awareness requires hands-on training and capacity building, particularly for communities. The development of 'environmental projects that will engage the community e.g. recycling of waste, eradication of alien plant species, etc'.[961] The prescribed consultation process requires open and transparent access to information to all I&APs, this includes access to the spatial planning GIS Viewer portal.[962] This is strange as the interviews confirmed that there were no GIS capabilities on a local level.

7.5.1.8 *Compatibility examination and analysis*

As mentioned above, the method used for development of these EMPs was a 'review of the existing data such as the Limpopo State of the Environment Report, the existing IDPs of the local municipality, and the existing plans that addresses environmental issues from government departments'.[963] Other than the existing data that was analysed through a desktop methodology, no original data was collected and assessed during the construction of the EMPs.

The EMP recommends that a comprehensive EIA be conducted for all sensitive areas so that the level of sensitivity, land-use recommendations and mitigation measure can be formulated.[964] The identification of sensitive areas within the region will be categorised in terms of the areas vulnerability and importance. Where unprotected areas are categorised as highly important they can be set aside as no-go areas after a requisite EIA has been conducted.

The developmental impact on sensitive areas is prioritised through the requirement of robust impact assessments, specialist reports and strategic environmental management planning. This process has the potential to not only conserve protected areas but also to identify future areas for possible formal protection, such as, untransformed private game reserves or eco-tourism areas. There is a definite value-driven assessment procedure taken, as each activity has associated impacts with paired mitigation measures, and responsible persons who are required to driven certain process. For example, from a mining perspective, mining rights

[960] Musina EMP (note 948 above) 12.
[961] Ibid 14.
[962] It is recommended that public-private initiatives should be considered to retain these sensitive areas.
[963] Vhembe EMP (note 943 above) 2.
[964] Ibid 25.

holders must ensure mining sites are capable of complying with the myriad of legislative requirements, including closure and rehabilitation.

7.5.1.9 *Transparent participatory monitoring and access to information*

Extensive engagements were required to gain access to the plans, as they were not accessible online. As it took considerable effort for the municipal officials to locate the documents, these do not appear readily available or subject to much scrutiny by the implementing officials. The interviews confirmed no one on a local and district level had ever seen the EMP, even though the interviewed official had asked for access to the EMP on multiple occasions form their superiors. While the Vhembe EMP states that the document must be accessible to all private and public stakeholders, this does not appear to be the case from the interviews.

From a monitoring perspective, 'specific municipal officials are assigned the responsibility for collecting, analysing and reporting functions'.[965] It is, however, unlikely that monitoring is taking place when the role has not yet been assigned, as well as the fact that the Musina and Vhembe and Musina EMPs are also both outdated by more than eight years. The EMPs set very broad targets that are measured in terms of various sustainability indicators for the purpose of tracking environmental performance, the metrics include of water quality, air quality, and loss of agricultural land. Additionally, the municipality presents 'monthly assessments of the nature, type and progress of development applications such as EIA's, scoping reports, exemption applications'.[966]

[965] Musina EMP (note 948 above) 16.
[966] Vhembe EMP (note 943 above) 15

7.6 ***Mapungubwe case study conclusions***

Key themes have emerged from the above discussion with regards to the plans in place over Mapungubwe. It is clear that some plans do not represent their legislative requirements, while others exceed and extend the representation of the ESP elements.[967] Although these findings will be examined in more depth in the 'Findings and Observations Chapter, some notable themes are elucidated below.

An example of one of the key findings that has emerged is the manner in which the buffer zone has been implemented over Mapungubwe. The buffer zone does not adequately address the thematic elements of ecosystem integration and multi-functionality, sectoral integration, multi-stakeholder collaboration and participation, capacitation and continual learning, as well as compatibility assessment and analysis. This points to a failure to implement the buffer zone process properly and even falls short of the ESP analysis of the buffer zone provisions as examined in the legislative framework chapter.

Other noteworthy findings include the failure of capacitation and continual learning throughout the EMF, bioregional plan, GMTFCA IDP, as well as the buffer zones. Additional challenges also exist with transparent monitoring and access to information in the biosphere reserves, buffer zones, SDF and EMP instruments. Moreover, there are issues in relation to lack of scale and spatial awareness, as well as compatibility assessment and analysis across the buffer zones, EMP and IDP.

[967] Key findings from the above assessment are displayed in Table 4 below.

5 – Excellent 4 – Good 3 – Average 2 – Poor 1 – Non-existent

ESP ELEMENTS	EMF	BP	GMTFCA IDP	MNPMP (PAMP)	BR	BZ	Lim C-PLAN	IDPs	SDFs	EMPs
Ecosystem Multi-functionality										
Sectoral Integration										
Scale and Awareness										
Co-operative Governance										
Multi-stakeholder Participation										
Capacitation and continual learning										
Compatibility and analysis										
Transparent monitoring Access to information										

Table 3: Assessment of plans relevant to Mapungubwe in relation to ESP elements

CHAPTER EIGHT: FINDINGS

8.1 *Introduction*

This chapter is the product of a three stage process, sourcing findings from: the examination of the environmental management and spatial planning legislative framework;[968] a rigorous assessment of the environmental and spatial orientated planning instruments that apply to the case study region;[969] and data gathered from the interviews concluded with the various pertinent role-players in and around Mapungubwe.

This chapter is thus a presentation of the collective synthesised data, offered in the form of detailed findings under the banner of common themes, in order to answer the research questions and central hypothesis. The hypothesis is that the findings will confirm that, although environmentally-focused spatial planning tools bridge the gap between the areas of environmental management and spatial planning, there are issues of both design and implementation that are clearly present. Furthermore, environmentally-focused spatial planning instruments have the ability to provide the basis for inclusive sustainable development in sensitive areas by using early identification and spatial mapping of sensitive ecological and cultural resources, anticipating and pre-empting land-use conflicts by reacting to ecosystem needs. Yet without reform they will not achieve their inherent potential.

Rooted in the unifying theory of the landscape approach,[970] ESP is presented as strengthening sensitive area protection. ESP has been broken down into a number of elements.[971] These elements will be individually presented during the findings and will be used in categorising and presenting the findings.

[968] See chapter 6 above.
[969] See chapter 7 above.
[970] See section 4.7 above.
[971] These elements include: ecosystem-driven integration and multi-functionality; sectoral integration of planning instruments; scale and spatial awareness; co-operative governance; multi-stakeholder collaboration and participation; capacitation and continual learning; compatibility examination and analysis; transparent participatory monitoring and access to information.

8.2 ***Findings***

8.2.1 *Ecosystem-driven integration and multi-functionality*

8.2.1.1 *Sustainable development as a common central principle*

Sustainable development, as the central and constitutionally supported principle, is mentioned in all the environmental and spatial planning instruments. Although the concept of sustainable development is not consistently understood across the instruments, it is consistently mentioned. Additional NEMA principles such as the preventive approach, cautious approach and cumulative impacts are also reflected, but not as consistently.

8.2.1.2 *Centrality of ecosystem services*

Ecosystem services and their successful functioning is at the centre of the majority of plans, both spatial and environmental. However, the detail of environmental principles seems to fall short in the IDPs themselves. This may be related to their developmental nature, but as primary planning documents they should address this high level of sensitivity, as it is not enough for subordinate documents to deal with this.

8.2.1.3 *Elements of the landscape approach applied*

It is clear that invasive activities are required to be assimilated into the regional mosaic of land-uses and sensitivities, recognising and understanding all the associated vulnerabilities and possible benefits. These developments and harms need to be sustainably balanced with conservation within a regional landscape that must cater for a variety of land-uses, using robust engagement as a central participatory mechanism. Some of the elements of the landscape approach are understandably a part of the development and conservation process yet it's clear that the approach is not known or labelled as the 'Landscape Approach' in the assessed plans.

8.2.1.4 *Economic development priority*

Due to the service delivery backlog, environmental concerns cannot be prioritised. This was particularly clear on the local government level, where the IDP is seen as the only growth document worth considering, as growth and development is of paramount concern. The environment seems to be a secondary consideration, outweighed by the need for development and job creation. This is understandable as rights cannot be understood in isolation. If you do

not have access to food, water and health care, being concerned about the health of the surrounding environment may seem like a futile exercise. This is why immediate concerns often outweigh long-term sustainability. However, no long-term human development can take place on a deteriorating environmental base. This is why it is important to balance the economic, environmental and social considerations.

8.2.1.5 *No clear growth path*

The area has been identified by all the spatial and development documents as being developed as a nature conservation region, yet mining and prospecting applications are still being promoted in the area. The integrated development planning documents want to be portrayed as being environmentally conscious and to have a plan for developing conservation and tourism while ensuring that mining is still welcome. This is contradictory to the sustainable future that the local and provincial government has committed to in their planning documents, showing a lack of congruency between the developmental and conservation vision and approaches of these areas.

8.2.1.6 *Ignorance of conflict between mining and conservation*

It has been established that the local and district municipality have conservation, agriculture and mining agendas for the area, but nothing is mentioned about the inherent conflict that exists between these imperatives. The plans also do not address how these conflicts should be reconciled. Failing to recognise that conflicts exist between these priorities sets the stakeholders up for land-use conflicts. While the documents raise the potential of the greater Mapungubwe area, they do not provide guidance for what should actually happen. The plans appear to focus on appeasing all parties, being private companies and conservation NGOs, making implementation problematic.

8.2.1.7 *No understanding of cumulative impact*

Areas which have inherent sensitivity require a commonly understood regional growth path which has ecologically sustainable development at its core. At the heart of achieving true regional sustainable development is the NEMA consideration of cumulative impact of any activity. Cumulative impact addresses the need for considered development in transitional areas and not just the core zone. The growth path depicted in the spatial planning instruments does not address how cumulative impacts need to be considered by decision-makers. This is evidenced by the push for mining, agriculture and eco-tourism over the same landscape. This

growth path sets a collision course with environmental concerns. The 'floodgates' argument therefore seems to be lost on decision-makers.[972] Meaning if you have one mine that is permitted to proceed, more applications will be accepted as the resistance has been overcome.

8.2.2 *Sectoral integration of planning instruments*

8.2.2.1 *Confusion as to the applicability of environmental spatial panning tools*

The existence of the multitude of planning instruments is a misdirected attempt at solving the impasse that has been created by the inherent mineral and environmental assets of the area. Every new plan developed does not seem to take the existing tools into account, this creates more confusion. Stock should be taken over the area and an integrated central plan for the greater area created. There are occasions when critically endangered or important species and ecosystems are not recognised in all sectoral plans. This creates confusion as to which plans will then supersede and operationally influence developmental applications.

8.2.2.2 *Multitude of ESPs enacted to solve the same issue*

The declaration of a National Park and World Heritage Site has initiated a plethora of plans, and while the intention is good, it has created unintegrated development and confusion over status and priority. Much confusion exists between the applicability of bioregional plans and EMFs, and which takes precedence. Bioregional plans indicate sensitive biodiversity areas forming the base data that should feed into multi-sectoral planning instruments such as EMFs. Bioregional plans must not be in conflict with EMFs but rather must be used in their development and review.

8.2.2.3 *Un-integrated sectoral alignment*

None of the environmental spatial planning tools sufficiently position their existence, aims and objectives within the existing landscape of sectoral planning documents. The plans do not adequately recognise the existence of each other, therefore integration and alignment is not possible between the documents. It seems that there is political will to declare and gazette the plans, however not enough foresight has been given to their integration.[973]

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[972] An example of developmental precedence is, for instance, when ground is broken on a new development in an area which has historically had a single and compatible use (nature conservation or agriculture). It then becomes common place that this type of development is accepted after the initial land-use change.

[973] President Cyril Ramaphosa stated at the Biodiversity Colloquium in Thohoyandou that the Provinces Biodiversity holds 62 Billion in assets for use.

8.2.2.4 *Alignment of spatial planning tools*

The processes referenced above seemed to be occurring in silos, as evidenced by the use of the initial buffer zone to inform the EMF while a new buffer zone was delineated. The respective consultants assigned to the tasks of running the two processes had never spoken before being introduced by the Save Mapungubwe Coalition. Additionally, the new buffer zone was not able to draw on the work done in compiling the EMF. This fragmentation and silo mentality is an inherent risk of using consultants who are not invested with any original or statutory powers, construing their mandate in a narrow manner. This leads to a confusion of status.

8.2.2.5 The *buffer zones inter-sectoral role*

There is a desperate need for the law to clarify the relationship between buffer zones and other environmental planning documents, such as EMFs and bioregional plans. The law covering EMFs is silent on the relationship between EMFs and buffer zones, and, as was the case in the Mapungubwe EMF and buffer zone, is not sufficiently aligned to create a coherent system of spatial planning and environmental protection.

8.2.2.6 *Failure to implement buffer zones guidelines*

Severe confusion exists as to what kinds of activities could be acceptable in the buffer zone, this leads to a misunderstanding about the developmental future of the area and the indecision increases the risk for the core areas of sensitivity. The current buffer zone process has certainly brought about additional uncertainty where the intention was to provide clarity.

8.2.2.7 *Misalignment between integrated SDFs and IDPs*

The SDFs and IDPs seem to have different aims, implications and goals in each local and district region. There seems to be different documents referenced in different degrees. For example, the biosphere reserve and the bioregional plans seem to be directly cross-referenced in the Vhembe SDF, where the Musina SDF does not reference these tools as extensively.

8.2.2.8 *Failure of spatial planning instruments to recognise EMFs*

EMFs, in particular, are not recognised or integrated into spatial planning or environmental tools. These are expensive and important documents, yet their existence and implications are

not recognised. Even where other environmental spatial plans are recognised the document does not explain the implications of the other related and congruent planning documents.

8.2.2.9 *Failure to recognise park extension plans*

Park extension plans are not included in all documents. The extension will have an enormous impact on the developmental future of the area, which should be understood and addressed by the planning authorities. There is a desperate need for consistency between the plans regarding park expansion as it has far-reaching consequences and is currently dealt with in a piece-meal manner.

8.2.2.10 *Provincial and local misalignment*

The sectoral integration and co-operative governance alignment between local and district municipalities is clear, possibly because of their shared mandate to deliver services to their constituencies, yet there appears to be a misalignment between local and provincial government. This is evident in the lack of co-operative governance structures between local and provincial government. Although provincial environmental planning states it must be integrated fully into local and district IDPs, it remains fragmented and unaligned. This is further evidenced by the divergent visions presented for Mapungubwe.

8.2.2.11 *Prioritisation of IDPs*

Integrated Development Planning cannot be successfully implemented without SDFs being recognised as equal and complementary. The IDPs represent the potential, challenges and plans for the specified area, while the SDF comprises of the spatial representation of these components. Each is crucial to the success of the other and one cannot be prioritised over the other. It seems that the IDP is exclusively consulted as the central developmental planning document, while the SDF is an ancillary and often un-consulted document.

8.2.2.12 The *role of EIA and environmental spatial planning tools*

There is a belief that the licensing and EIA processes are not influenced by environmental spatial plans. The role of the planning documents in the EIA process is not clear even though the EIA Regulations require that all instruments over a particular area be considered as part of the developmental decision-making and environmental assessment process.

8.2.3 *Scale and spatial awareness*

8.2.3.1 *Accuracy of spatial data*

There has been a clear move to a more finely grained spatial plan to identify small areas of special habitats. This is encouraging as it means that the discourse has changed from one which broadly outlines sensitivity to one that details more focused and accurate spatial data of sensitive areas. That being said, having access to accurate data requires expensive and time-consuming assessments to take place. Additionally, once the information is collected it must be timeously reviewed to maintain accuracy in an environment that is constantly shifting. Often data older than three years is used as if it is new data that reflects the status quo of the environment, this is not always the case.

8.2.3.2 *Spatial inconsistencies caused by a lack of guidance*

The process of conducting these extremely complex studies needs more legislative and process driven guidance. The result of this lack of direction is that a wide berth of discretion is given to project leaders and state parties. More guidance and parameters are required at all stages of the process from data collection to management and methods, in order to give the studies more credibility and consistency.

8.2.3.3 *Confusing zonal interplay*

Each plan establishes a variety of zones that correlate to the sensitivity of the receiving environment. The status and associated guidelines attached to these zone is often not clear and the zonal analysis is inconsistent between plans. This causes practical difficulties when developers and decision-makers must consult the compatibility assessments to direct their activities

8.2.3.4 *Buffer zone version confusion*

Since 2009, two versions of a buffer zone around Mapungubwe have existed and the status of the buffer is still contentious. The first version of the buffer zone was too big and could not be managed effectively. Scientific assessment was also not used to inform the delineation of the original buffer boundaries, which led to the buffer being re-drawn. UNESCO has accepted the new 2014 buffer zone, but it is yet to be gazetted in South Africa. The 2009 buffer is still binding until the new buffer process is finalised. The status quo is adding to the confusion over the applicability of the Mapungubwe buffer zone as the declaration process is now entering its tenth year.

8.2.3.5 *Proliferation of non-binding buffers*

Different buffers are referred to in different plans, some of which have no formal status. This causes confusion with formal buffers. An example of this is the informal buffers presented in the GMTFCA. There are the two versions of the official buffer around the park, the biospheres establish their own buffer zones, while the GMTFCA has its own buffers. This does cause confusion as to how they apply and relate to one another.

8.2.3.6 *Urban Focus of Spatial Planning*

The SDFs that were examined all focused on the central nodal growth points and neglect the sensitive rural landscapes. The detailed spatial knowledge seems to be focused on the urban areas, even though detailed maps have been prepared through the EMF process of the more rural areas. Smaller more rural communities have either not been consulted or their concerns have not found their way into the final IDP and SDF.

8.2.3.7 *No overlaying of potential and issues*

While the SDF maps the mineral potential and deposits over the entire area, it does not overlay the ecologically sensitive areas. Sensitive areas are not seen as a challenge to the full development potential of mining. This is another example of the failure to recognise the inherent land-use conflict that exists in the areas and the danger of identifying conflicting activities as part of the future over the same area

8.2.3.8 *Heritage mapping is not included*

Without a thorough assessment of the region's cultural resources, the mapping of important area's is not possible. Within the context of the area's rich heritage, it seems important that such an assessment forms part of the elements represented on all spatial illustrations.

8.2.4 *Cooperative governance*

8.2.4.1 *Roles and responsibility confusion*

There is a general confusion of roles and responsibilities in the planning and environmental sectors. There are challenges that exist in integrating environmental planning and development planning within a fragmented legislative system, with complicated

responsibilities and mandates, where duplications and overlaps between local, provincial and national are common.

8.2.4.2 *Siloed decision-making*

Regional environmentally-focused spatial planning instruments do not operate successfully unless proper internal consultation takes place. Not only does this leverage the skills of the various departments but it also alerts everyone internally to the existence of the plans, increasing awareness which results in increased use by a broader group of decision-makers.

8.2.4.3 *Mandate overlap confusion*

The land-use planning legal system is spread between varying sectors, linking obligations and powers of different departments and their empowered agencies. The planning area is susceptible to ultra vires cross-sphere decision-making, therefore a co-ordinated effort is required not to infringe on functional areas.[974] This confusion of mandate is exacerbated when environmental considerations are factored into decision-making. The 'environment' is a schedule 4 concurrent competency of both national and provincial functional areas, meaning that both national and provincial government legislate and make decisions around biodiversity, water and cultural protection and general environmental management.[975] The role of municipalities to perform environmental functions is less clear. Municipalities are given the primary power to undertake local municipal planning, but have little power with regard to the environment, given the current allocation of constitutional powers.[976] The court has recognised local government's role in protecting the environment, establishing that 'municipalities have a constitutional obligation to promote ecologically sustainable development'.[977]

8.2.4.4 *Provincial and local authorities' ability to influence mining*

[974] Jafta J recognises the nuanced intention of the constitution by accepting that 'the functional areas allocated to the various spheres of government are not contained in hermetically sealed compartments but they remain distinct from one another'. Ibid paras 55.
[975] S76(3) of the Constitution.
[976] The independence of municipal decision making over the control and regulation of the use of land within a specific area is a constitutional provision, however is not absolute, as provinces and national government may still oversee how decisions are made in certain competencies. For example, in *City of Johannesburg Metropolitan Municipality* it was held that developmental areas such as housing and agriculture requires co-operation due to their far reaching ramifications.
[977] *Le Sueur and Another v Ethekwini Municipality and Others* ZAKZPHC 6 (2013). *Fuel Retailers Association of SA (Pty) Ltd v Director General, Environmental Management Mpumalanga* 2007 (2) SA 163 (SCA) confirmed the relationship between environmental and planning considerations, stating they are 'inseparably connected'.

Mining regulation and licencing is a national competency and provincial and local government have very little influence over the decision to mine and the regulation thereof. These are major decisions that shape a region, yet the immediate authorities have no power to regulate their impacts. Mining is still one of the backbones of the economy, yet more cross-sectoral cooperation is needed when it comes to the management of mining.

8.2.4.5 *Heritage Mandate Complexities*

SAHRAs role and the distinction between the mandate of local and provincial heritage authorities is problematic in an area like Mapungubwe. The core site is a Grade one site and is therefore the sole responsibility of SAHRA and DEA while the buffer zone is the responsibility of LHRA and SANParks. The Musina Local Municipality does not have the requisite capacity to be conferred the heritage related competency over the sites that are designated as grade three sites that fall within the local municipal heritage authority.

8.2.5 *Multi-stakeholder collaboration and participation*

8.2.5.1 *Stakeholder fatigue*

A clear objective of local government is to engage with its constituency as regularly and robustly as possible. There are numerous challenges to engaging a populace that has seen political parties, developers and different spheres of government commit to basic service delivery that never comes to fruition. This creates disillusionment in the region and discourages active participation in continued meaningful engagements due to their individual experiences.

8.2.5.2 *Lack of participation in SDF construction*

While most IDPs are written in a manner that can be broadly understood, the SDF can be quite technical. One of the findings is the same amount of engagement is not performed around the SDF as with the IDP. An example being that the IDP engagement sometimes does not include the SDF. Moreover, the IDP is widely available, whereas the SDF is either unavailable or cannot be located by the municipality. Although an integral part of integrated municipal planning, the SDF does not seem to receive the same attention during the public engagements.

8.2.5.3 *Need for public-private partnerships*

Where existing industrial development exists in an area, public-private partnerships are crucial to the successful management of regional impacts. The Park, in particular, does not have the required resources to manage such large tracts of land and therefore partnerships assist in alleviating the pressure on finite resources.

8.2.5.4 *No comprehensive inclusive growth model*

Any and all penitent information and documentation, albeit scientific or practice specific, must be freely available to the public. A participatory process must involve all impacted societal sectors, engaging all stakeholders in collective decision-making and management that empowers local communities. The reaching of real consensus is a challenging and time-consuming exercise that is often not achieved. Stakeholders, in particular local communities, require financial and travel assistance in order to meaningfully engage with the subject matter. Other assistance such as translators and access to pertinent documents need to be provided to create the conditions necessary for meaningful engagement. There doesn't seem to be any ownership by stakeholders at a local level. This points to a failure of thorough participatory planning at local community level.

8.2.6 *Capacitation and continual learning*

8.2.6.1 *Principles of environmental law not understood*

As sustainable development is not understood on a local level, applying the principles is not seen as important or best practice. While principles such as ecological sustainable development feature prominently in the planning instruments, officials are uncertain of their application. There seems to be a general misunderstanding of conservation and development and how to balance these imperatives. The influence of environmental goods and services is presented in the documents but do not seem to be taken into consideration as part of practical environmental planning and decisions.

8.2.6.2 *Implementing SPLUMA requires skills and resources*

SPLUMA positively impacts regulatory integration between environmental management and spatial planning, but municipalities seem to be struggling with the implementation. The act places emphasis on local government for local economic development and infuses SPLUMA principles into day-to-day local integrated development planning. Without thorough training and access to resources the realisation of the SPLUMA principles will remain aspirational.

8.2.6.3 *Lack of municipal resources*

The conservation mandate is one that is shared by all spheres of government. In order to execute this mandate, the state requires personnel with the required skill to achieve the goal of just and equitable ecological sustainable development. From all the interviews it seems clear that capacity is not adequate to fulfil this mandate satisfactorily. This is especially true with the enhanced responsibilities given to local government under SPLUMA.

8.2.6.4 *Mapungubwe and its sensitivities remain unknown*

There is a need to create awareness regarding the importance of and sensitivities that exist in the region. The Mapungubwe National Park and World Heritage Site is located in a remote area far from city centres. The park does not enjoy the same recognition as Kruger Park for instance.

8.2.6.5 *Issues of implementation*

Environmental and developmental laws are generally not understood and some state role-players have difficulty applying them. The complexities of environmental and spatial planning seem to be lost in their application. It is clear that the consultants that draft the plans do so as require by law, but issues exist in the implementation of these environmentally-focused planning instruments. Moreover, scientific complexities add to the issues of implementation as local capacity for initiating and integrating complex sensitivity analysis is not present. In dealing with environmental and spatial planning instruments, the implementing authority requires significant scientific knowledge to understand and meaningfully apply complex legal and ecological principles in a manner which can realise practically attainable sustainable development.

8.2.6.6 *More capacitation for local stakeholders*

The public participation processes mandated by law needs to be efficient and impactful. In order for this to happen, there needs to be constant updating and skills transfer which leads to the establishment of representive multi-stakeholder monitoring bodies.

8.2.7 *Compatibility examination and analysis*

8.2.7.1 *Availability of data on a local level*

Forward planning for the local municipality has been identified as a central concern. The relevance and applicability of spatial data impacts the local levels the most, as it's here where implementation occurs, yet it is on a local level where this data is lacking. Municipalities lack the scientific knowledge needed to meaningfully take part in decision-making. In particular, the local GIS capability falls short of acceptable standards. The local municipality either doesn't have the information, or doesn't have an in-house specialist to analyse the data.

8.2.7.2 *Unscientific buffer zone delineation*

Buffer zone delineation needs to go through a robust scientific assessment before being delineated and declared. The importance of conducting land-use audits and scientific assessments on regional sensitivity before the declaration of buffer zones cannot be understated.

8.2.7.3 *Inconsistent sensitivity mapping*

The regions under assessment seem to be presented with slight variations. The consistency of the knowledge of the sensitivities of the area seem to be illustrated and understood in different ways. This inconsistency provides uncertainty to developers and decision-makers. The manner in which planners map sensitivity impacts the efficacy and ability of the spatial mapping to fulfil its purpose.

8.2.7.4 *Misunderstanding of mining as a compatible land-use*

Mining is seen as a compatible land-use, particularly where post-mining remediation and land-use is done according to the law. There seems to be an unrealistic understanding of the real environmental and social impacts of mining. Mining cannot be a sustainable activity. It is inherently invasive; the impacts can only be managed but cannot be seen as a compatible land-use as described in the planning instruments. The impacts and legacy of mining remains in an affected area for many years.

8.2.8 *Transparent participatory monitoring and access to information*

8.2.8.1 *Need for access to information*

Information sharing builds trust between the parties involved in any collaborative exercise, not only ensuring transparency but also assisting to minimise the possibility of unequal influence on decision-making, and facilitating collective learning. Moreover, communities,

municipal government representatives, NGOs, and the private sector cannot reach consensus without understanding and having access to the same quality of information. An example is that SDFs and EMPs, which are public documents, cannot be accessed without great time, communication and expense. Provincial, district and local authorities do often not have copies of these documents. The SDFs that were made publically available were either not completed, in draft form or were under review at the time of this thesis. Although an integral part of understanding integrated development planning, none of the SDFs and EMPs were available publically and had to be sourced.

8.2.8.2 *Monitoring failure*

The environmentally-focused instruments are not routinely updated and monitored. This is an issue across the entire spectrum of the regime. The only plan that has seen revision is the Limpopo C-Plan. Without regular review the plans become inaccurate and lose their efficacy. This gives the perception that when outdated, a new type of tool is introduced instead of updating the existing data in the same tool. An opportunity exists to align EMFs, BPs and BRs with local planning tools during periodic reviews.

8.2.8.3 *Appropriate punitive measures*

The nature of the environmentally-focused spatial planning tools gives them the effect of non-binding guidelines that only have the force of persuasive influence. Thus, there are no appropriate punitive measures and costs associated with transgressing these environmental plans. Deviation from such plans only have to be substantiated and justified, as they do not have the force of law.

8.2.9 *General*

8.2.9.1 *Environmental planning instruments are not seen as a priority*

From all the data collected, it is clearly observed that when considering integrated developmental planning from all spheres of government, environmentally-focused instruments are not at the forefront of the considerations for decision-makers. Many decision-makers were not aware of the myriad of environmental and spatial plans in force over their area and it was clear that they were not a priority.

8.2.9.2 *Lack of consistency in the elements represented in each plan*

There was notable variability in the mapped elements that plans found important in the presentation of sensitivities in the same region. Water resources, sensitive biodiversity, cultural resources, as well as mineral potential are some of the elements that were overlaid, but this type of analysis not done consistently. Overlaying important ecological elements reflect knowledge of one's surroundings and the importance one places on such resources. If an element is not reflected in a plan it implies to both developers and decision-makers that such resources are not important to consider before a particular activity is undertaken. This inconsistent identification of sensitivities can lead to confusion for the reader.

8.2.9.3 *Spatial and environmental planning tools remain unfinished*

Many of the SDFs, EMFs and Biosphere Reserve SEMPs had not been completed and had remained in a draft phase for many years. This points to either a change in the personnel driving the process, a short attention cycle to the plan or a failing of political will. The time taken to complete the process leaves interested and affected parties who are committed to the process without any results. Where the process was completed, this took an inordinate period of time, as is the case of the Mapungubwe EMF, where the process took five years from inception to gazetting the final report. This also puts into question the applicability of the data that is used for plans, as this becomes dated and loses accuracy

8.2.9.4 *Cultural rights not understood as human rights*

Cultural rights were not spoken of with the same importance as social or environmental rights. This unfortunate understanding may be due to a lack of knowledge regarding their status as human rights. The municipality has yet to undertake a complete regional heritage assessment, as a consequence the repository of heritage information is minimal. Spiritually connected cultural resources scatter the entire region in the Northern Limpopo and it has an extremely rich and important history. Not attributing heritage related rights the same importance would be a grave shortfall of a constitutional duty.

8.2.9.5 *Proliferation of non-binding land-use guidelines*

There are a number of land-use guidelines present across all the spatial and environmentally-focused plans. Each plan had individual land-use guidelines for the region linked to individual sensitivity analysis and assessments conducted by the consultants who drew up the instruments. Although a very helpful tool, especially when directly linked to listed activities that are triggered by certain impacts in a particular area, these guidelines should speak to one

another. Their non-binding nature also serves only to guide development and not to directly inform a particular legal position. Having a myriad of such guidelines on land-use over one particular area causes confusion to the developer and competent authority.

8.2.9.6 *Political will an essential component*

Developmental decision-making is highly politicised, and by implication, so is the conservation of extensive tracts of sensitive land. Political structures greatly influence the management of environmental and developmental planning; as decision-making structures are heavily politicised. Political will is thus critical to the completion and success of any spatial or environmentally-oriented development plan. Sustaining political will and ensuring constant stakeholder expectation management requires competent leaders and skilled facilitators.

8.2.9.7 *Unfettered discretion is misunderstood*

State decision-makers seems to believe that they have the right to make developmental decisions autonomously and that they are the only entity that can do so. While this is true to a certain extent and decision-makers must have unfettered discretion to make a decision they are mandated to make without any undue influence, this does have certain conditions. The decision-maker must apply their mind to the relevant studies and impacts of the activity, and consider all relevant spatial and environmental plans in force over the area in which the activity is taking place. At a district level, decision-makers felt they had an inherent right to make decisions without considering the plans over the area, as these plans were devised by consultants who do not reside in or know the area as intimately as they do.

8.2.9.8 *Environmental spatial planning awareness*

Effective application of environmental and spatial planning tools requires a regional awareness of their existence. This is particularly true for the planners and decision-makers who are charged with utilising and monitoring their implementation in an effort to guide appropriate and considerate land-use decision-making in sensitive areas. It also requires robust institutional relationships and the accessibility of sufficient resources for continued implementation.

8.2.9.9 *Reluctance to declare protected areas*

There appears to be a reluctance to formally protect any sensitive area due to the fear that such a declaration will permanently sterilise the landscape. There are various forms of declarations that have a variety of impacts on the developmental future of the area, restricting certain activities. There seems to a misunderstanding as the applicability of true conservation does not sterilise an area but rather enhances and protects the inherent important characteristics that make the area valuable, leveraging it to enhance and protect these elements for the benefit of the surrounding communities and the country as a whole.

8.2.9.10 *The developmental model is not based on long-term planning*

Due to the pressing issues of poverty, unemployment and other related social ills that plague the Northern Limpopo region, the state is under extreme pressure to create jobs, uplift the local communities and rapidly grow the economy. Such pressing issues are heavily influencing the nature of developmental decisions being made in the area. The need for accelerated development has led to short-term, invasive developments such as mining being allowed to take place in areas of heightened sensitivity. The spatial plans, in particular, depict a view that any and all development is welcome and must be prioritised.

8.2.9.11 *Environmental Tools used as bargaining chip*

It seems that environmentally-focused spatial plans are often used as a bargaining chip where a development takes place in sensitive areas that would otherwise be declared too risky or over which there has been much public discontent. Where a development is being considered and decision-makers decide that the development would cause intolerable damage that cannot be acceptably mitigated, these environmental tools, like EMFs and buffer zones, should not be put forward as a bargaining chip to lessen the harm, making an otherwise unacceptable development acceptable. This is especially true if the plans are not being implemented properly or are otherwise unknown to decision-makers.

8.2.9.12 *Status of environmental plans misunderstood*

The legal effect of EMFs and other environmental plans are contentious as they are not absolute, serving as a factor to be considered and weighed when the suitability of the development is decided. The ultimate decision consequently rests with the appropriate competent authority and not with the environmental plan, as these plans are only understood

as policy considerations and not a binding prohibition on certain land-use activities. This unfortunate understanding opens vulnerable areas to development and possible degradation. Environmental management tools have different positions under the law, which has a direct relationship with how seriously they are taken by developers and may be trumped by developmental priorities.

8.2.9.13 *Failure of the land claim system impacting conservation*

The slow rate of land claim settlement is discouraging investment and the formal promulgation of conservation areas. The failure of the land claim system is not only delaying justice to the land claimants but is also having a negative impact on the future development and protection of sensitive areas. An example is the planned extension of the Mapungubwe park boundaries. While this extension plan has been identified in various spatial and environmental plans, it is admitted that the long-time delays and constant uncertainty in land claims has delayed the realisation of increasing the protected area. This is in spite of the impacted landowners having agreed to the extension. This is an example of law, regulation and administration standing in the way of real conservation and sensitive area protection. Once the land claim is settled, the claimants and the park can enter into bona fide negotiations to discuss the use, enjoyment and benefit that the park can provide.

8.2.9.14 *Conflicting and confusing terminology*

As detailed above, multiple plans have been declared over the same area over the last ten years. These plans have each had different authors and different state or departmental drivers. This has led to confusion and inconsistency in the terminology used to identify and define the nature of the plans. An example is the Limpopo C-Plan, which is actually a bioregional plan but has been accredited a different label which has caused confusion as to its status and how it is to be used.

8.2.9.15 *Use implications and guidance*

There appears to be no clear direction as to how the myriad of planning documents relate to each other. This is specifically needed in relation to hierarchy, integration and conflict regulation. Only two of the twelve plans reviewed considered the various other sectoral documents in any detail. It is critical that, at the very least, a summary of the implications of each relevant or applicable plan in the region is given. This lack of alignment is especially seen between spatial development and environmental plans. This leads one to believe that

these environmental and spatial planning tools are used as political leverage to approach developments, and not to form part of the overall planning matrix.

8.2.9.16 *Under regulation of municipal EMPs*

Realising the full potential of EMPs requires detailed regulation and guidance. This is currently not the case within the legal framework. This explains the shortfall and inconsistencies in developing and implementing EMPs on a local level. It is imperative that decision-makers are given tools that have rigorous participatory and governance requirements in order to ensure representivity and accuracy.

8.2.9.17 *South Africa's adoption of the Landscape Approach*

From the literature assessed and the empirical data collected it is clear that South Africa's authorities have made a conscious move to incorporate the elements which make up the Landscape Approach, and by association ESP.

8.3 ***Discussion summary***

From the above presentation of the findings, the picture of local economic developmental imperatives, conservation and human development in sensitive areas becomes clearer. The picture portrays a region which is struggling to drive and manage an inclusive common growth path, with specific reference to the area in and around the Mapungubwe National Park and World Heritage Site. The desperate need for development makes environmental concerns ancillary to developmental decision-making in sensitive areas.

The state has chosen to pursue environmentally-focused planning instruments to achieve the delicate balance between developmental and environmental concerns. The assessed plans, including EMFs, bioregional plans, buffer zones and biosphere reserves, all play a distinct role in this planning process and in understanding and appropriately responding to inherent sensitivities. In assessing these plans against the elements of ESP, it appears that the EMFs most closely embody the elements of the approach. EMFs support the evolution in the environmental management discourse of moving sensitivity analysis and understanding to the earlier proposal stages of developmental conception and design, while instilling a mandatory and robust public participating process.

Although these plans have potential and can drastically influence the developmental landscape in the region, they suffer from fatal flaws. These flaws impact the design and implementation of environmentally-focused planning tools. The most pressing is the manner in which these plans are incorporated into sensitive area protection, how they relate to one another and whether they truly reflect the needs and concerns of the receiving community.

The recommendations that follow are intended to address these aforementioned issues. These will focus on practical solutions which are phrased in a direct and user-friendly fashion.

CHAPTER NINE: RECOMMENDATIONS

9.1 ***Introduction***

This section proposes subject-specific recommendations and possible solutions to the issues raised in the above chapters. Many of these recommendations centre around the theory of ESP, as this is the fundamental unifying theory on which the thesis is based. The recommendations will follow the core elements of the approach and will attempt to be as practical as possible. In this vein, the recommendations will focus on the drivers of these plans and which combinations would operate the most successfully within the frame of the elements that constitute ESP.

9.2 ***Recommendations***

9.2.1 *Ecosystem-driven integration and multi-functionality*

9.2.1.1 *Integration of environmental management and spatial planning*

The South African developmental legal framework requires a more purposeful integration of core environmental management principles with spatial planning frameworks, infusing ecological principles into developmental decision-making. Planning requires an environmentally-focused position that takes the spatial and ecological character of an area into consideration when making developmental decisions. This could take the form of a cross-integrated guideline document that explains and outlines how core environmental principles are practically operationalised within spatial planning instruments, such as SDFs and IDPs. Such a guideline could provide clarity on how to incorporate widely accepted environmental principles into day-to-day integrated developmental planning.

9.2.1.2 *Need for long-term sustainable development planning*

Long-term sustainable development planning, and the associated environmental planning instruments, are critical in allowing natural ecosystems to endure, remain diverse and perpetually productive. This is especially important where developments in sensitive areas are planned to have the most short-term gain, but regularly cause irreparable harm. The pressures associated with the need to accelerate socio-economic development are well known, yet without considering long-term impacts, this could result in an environment that has progressed over the ecological tipping point. The proposal is that local government be

required to make binding long-term plans that inform immediate decision-making. Narrow approaches to development should be replaced by integrated and holistic land-use planning that takes a long-term and pre-emptive approach to development. Such approaches value collaboration and proactive conflict resolution in an attempt to conserve highly sensitive ecological and cultural sites. In order for considered developmental planning to occur in sensitive areas, there needs to be an application of spatial planning, with environmental considerations and ecological protection at its core. Therefore, the successful management of invasive activities in sensitive areas requires spatial planning infused with strong environmental principles and with ecosystem integrity as an appropriately weighted factor in the developmental decision-making process.

9.2.1.3 *Conflict must be recognised*

Where land-use conflicts are present, they should be identified, and plans made to address and manage the conflict. Remaining silent on an issue does not resolve it, rather land-use conflicts need to be at the forefront of spatial and environmental plans proposing solutions to current and future land-use conflicts. This issue of 'conflict' should be given its own section.

9.2.2 *Sectoral integration of planning instruments*

9.2.2.1 *Combination of environmental management and spatial planning tools required*

The split between environmental management and spatial planning tools makes a coherent and integrated developmental framework difficult to manage. The solution is to combine SDFs and other environmentally focused plans, such as EMFs and bioregional, plans, in one key document. This would ensure data alignment between tools such as SDFs and EMFs. These plans could be aligned at the next stage of SDF review. If this combined plan is not feasible, an effort should be made to align the SDF to the existing environmentally-focused planning tools at every stage of review.

9.2.2.2 *One over-arching plan for areas of universal value*

The plethora of plans in areas of heighted sensitivity is leading to an unintegrated planning model, especially in areas where conflicting land-uses are prominent. Stakeholders and decision-makers require certainty, therefore one plan that embodies the developmental future of a proclaimed sensitive area is proposed. A master plan for sensitive areas is one of the

options available to support the alignment and consistency of plans for unique areas. This could be a viable option as long as the objectives of each of the different plans is considered.

9.2.2.3 *Discuss implications of plans and legislation*

Environmentally and spatially focused planning tools do not recognise each other. Only two of the twelve planning tools assessed considered the implications of each of these plans in detail.[978] The Vhembe SDF summarised the implications for the region. This approach could be a useful requirement to all plans, also deserving of its own section. There must be a concerted effort to show how relevant acts, policies and plans are included and why. With no context the reader has no idea why they have been considered, why they are relevant and how they have been incorporated.

9.2.2.4 *Current land-use tracking system*

An open and transparent structure, mechanism or platform that record changes in land-use and re-zoning approvals is needed. Such a platform would give planners and decision-makers an accurate view of how and when developments would be impacting sensitive environments. Such a platform could also assist in developing multi-sectoral planning between departments and different spheres of government. Such a system would need to be regularly updated and open to remain transparent.

9.2.2.5 *Local government EMP failure*

Local EMPs need to be more robust and need to include spatial planning documents and theories. They need to be more detailed, locally relevant, less generic and more accessible. Due to the lack of formal status, it seems as though EMPs are given the least attention and respect.

9.2.3 *Scale and spatial awareness*

9.2.3.1 *Common elements reflected as part of a spatial representation*

Across the myriad of environmental and spatial planning tools, it has become clear that consistency is required as to what economic, social and environmental elements are illustrated on maps. It is accepted that plans have different objectives, however they all

[978] See chapter 7 above.

attempt to overlay sensitivities with potential and challenges. This overlaying process has been found to be inconsistent and portrays varying priorities. Therefore, a proposal is put forward that a set of common mapped elements be required as per regulation to ensure consistency.

9.2.3.2 *Land claims must be assigned a spatial category and land-use*

The use of land on properties under claim should be aligned with the appropriate spatial planning category and be recognised in all spatial illustrations where overlaying occurs. As a general rule, long-term sustainable use of land requires that it should always be used for its most appropriate inherent use, notwithstanding underlying land ownership patterns or political or socio-economic dynamics. Therefore, a land claimed conservation and tourist area should be used for that purpose by the successful claimants. Where land claims encroach on nature reserves, these claims must be negotiated so that the nature reserve's current use for conservation purposes is maintained but the claimants are fairly compensated and are left in no worse position.

9.2.4 *Cooperative governance*

9.2.4.1 *Role for local government in mining*

The fact that mining is not a local government competency, and that they have no authority over the mining area, hinders planning of developmental projects and mitigating plans for the area. The municipality's role needs to be defined in the administration of mining areas, particularly in post-closure rehabilitation.

9.2.5 *Multi-stakeholder collaboration and participation*

9.2.5.1 *Need for multi-stakeholder platforms*

Public participation and multi-stakeholder buy-in is the cornerstone to any successful environmental and developmental planning tool. Multi-stakeholder platforms can enable the facilitation and building of relationships between different stakeholders to address environmental and resource management problems in order to reach compromises and trade-offs. Multi-stakeholder platforms must be properly constituted decision-making bodies that embody true democratic principles of respect and representation. These bodies can be used for conflict resolution and monitoring while enabling meaningful engagement and a common

understanding of the challenges and opportunities that are present within the landscape. The recommendation is that such multi-stakeholder platforms are made a regulatory requirement in any areas of heighted sensitivity or where potential land-use conflicts are expected due to the nature or history of the landscape. Practically, this could be achieved through a licence condition in terms of the environmental authorisation and would have representation from relevant state departments, civil society, the private sector and competent specialists.

9.2.5.2 *Need for the application of Free and Prior Informed Consent*

Free and Prior Informed Consent (FPIC) is an internationally understood principle that was borne out of the respect for communities and their rights to dictate the developmental growth path of their region and surroundings. There is a critical need for the law to respond to the need of affected communities to be respected as more than just residents within a receiving environment. Rather communities are hosts to invasive development that have fundamental impacts on their lived reality. FPIC is therefore an important principle to apply as it requires awareness of the rights of specific local indigenous stakeholders and frames the manner in which effective participation takes place. True FPIC would mean tailoring information, so it is technologically and culturally appropriate, engaging in outreach activities, and recognising traditional decision-making structures. FPIC also requires that where the lives of host community members will be severely impacted by invasive development, for instance, where relocations will be required, such communities would have to give their consent to such proposals through a negotiated platform.

9.2.6 *Capacitation and continual learning*

9.2.6.1 *Political leaders need to understand ecological impact*

Political leaders do not seem to understand the complexities of environmental, social and economic impact. Leaders must understand the dynamics of the institutional environment, and also the complexity of the socio-ecological system. Such an understanding would require training and political will. Political and sectoral decision-makers need to be made aware of the integrated and holistic nature of ecological considerations, importantly what socio-economic benefits flow from a healthy environment. A central issue flowing from this point is the need for additional departmental capacity to effectively process mining applications and to appreciate the direct and indirect effects associated with such invasive activities.

9.2.6.2 *Training for local counsellors and officials in environmental management*

Training for local counsellors in the complexities of environmental management, as well as the importance of ecosystem goods and services, is needed. This need is a growing one, yet the resources to commit to comprehensive training are not readily available. Large developments or companies in the area could contribute resources as a licence condition to ensure that independent capacity experts are procured to increase capacity, particularly, on a local level where most required.

9.2.7 *Compatibility examination and analysis*

9.2.7.1 *Ecological thresholds directly influencing decision-making*

Understanding the ecological thresholds of an area would determine the ecological resilience of the identified environment to outside developmental influence. A developmental framework is proposed, which has ecological considerations at its core, with the direct integration of spatial and environmental planning framed by the ecological thresholds and developmental desirability of the specific region. This would require significant resources to be spent on mapping, assessing and analysing sensitive areas in order to understand the ecological limits of the area. Such thresholds would have the most significant influence on whether activities are authorised.

9.2.7.2 *Current environmental tracking system*

It is recommended that a database be developed and maintained to track the loss of biodiversity and status of other ecological considerations to inform day-to-day decision-making around and development applications. This database should be developed on a GIS platform for integration and overlay with other environmental instruments and must be updated at quarterly. Such a public database would allow for fully integrated decision-making and should include a consolidated and co-ordinated database of approved applications within each local municipality. The consolidated and co-ordinated database would influence environmental and mineral authorisations issued by national and provincial environmental and mineral resources departments. This would be cross-referenced with land claims and other limitations on development, such as gazetted buffer zones, CBAs and ESAs. This could be adapted and maintained by SANBI.

9.2.8 *Transparent participatory monitoring and access to information*

9.2.8.1 *Access to information in the buffer zone process*

The buffer zone declaration process needs to be reformed so that substantial documentation is presented in order for I&APs to comment from an informed position. The science that supports the buffer zones needs to presented in a digestible and practical way that includes all interested and affected parties.

9.2.9 *General*

9.2.9.1 *ESP tools must precede all buffer zone declarations*

Environmentally-focused planning tools, such as EMFs, can be used to support new buffers as they lead the way to understand where the buffer should be through understanding sensitivity and land-use compatibility analysis. This could be a function of the EMF and could also form the basis of the buffer zone regulations and site-specific guidelines.

9.2.9.2 *Buffer zone guidelines must be in force when gazetted*

Certainty of what types of developments can take place in buffer zones is critical to their successful operation and their ability to appropriately regulate developments in the area. The experience in Mapungubwe shows that the ensuing confusion of the development future of the area is exacerbated by not having clear guidelines as to what land-use restrictions there are in the buffer zone.

9.2.9.3 *The formalisation of biospheres within the South African legal context*

Biospheres have international standing but have not been assimilated into the South African legal framework. Biospheres have an important role to play in the conservation landscape and should have a clearly delineated role within the legal framework.

CHAPTER TEN: CONCLUSION

From the findings above it becomes clear that there is still much confusion as to the status and integration of environmental and spatial planning instruments over the Mapungubwe area. With more pressing invasive developments, such as coal-fired power stations and additional mining developments on the developmental horizon, the fear is that this confusion can and will lead to more serious impacts on the universally important sensitivities of Mapungubwe. The story of Mapungubwe is unfortunately not an isolated case. Sensitive areas are under sustained threat from invasive developments, even with the layers of protection provided by the legal framework.

Due to the current low growth cycle and rampant unemployment facing many sensitive rural areas, mining seems to be the only short-term developmental driver. This status quo is also not assisted by the fact that there is often a distinct failure to recognise the inherent conflict that exists in prioritising conflicting imperatives in a single area, such as, mining and eco-tourism. The legal requirement for IDPs and SDFs presents a strategic opportunity to integrate potential benefits and limitations into local land-use planning and decision-making. On the other hand, the plethora of environmental planning tools provides a 'fit for purpose' approach to operationalising sustainable development, yet does not enjoy the same form and status.

At the outset of the thesis certain research questions were put forward in order to frame the discussion and content. The three detailed research questions were tailored in an attempt to, in brief, provide the reader with the most logical and systematic breakdown and understanding of a particularly complicated and nuanced area of law.

The first of these questions focused on the spatial planning and environmental management paradigms that exist in South Africa. Answering this question provided a healthy understanding of the national developmental context. What we have witnessed is divergent paradigms of spatial planning and environmental management borne out of a difficult history. With this being said, the principles of both distinct spheres have been slowly migrating towards each other, with the greatest leap being the advent of SPLUMA which pulled spatial planning into the democratic dispensation. The regulatory design of developmental planning and conservation attempts to align spatial planning and environmental management into an integrated regulatory system, yet this does not go far enough to be considered successful.

The second of these questions focuses on how the legal systems under examination are being applied, particularly in sensitive areas. Moreover, what are the impediments that exist in reaching a point where integration can be achieved that lead to lasting sustainable development. We have identified numerous impediments within the thesis, ranging from a fragmented regulatory design, capacity constraints, governance challenges and a distinct lack of political will. These issues are exacerbated by the complex nature of each system within a climate of low growth, joblessness and legitimate expectations of service delivery. The realisation of sustainable development is therefore situated within a multifaceted set of imperatives which requires moderation in order to balance the various interests at play.

The third of these primary research questions involves the creative portion of the study where a novel theory is postulated in an attempt to create a principle of unification between the areas of spatial planning and environmental management. The research presents a position that sustainable development encompasses the necessary core attributes that can be operationalised to lead to the balance between conservation and development. Yet, the true application of the principle requires coordinated planning and an understanding of ecosystem thresholds. The landscape approach, and by implication ESP, is aligned to this understanding, attempting to harness the possibilities that exist in nature to create regional environmental and development plans that strive to realise social and environmental justice. The aim of ESP is to address this need and to purposefully integrate environmental management and spatial planning, particularly in the development and conservation of sensitive areas. The underlying principles of such a theory have been presented in the form of the thematic elements.

The hope is that the thematic ESP elements can be used as a checklist against which each planning document in the environmental and spatial landscape can be tested against to ensure that plans are comprehensive, inclusive and integrated. Future research in this area is not only advised, but needed in order to further clarify the operational viability of the theory. This study has been narrow in its application, looking strictly at the base requirements of a successful regional developmental system in a highly sensitive landscape. As the legal system appears to have foundational and structural issues, there is a need to start at the beginning and form a system built on solid principles of inclusive and responsive development. The knowledge gained through this process can be used to create a system that has the best interests of future generations at heart.

BIBLIOGRAPHY

Books and Journal Articles

1) Adams W M et al 'Biodiversity conservation and the eradication of poverty' (2004) 306 *Science* 1146, 1148.

2) Adger W N, Eakin N, & Winkels A 'Nested and networked vulnerabilities in South East Asia' in L Lebel, et al (eds) Global Environmental Change and the South-east Asian Region: An Assessment of the State of the Science (2007) 194, 225.

3) Albrechts L 'Reframing Strategic Spatial Planning by using a coproduction perspective' (2013) Vol 12. No.1 *Planning Theory* 46, 63.

4) Albrechts L 'Bridge the Gap: From Spatial Planning to Strategic Projects' (2006) 14 *European Planning Studies* 1487.

5) Albrechts L 'Strategic (Spatial) Planning Reexamined. Environment and Planning' (2004) 31 *Planning and Design* 743, 748.

6) Aikenhead G S *Teachers, teaching strategies, and culture* (1997).

7) Asefa S *The Concept of Sustainable Development: An Introduction* (2005).

8) Baskarada S 'Qualitative case study guidelines' (2014) 19 *The Qualitative Report* 1, 18.

9) Bartlett A A 'Reflections on Sustainability, Population Growth, and the Environment' in M Keiner (ed) *The Future of Sustainability* (2006) 22.

10) Baxter P & Jack S 'Qualitative case study methodology: Study design and implementation for novice researchers' (2008) 13 *The Qualitative Report* 544.

11) Beatley T and Manning C *The Ecology of Place: Planning for Environment, Economy, and Community* 3 ed (1998).

12) Bebbington A 'Capitals and capabilities: A framework for analyzing peasant viability, rural livelihoods and poverty' (1999) 27 *World Development* 2021, 2044.

13) Berrisford S ‘Unravelling Apartheid Spatial Planning Legislation in South Africa’ (2011) 22 *Urban Forum* 248, 251.

14) Bina O ‘A critical review of the dominant lines of argumentation on the need for strategic environmental assessment’ (2007) 27 *Environmental Impact Assessment Review* 585, 600.

15) Boeije H ‘A Purposeful Approach to the Constant Comparative Method in the Analysis of Qualitative Interviews’ (2002) 36 *Quality & Quantity* 391.

16) Brooks N et al ‘The determinants of vulnerability and adaptive capacity at the national level and the implications for adaptation’ *Global Environmental Change* (2005) 151,163.

17) Brooks N, Adger W N & Kelly P M ‘The determinants of vulnerability and adaptive capacity at the national level and the implications for adaptation’ (2005) 15 *Global Environmental Change* 151, 163.

18) Bogdan R C & Biklen S K *Qualitative research for education: An introduction to theories and methods* 4 ed (1982)

19) Brinkley D G *The Wilderness Warrior: Theodore Roosevelt and the crusade for America* (2009).

20) Brown G & Raymond C M ‘Methods for identifying land use conflict potential using participatory mapping’ (2013) 122 *Landscape and Urban Planning* 196, 208.

21) Bryman A ‘Of methods and methodology’ (2008) 3 *Qualitative Research in Organizations and Management* 159-168

22) Buckley R ‘Environmental sensitivity mapping: A regional planning tool’ In R. Buckley (Ed.), Perspectives in environmental management 35, 46.

23) Butler A, Hall H & Copnell B ‘Guide to Writing a Qualitative Systematic Review Protocol to Enhance Evidence-Based Practice in Nursing and Health Care’ (2016) 13 *Worldviews on Evidence-Based Nursing* 241, 249.

24) Boland R ‘Phenomenology: A Preferred Approach to Research in Information Systems’ in E Mumford et al (eds) *Research Methods in Information Systems* (1985).

25) Born S M and Sonzogni C ‘Integrated environmental management: Strengthening the conceptualization’ (1995) 19 *Environmental Management* 168, 181.

26) Cadenasso M L et al ‘A Framework for a Theory of Ecological Boundaries’ (2003) 53 *Bioscience* 750, 758.

27) Carson R *Silent Spring* (1962).

28) Charmaz K *Constructing grounded theory: A practical guide through qualitative analysis* 2 ed (2006).

29) Chapin S C, Koffinas G P, & Folke C *Principles of Ecosystem Stewardship: Resilience-based natural resource management in a changing world* (2009).

30) Claassen P E ‘Spatial planning with the Western Cape Province as a case study’ in Strydom H A & King N D (eds) *Environmental management in South Africa* 2 ed (2009) 923.

31) Creswell J W *Research design: qualitative, quantitative, and mixed method approaches* 2 ed (2003)

32) Creswell J W *Qualitative inquiry and research design: Choosing among five traditions* (1998).

33) Cullingworth B & Nadin C *Town and Country Planning in the U.K.* 14 ed (2006).

34) Czech B ‘Prospects for Reconciling the Conflict between Economic Growth and Biodiversity Conservation with Technological Progress’ (2008) Vol 2 No. 6 *Conservation Biology* 1389, 1398

35) Daymon C & Holloway I Qualitative research methods in public relations and marketing communications (2002).

36) Del Campo A G ‘Mapping environmental sensitivity: A systematic online approach to support environmental assessment and planning’ (2017) 66 *Environmental Impact Assessment Review* 86, 98.

37) De Villiers C and Hill R ‘Environmental Management Frameworks as an Alternative to Farm-Level EIA in a Global Biodiversity Hotspot: A Proposal from the Cape Floristic Region’ (2008) 10 *Environmental Assessment Policy and Management* 333, 360.

38) Denzin N K & Lincoln Y S ‘Introduction: Entering the field of qualitative research’ in Denzin N K and Lincoln Y S (eds) *Handbook of Qualitative Research* (1994) 1,17.

39) Denier L et al *The little sustainable landscapes book: Achieving sustainable development through integrated landscape management* (2015).

40) Dowie M *Conservation Refugees: The Hundred-Year Conflict between Global Conservation and Native Peoples* (2009).

41) Du Pisani J A ‘Sustainable development: Historical roots of the concept’ (2006) 3 *Environmental Sciences* 83, 91.

42) Eisenhardt K M ‘Building theories from case study research’ (1989) 14 *Academy of Management Review* 532, 550.

43) Egan G *The skilled helper: A problem-management approach to helping* 10 ed (2010).

44) Eggenbergera M & Partidárioa M ‘Development of a framework to assist the integration of environmental, social and economic issues in spatial planning’ (2000)18 *Impact Assessment and Project Appraisal* 201, 207.

45) Eriksson P et al *Qualitative Methods in Business Research* (2008).

46) Everard M *Common Ground: The Sharing of Land and Landscapes for Sustainability* (2011).

47) Faludi A ‘European spatial planning: past, present and future’ (2010) 81 *Town Planning and Review* 1, 22.

48) Fischer J, Lindenmayer D B & Manning A D ‘Biodiversity, Ecosystem Function, and Resilience: Ten Guiding Principles for Commodity Production Landscapes’ (2006) 4 *Frontiers in Ecology & the Environment* 80, 86.

49) Freedman W ‘The Legislative Authority of the Local Sphere of Government to Conserve and Protect the Environment: A Critical Analysis of Le Sueur v Ethekwini Municipality’ (2014) 17*Potchefstroom Electronic Journal* 567, 612.

50) Feil A A & Schreiber D ‘Sustainability and sustainable development: unravelling overlays and scope of their meanings’ (2017) 14 *Electronic Journal Cadernos* 667, 668.

51) Fine B & Rustomjee Z *The Political Economy of South Africa: from Minerals-Energy Complex to industrialisation* (1996).

52) U Flick *Introduction to Qualitative Research* (2009).

53) U Flick *The SAGE Handbook of Qualitative Data Analysis* (2013).

54) Fontana A & Frey J H ‘Interviewing: The art of science’ in N K Denzin & Y S Lincoln (eds) *Handbook of qualitative research* (1994) 361.

55) Frost P et al ‘Landscape-scale approaches for integrated natural resource management in tropical forest landscapes’ (2006) 11 *Ecology and Society* 11, 30.

56) Freeman O E, Duguma L A, & Minang P A. ‘Operationalizing the integrated landscape approach in practice’ (2015) 20 *Ecology and Society* 121, 133.

57) Flintan F & Tamrat I ‘Spilling Blood over Water: The Case of Ethiopia’ in J Lind & K Sturman (eds) *Scarcity and Surfeit: The Ecology of Africa’s Conflicts. Institute for Security Studies* (2002) 243, 320.

58) Glaser B G & Strauss A L *The discovery of grounded theory: Strategies for qualitative research* (1967).

59) Glaser B G ‘Constructivist Grounded Theory?’ (2002) 3 *Journal for Qualitative Social Research* 1,18.

60) Glazewski J & du Toit L *Environmental Law in South Africa* (2013).

61) Guba E G, & Lincoln Y S ‘Competing paradigms in qualitative research’ in Denzin N & Lincoln Y S (eds) *The landscape of qualitative research: Theories and issues* (1998) 105, 117.

62) Guba E G ‘Criteria for assessing the trustworthiness of naturalistic inquiries’ (1981) 29 *Educational Communication and Technology Journal* 75, 80.

63) Goudie A S *The nature of the environment* (1984).

64) Greg B *Empire Forestry and the Origins of Environmentalism* (2002).

65) De Groot R et al ‘Challenges in integrating the concept of ecosystem services and values in landscape planning, management and decision making’ (2010) 7 *Ecological Complexity* 260, 272.

66) Gifford J C *Living by the Land* (1945).

67) Godschalk D R ‘Land Use Planning Challenges: Coping with Conflicts in Visions of Sustainable Development and Liveable Communities’ 2004 (70) *Journal of the American Planning Association* 5.

68) Goagoase F *Planning Law in Namibia* (2013) 29.

69) Harrison P & A Todes ‘The use of spatial frameworks in regional development in South Africa’ (2001) 35 *Regional Studies* 65, 72.

70) Harrison P ‘Integrated development plans and Third Way Politics in Democracy and Delivery’ in *U Pillay, R Tomlinson & J du Toit Democracy and Delivery* (2006) 186, 207.

71) Hansen A J & DiCastri F *Landscape boundaries: Consequences for biotic diversity and ecological flow* (1992).

72) Hays S P *Conservation and the Gospel of Efficiency: The Progressive Conservation Movement 1890-1920* (1959).

73) Hazlewood P, Kulshrestha G & McNeill C 'Linking Biodiversity Conservation and Poverty Reduction to Achieve the Millennium Development Goals' in D Roes (eds) *The Millennium Development Goals and Conservation UNDP* (2005) 158.

74) Hise C R *The conservation of natural resources in the United States* (1910).

75) Holness S D & Biggs H C 'Systematic conservation planning and adaptive management' (2011) 53 *Koedoe* 1, 9.

76) Huffman T 'Mapungubwe and the Origins of the Zimbabwe Culture' (2000) 8 S*outh African Archaeological Society Goodwin Series* 14, 29.

77) Huffman T 'Mapungubwe and Great Zimbabwe: The origin and spread of social complexity in southern Africa' (2009) 28 Journal of Anthropological Archaeology 37, 54.

78) Hughes P & F Flintan 'Integrating Conservation and Development Experience: A Review and Bibliography of the ICDP Literature' *Environment and Development* (2001) 1, 23.

79) Jabareen Y 'A New Conceptual Framework for Sustainable Development' (2008) 10 *Environ Dev Sustain* 179, 188.

80) J Jesson *Doing Your Literature Review: Traditional and Systematic Techniques* (2011).

81) Karagiorgi Y and Symeou L 'Translating Constructivism into Instructional Design: Potential and Limitations' (2005) 8 *Journal of Educational Technology & Society* 17, 27

82) Kidd M *Environmental Law* 2 ed (2011).

83) Kotzé L J 'Improving unsustainable environmental governance in South Africa: The case for holistic governance' (2006) 9 *Potchefstroom Electronic Law Journal* 75, 261.

84) Kosmus M, Renner I & Ullrich S *Integrating Ecosystem Services into Development Planning* (2012).

85) Kates R W et al ‘Sustainability Science’ (2001) 292 *Science* 641, 642.

86) Klein H K & Myers M D ‘A set of principles for conducting and evaluating interpretive field studies in information systems’ (1999) 23 *Management Information Systems Quarterly* 67, 94.

87) S Kidd & A Plater *The Ecosystem Approach to Marine Planning and Management* (2011).

88) Kroeze I ‘Legal Research Methodology and the Dream of Interdisciplinarity’ (2013) 16 *Potchefstroom Electronic Law Journal* 336, 392.

89) Kawakami M et al *Spatial Planning and Sustainable Development: Approaches for Achieving Sustainable* (2013).

90) Kunzmann K ‘The Europeanization of spatial planning’ in N Adams, J Alden & N Harris (eds) *Regional Development and Spatial Planning in an Enlarged Europe* (2006) 43, 64.

91) Kuhn T S *The Structure of Scientific Revolutions* 2 ed (1970) 43.

92) Lather P ‘Research as Praxis’ (1986) 56 *Harvard Educational Review* 257, 277.

93) Lester S *An Introduction to Phenomenological Research* (1999).

94) Ligtenberga A et al ‘A design and application of a multi-agent system for simulation of multi-actor spatial planning’ (2004) 72 *Journal of Environmental Management* 43, 55.

95) Lindenmayer D et al. ‘A checklist for ecological management of landscapes for conservation’ (2008) 11 *Ecology Letters* 78, 91.

96) Lincoln Y S & Guba E G *Naturalistic inquiry* (1985).

97) Low N ‘Eco-Socialisation and Environmental Planning: A Polanyian Approach’ (2002) 34 *Environment and Planning* 43,58.

98) Meadows D H et al *The limits to growth Meadows* (1972).

99) Malthus T R *An Essay on the Principle of Population* (1798).

100) Magraw D B & Hawke L D 'Sustainable Development' in D Bodansky et al (eds) *The Oxford Handbook of International Environmental Law* 613, 635.

101) Mapesa M W 'Heritage: Conservation vs Development Challenging Our Attitudes' 15th ICNT Entebbe, Uganda September 30, 2013.

102) Marais F P et al 'Environmental management frameworks: results and inferences of report quality performance in South Africa' (2015) 97 *South African Geographical Journal* 83, 99.

103) Marais D L, Quayle M & Burns J K 'The role of access to information in enabling transparency and public participation in governance: a case study of access to policy consultation records in South Africa' (2017) 9 *African Journal of Public Affairs* 36, 49.

104) Marten G 'Environmental Tipping Points: A New Paradigm for Restoring Ecological Security' (2005) 20 *Journal of Policy Studies* 20, 75.

105) Martin J R *Notes on the medical topography of Calcutta* (1837).

106) Margerum R 'Integrated Environmental Management: The Foundations for Successful Practice' (1995) 24 *Environmental Management* 152, 164.

107) Mandy L 'Sectoral integration and meta-governance: lessons beyond the spatial planning agenda in England' (2014) 85 *The Town Planning Review* 37, 85.

108) Mason J *Qualitative Researching* 2 ed (2002).

109) Maxwell J A *Qualitative Research Design: An Interactive Approach* (1996).

110) Maxwell J A *Qualitative Research Design* 2 ed (2004).

111) Mertens D M *Research methods in education and Psychology: Integrating diversity with quantitative and qualitative approaches* (1998).

112) Middleton J, Goldblatt M, Jakoet J & Palmer I. 2011 *Environmental Management and Local Government* PDG Occasional Paper No. 1.

113) Miles M B & Huberman A M *Qualitative data analysis: An expanded sourcebook* 3 ed (1994).

114) Mishler E G 'Validation in Inquiry-Guided Research: The Role of Exemplars in Narrative Studies' (1990) 60 *Harvard Educational Review* 415, 442.

115) Mitchell A H *Colonel Roosevelt and the White House Gang* (2016).

116) McDiarmid N '*Implementing Spatial Planning for Government'* 2005 (3) IMIESA 31, 45.

117) Moffat K et al '*The Social Licence to Operate: A Critical Review'* (2016) 89 *Journal of Forest Research* 477, 488.

118) Mouton J & Marais H C *Basic Concepts in the Methodology of the Social Sciences* 5 ed (1996).

119) Morse J & Richards L *Readme First for A User's Guide to Qualitative Methods* (2002).

120) Murombo T 'Beyond Public Participation: The Disjuncture between South Africa's Environmental Impact Assessment (EIA) Law and Sustainable Development' (2008) 11 *Potchefstroom Electronic Law Journal* 106, 169.

121) Naganna N 'Conservation and Environment: Implications in Theory, Practice and Policy' (2001) 164 *IIM Bangalore Research Paper*.

122) Olsen M E, Lodwick D G & Dunlop R E *Viewing the world Ecologically* 6 ed (1992).

123) Owosuyi I L 'The pursuit of sustainable development through cultural law and governance frameworks: A South African perspective' (2015) 18 *Potchefstroom Electronic Law Journal* 2012, 2017.

124) O'Farrell P J & Anderson P M 'Sustainable Multifunctional Landscapes: A Review to Implementation' (2010) 2 *Current Opinion in Environmental Sustainability* 59, 65.

125) Paterson A R 'Co-Managing South Africa's Land Reform and Conservation Agendas: Evaluating Recent Initiatives to Resolve the Unruly Interface Thrust Upon South Africa's Protected Areas' (2010) 17 *South African Journal of Environmental Law and Policy* 97, 125

126) Paterson A R 'Biodiversity, Protected Areas and Climate Change: An Assessment of the Potential of Connectivity Conservation Law in South Africa' in T Humby et al (eds) *Climate Change: Law and Governance in South Africa* (2016) 29.

127) Paterson A R 'Connectivity conservation law through the eyes of the greater Cederberg Biodiversity Corridor' in M Diegues Leuzinger et al The Legal Aspects of Connectivity Conservation: Case Studies (2013) 116, 136.

128) Pieterse J N 'Globalization North and South' (2000) 17 *Theory Culture & Society* 129, 132.

129) Pasquero J 'Supraorganizational collaboration: The Canadian environmental experiment' (1991) 27 *Journal of Applied Behavioral Science* 25, 30.

130) Paul B D 'A history of the concept of sustainable development: Literature review' (2008) 17 *Economic Science 576*, 579.

131) Petrosillo I, Aretano R & Zurlini G, 'Socioecological systems' in S A Elias (ed) *Earth Systems and Environmental Sciences* (2015) 1991–2010.

132) Polit D & Tatano-Beck C 'Generalization in quantitative and qualitative research: Myths and strategies' (2010) 47 *International Journal of Nursing Studies* 1451, 1452.

133) Pimbert M P & Pretty J N 'Diversity and sustainability in community based conservation' Paper presented at the UNESCO-IIPA regional workshop on Community-based Conservation (February 1997).

134) Pressey R L 'Priority conservation areas: Towards an operational definition for regional assessments' in *National parks and protected areas: Selection, delimitation, and management* (eds) J J Pigram and R. C. Sundell, (1997) 337, 357.

135) Retief F P & Sandham L A 'Implementation of Integrated Environmental Management (IEM) as Part of Integrated Development Planning' (2001) 8 *Journal of Environmental Law and* Policy 77,79.

136) Retief F, Welman C & Sandham L 'Performance of environmental impact assessment (EIA) screening in South Africa: a comparative analysis between the 1997 and 2006 EIA regimes' (2011) 2 *South African Geographical Journal* 154, 158.

137) Sachs I *Social sustainability and whole development: exploring the dimensions of sustainable development* (1999).

138) Sallenave, J 'Giving Traditional Ecological Knowledge Its Rightful Place in Environmental Assessment, Northern Perspectives' (1994) 22 *Canadian Artic Resource* 684, 694.

139) Salet W, & Faludi A, 'Three approaches to strategic spatial planning' in W Salet & A Faludi (eds) *The revival of strategic spatial planning* (2000) 155, 172.

140) Sayer J et al 'Ten principles for a landscape approach to reconciling agriculture, conservation, and other competing land uses' (2013) 110 *Proceedings of the National Academy of Sciences* 8349, 8351.

141) Sayer J 'Reconciling conservation and development: are landscapes the answer?' (2009) 41 *Biotropica* 649, 652.

142) Schelhas J & Lassoie J P 'Learning Conservation and Sustainable Development: An Interdisciplinary Approach' (2001) 30 *Journal of Natural Resources and Life Sciences Education* 111, 119.

143) Selman P 'Community participation in the planning and management of cultural Landscapes' (2004) 47 *Journal of Environmental Planning and Management* 365, 392.

144) Silverman D *Qualitative Research: Theory, Method, Practice* (1997).

145) Silverman D *Doing Qualitative Research: A Practical Handbook* (2000).

146) Slocombe D S 'Implementing ecosystem-based management' (1993) 43 *Journal of Biosciences* 612, 622.

147) Sharachchandra L M 'Sustainable Development: A Critical Review' (1991) 19 *World Development* 607, 613.

148) Snyman L G 'Environmental management frameworks: balancing environmental and developmental imperatives in sensitive areas' 117 (2017) *Journal of the Southern African Institute of Mining and Metallurgy* 19, 24.

149) Stebbing E P *The forests of India* (1922).

150) Strydom H A & King N D (eds) *Environmental Management in South Africa* 2 ed (2009).

151) Sokolowski R *Introduction to Phenomenology* 8 ed (2000).

152) Yang T & Percival R 'The Emergence of Global Environmental Law' (2009) 36 *Ecology Law Quarterly* 615, 664.

153) S M Ravitch & M Riggan *Reason & Rigor: How Conceptual Frameworks Guide Research* (2011).

154) Reed J, Deakin E & Sunderland T 'What are 'Integrated Landscape Approaches' and how effectively have they been implemented in the tropics: a systematic map protocol (2015) 4 *Environmental Evidence* 1, 7.

155) Reed J et al 'Have integrated landscape approaches reconciled societal and environmental issues in the tropics?' (2017) 63 *Land Use Policy* 481, 482.

156) Reed J et al ‘Integrated landscape approaches to managing social and environmental issues in the tropics: learning from the past to guide the future’ (2016) 22 G*lobal Change Biology* 2540, 2548.

157) Reed M G & Massie M M ‘Embracing Ecological Learning and Social Learning: UNESCO Biosphere Reserves as Exemplars of Changing Conservation Practices’ (2013) 11 *Conservation and Society* 391,392.

158) Reeves T C & Hedberg J G *Interactive learning systems evaluation* (2003).

159) Redford K, Padoch C & Sunderland T ‘Fads, funding and forgetting in three decades of conservation’ (2013) 27 *Conservation Biology* 437, 438.

160) Ribot J *Democratic decentralization of natural resources: institutionalizing popular participation* (2002).

161) Retief F et al ‘Performance of environmental impact assessment (EIA) screening in South Africa: a comparative analysis between the 1997 and 2006 EIA regimes’ (2011) 93 *South African Geographical Journal* 154, 171.

162) Ritchie J & Lewis J (eds) *Qualitative Research Practice: A Guide for Social Science Students and Researchers* (2003).

163) Ronchi S, *Ecosystem Services for Spatial Planning: Innovative Approaches to and Challenges for Practical Applications* (2018).

164) Russell C L ‘An overview of the integrative research review’ (2005) 15 *Progress in Transplantation* 8, 13.

165) Saunders M et al *Research Methods for Business Students* 5 ed (2009).

166) Schmidt S & Buehler R ‘The planning process in the US and Germany: A comparative analysis’ 2007 (12) *International Planning Studies* 65.

167) Seale C *The Quality of Qualitative Research* 2 ed (1999).

168) Selltiz C et al *Research methods in social relations* 3 ed (1976).

169) Scherr S et al Defining Integrated Landscape Management for Policy Makers (2013) 10 *Ecoagriculture Policy Focus* 1, 8.

170) Singh N J 'Tackling the motivation to monitor: success and sustainability of a participatory monitoring program' (2014) *Ecology and Society* 1.

171) Simon M K *Dissertation & Scholarly Research: Recipes for success* (2010).

172) Simeonova V et al *Natura 2000 and Spatial Planning European Commission* (2017).

173) Slootweg R, et al *Biodiversity in Environmental Assessment: Enhancing ecosystem services for human wellbeing* (2012).

174) Smith P J & Ragan T J 'A framework for instructional strategy design' in Smith P L, & Ragan T J (eds) *Instructional design* (2005) 127, 150.

175) Smith H D et al 'The integration of land and marine spatial planning' (2011) 15 *Journal of Coast Conservation* 291, 303.

176) Strauss A & Corbin L *Basics of Grounded Theory Methods* 4 ed (2015).

177) M Terre Blanche & Durrheim K (eds) Research in practice: Applied methods for the social sciences (2008).

178) Tewdwr-Jones M 'Spatial planning: Principles, practice and culture (2004) 57 *Journal of Planning and Environment Law* 593.

179) Tewdwr-Jones M, Gallent N & Morphet J 'An Anatomy of Spatial Planning: Coming to Terms with the Spatial Element in UK Planning' (2010) 18 *European Planning Studies* 183, 290.

180) Todes A 'Rethinking Spatial Planning' (2008) 53 *Town and Regional Planning* 10, 14.

181) Todes A, Sim V & Sutherland C 'The relationship between planning and environmental management in South Africa: The Case of KwaZulu-Natal' (2009) 24 *Planning, Practice &* Research 412.

182) Todes A & Karam A 'Beyond master planning? New approaches to spatial planning in Ekurhuleni, South Africa' (2010) 34 *Habitat International* 414, 420.

183) Uzonwanne F Global Encyclopedia of Public Administration, Public Policy, and Governance (2016).

184) Van Zon A et al 'Structural domains of vault proteins: A role for the coiled coil domain in vault assembly' (2002) 291 *Biochem Biophys Research Communications* 535, 541.

185) Van Assche K & Djanibekov D 'Spatial planning as policy integration: The need for evolutionary perspective' 2012 (29) *Land Use Policy* 179, 186.

186) Van der Schyff E 'Unpacking the public trust doctrine: a journey into foreign territory' (2010) 13 *Potchefstroom Electronic Law Journal* 122, 189.

187) Viederman S 'A Sustainable Society: What Is It? How Do We Get There?' (1993) 10 *The George Wright Forum* 34,35.

188) Van Wyk J "Planning In All Its (Dis)Guises: Spheres Of Government, Functional Areas and Authority" (2012) Vol.15 No.5 *Potchefstroom Electronic Journal* 288-318.

189) V an Wyk J *Planning Law* (1999).

190) Van Wyk J & Oranje M 'The post-1994 South African spatial planning system and Bill of Rights: A meaningful and mutually beneficial fit?' 2014 (3) *Planning Theory* 354, 365

191) Van der Valk A 'The Dutch Planning Experience' 2002 (58) Landscape and Urban Planning 201, 210.

192) Wyte A V *Building a New South Africa, Environment, Reconstruction and Development* 4 ed (1995).

193) Walker B & Salt D *Resilience Thinking: Sustaining Ecosystems and People in a Changing World* (2006).

194) Webster J & Watson R T 'Analyzing the Past to Prepare for the Future: Writing a Literature Review' (2002) 26 *Management Information Systems Quarterly* 13, 23.

195) Wiggering H et al 'The Concept of Multifunctionality in Sustainable Land Development' in Helming K & Wiggering H (eds) *Sustainable Development of Multifunctional Landscapes* (2003) 1, 16.

196) Worster D *The Wealth of Nature: Environmental History and the Ecological Imagination* (1993).

197) Wynberg R, 'A decade of biodiversity conservation and use in South Africa: tracking progress from the Rio Earth Summit to the Johannesburg World Summit on Sustainable Development' (2002) 98 *South African Journal of Science* 233,234.

198) Wynberg R & Swiderska K *South Africa's experience in developing a policy on biodiversity and access to genetic resources* (2001).

199) Yilmaz K 'Comparison of Quantitative and Qualitative Research Traditions: Epistemological, Theoretical, and Methodological Differences' (2013) 48 *European Journal of Education* 673-684.

200) Yin R K *Case Study Research: Design and Methods* 3 ed (2003)

201) Yin R K *Case Study Research: Design and Methods* 5 ed (2009)

202) Yin R K *Case Study Research: Design and Methods* 6 ed (2014)

203) Yin R K 'The Case Study as a Serious Research Strategy' (1981) 3 *Knowledge: Creation, Diffusion, Utilization.*

Plans, Guidelines and Strategies

1) Department of Environmental Affairs and Tourism. Environmental Management Framework for the Cradle of Humankind World Heritage Site, its proposed buffer zone and Muldersdrift area (July 2011). Produced by SRK Consulting.

2) Department of Environmental Affairs. National Strategy for Sustainable Development and Action Plan (NSSD 1) 2011–2014, (23 November 2011).

3) Department of Environmental Affairs and Tourism. Environmental Management Framework for the Garden Route Report (January 2010). Produced by Earth Incorporated.

4) Department of Environmental Affairs and Tourism. Guideline 6 of the Integrated Environmental Management Guideline for Environmental Management Framework Regulations, 2010.

5) Department of Environmental Affairs. Environmental Management Framework for the Vredeforte Dome, (September 2013), Produced by the Centre for Environmental Management, North-West University.

6) Department of Environmental Affairs. Environmental Management Framework for the Mapungubwe Cultural Landscape World Heritage Site (November 2014), Produced by NEMAI Consulting.

7) Department of Environmental Affairs. National Protected Areas Expansion Strategy for South Africa (2008).

8) Department of Environmental Affairs. National Biodiversity Strategy and Action Plan (2005). Produced by Linkd Environmental Services

9) Driver A et al National Biodiversity Assessment 2011: An assessment of South Africa's biodiversity and ecosystems. SANBI (2012).

10) Department of Environmental Affairs. Mining and Biodiversity Guideline: Mainstreaming biodiversity into the mining sector (2013).

11) Department of Environmental Affairs. National Protected Areas Expansion Strategy for South Africa (2008)

12) Department of Environmental Affairs. National Protected Areas Expansion Strategy for South Africa (2016).

13) Department of Environmental Affairs. Environmental Management Framework (EMF) for the Mapungubwe Cultural Landscape World Heritage Site' (2014). Produced by NEMAI Consulting.

14) Department of Environmental Affairs. Mapungubwe Cultural Landscape World Heritage Site EMF' Status Quo Report (2014). Produced by NEMAI Consulting.

15) Department of Environmental Affairs. Environmental Management Framework for the Stellenbosch (June 2014). Produced by Stellenbosch Municipality: Division of Spatial Planning, Heritage and Environment.

16) Department of Economic Development, Environment and Tourism Limpopo. Limpopo Development Plan. (2015-2019).

17) Department of Water and Sanitation. National Water Resource Strategy 2 (2013).

18) Desmet P G et al. Limpopo Conservation Plan v.2: Technical Report (2013). Produced by ECOSOL GIS.

19) Limpopo Provincial Government. Spatial Development Framework (2007).

20) Musina Local Municipality. Environmental Management Plan. (undated).

21) Musina Local Municipality. Integrated Development Plan (2018/19).

22) Musina Local Municipality 'Spatial Development Framework' (2014/2015).

23) Presidency Republic of South Africa, National Planning Commission (2012) National Development Plan 2030.

24) SANParks. Coordinated policy framework governing park management plans' (2006).

25) SANParks. Mapungubwe National Park and World Heritage Site Management Plan (2013-2018).

26) SANParks. A Framework for Developing and Implementing Management Plans for South African National Parks. (undated) 52.

27) SANParks. Mapungubwe Park Management Plan. (2008).

28) Strategic Environmental Focus. Vhembe Biosphere Reserve Initial SEMP: Status Quo Report' (August 2016).

29) Strategic Environmental Focus. Vhembe Biosphere Reserve Initial SEMP: Desired State of the Environment Report with Environmental Management Guidelines. (September 2016).

30) United Nations Educational, Scientific and Cultural Organization. Global Biosphere Reserve Strategy 2015-2025., Man and Biosphere Programme (2015) 19,12.

31) United Nations Environment Programme, Secretariat of the Convention on Biological Diversity. Strategic Action Plan for Biodiversity 2011-2020.

32) Vhembe District Municipality. Draft Integrated Environmental Plan. (2008).

33) Vhembe District Municipality. Integrated Development Plan (2016/17).

34) Vhembe District Municipality. Spatial Development Framework. (2014).

Reports

1) Aaron S 'Evaluating the Role of Spatial Planning and Environmental Impact Assessment in Facilitating Environmentally Appropriate Development: The Case of Big Bay Development In Blaauwberg' (2009).

2) Abrahams G & Berrisford S 'Addressing the crisis of planning law reform in South Africa' (2012) South African Cities Network.

3) Amer W, Ashong S & Tiomoko D 'Management Manual for UNESCO Biosphere Reserves in Africa. German Commission for UNESCO' (2015).

4) Borrini-Feyerabend G, Kothari A & Oviedo G 'Indigenous and Local Communities and Protected Areas: Towards Equity and Enhanced Conservation' (2004) International Union for Conservation of Nature.

5) Brownlie S & Wynberg R 'The integration of biodiversity into national environmental assessment procedures: South African case study' UNDP (2001) 6.

6) Cadman M et al 'Biodiversity for Development: South Africa's Landscape Approach to Conserving Biodiversity and Promoting Ecosystem Resilience' (2010) South African National Biodiversity Institute.

7) Cape Action Plan for the Environment 'A Biodiversity Strategy and Action Plan for the Cape Floral Kingdom World Wide Fund for Nature South Africa'(2000).

8) Centre for Applied Legal Studies 'Changing Corporate Behaviour: The Mapungubwe Case Study: A Research Report' (2014).

9) Centre for Environmental Studies (1970) 25 'The LOGIMP Experiment', Information Paper.

10) Convention of Biological Diversity Report on How to Improve Sustainable Use of Biodiversity in A Landscape Perspective (4 August 2011) UNEP/CBD/SBSTTA/15/1/Rev.1.

11) Department of Environmental Affairs 'Development of a Core Set of Environmental Performance Indicators' (2004).

12) Department of Environmental Affairs and Tourism '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' (2013).

13) Department of Rural Development and Land Reform 'Guidelines for the Development of Provincial, Regional and Municipal Spatial Development Frameworks and Precinct Plans' (September 2014).

14) Department of Rural Development and Land Reform, Guidelines for the Formulation of Spatial Development Frameworks (August 2011).

15) Dudley N 'Guidelines for Applying Protected Area Management Categories' (2008) International Union for Conservation of Nature.

16) Driver A et al National Spatial Biodiversity Assessment 2004: Summary Report South African National Biodiversity Institute (2004).

17) Driver A 'Implementation Manual for Freshwater Ecosystem Priority Areas' Water Resource Commission (2011).

18) Encyclical Letter Laudato Si' of The Holy Father Francis 'Care for Our Common Home' (24 May 2015).

19) French W, Natarajan L 'Self-diagnostic Assessments of the Capacity for Planning Worldwide' (2008) Key Finding Report, Global Planners Network.

20) Huntley B J & Redford K H (2014) Mainstreaming biodiversity in practice: A STAP advisory document Global Environment Facility.

21) Korn H, Bockmühl K & Schliep R 'Report of the European expert meeting in preparation of SBSTTA-15', 26-28 September, 2011. Bonn, Germany: Bundesamt für Naturschutz; 2011.

22) Kumleben M, Sangweni S & Ledger J 'Board of Investigation into the Institutional Arrangements for Nature Conservation in South Africa' (1998) Report to the Minister for Environmental Affairs and Tourism.

23) Limpopo Economic Development, Environment and Tourism Limpopo 'Limpopo Environmental Outlook Report' (2016).

24) Limpopo Department of Economic Development, Environment and Tourism 'Vhembe District Bioregional Plan' (December 2017).

25) Macfarlane D & Bredin I 'Buffer Zone Guidelines for Rivers, Wetlands and Estuaries' Water Research Commission (2017).

26) Midgley G 'Climate Change and Terrestrial Biodiversity in South Africa: Review prepared for the 2nd National Communication on Climate Change in South Africa, unpublished technical report (2009) SANBI.

27) Paterson A R 'Legal Framework for Protected Areas: South Africa' IUCN Environmental Policy and Law 81 (2009).

28) Peace Parks Foundation 'Greater Mapungubwe Transfrontier Conservation Area Integrated Development Plan' (February 2010).

29) Peace Parks Foundation 'Annual report' (2012).

30) Republic of South Africa President's Council (1984) Report of the Planning Committee of the President's Council on Nature Conservation in South Africa PC2/1984.

31) Report of the World Summit on Sustainable Development (2002) A/CONF.199/20.

32) SANParks 'Environmental Management Plan: Construction Activities' (undated) 3.

33) SANBI 'Biodiversity Mainstreaming Toolbox for land-use planning and development in Gauteng' (2014) 27.

34) SANBI 'A Human Capital Development Strategy for the Biodiversity Sector: 2010 – 2030' (2010).

35) SANBI 'Lexicon of Biodiversity Planning in South Africa' Beta Version (June 2016).

36) Shadie P 'Connectivity Conservation: International experience in planning and management of biodiversity corridors' (2007) IUCN Background Paper.

37) Space Economy: An important consideration in spatial development planning, The South African Cities Network (19 April 2013).

38) South African Local Government Association 'An introduction to Municipal Planning within South Africa' (2011) South African Planning Institute.

39) Swiderska K 'Mainstreaming biodiversity in development policy and planning: A review of country experience' (2002) International Institute for Environment and Development.

40) South African Strategy for the Biosphere Reserve Programme (2016-2020), Department of Environmental Affairs (2015) 13.

41) Thiaw I et al 'Food and ecological security: Identifying synergies and trade-offs UNEP Policy Series. Ecosystem Management (2011).

42) United Nations Economic Commission for Europe 'Spatial Planning: Key Instrument for Development and Effective Governance with Special Reference to Countries in Transition (2008).

43) United States General Accounting Office 'Siting of hazardous waste landfills and their correlation with racial and economic status of surrounding communities' (14 June 1983).

44) Wittmer H 'TEEB for Local Policy Makers: The Economics of Ecosystems and Biodiversity' 1 ed (2010).

45) World Commission on Environment and Development 'Our common future' (1987) UN Doc A/42/427 (Brundtland Report).

Legislation, regulations and treaties

1) Constitution of the Republic of South Africa Act No.108 of 1996.

2) Cultural Heritage Survey Guidelines and Assessment Tools for Protected Areas in South Africa GNR 1356 in GG 41306 of 8 December 2017.

3) European Charter for Regional/Spatial Planning (Torremolinos Charter) of 1983.

4) Cocoyoc Declaration of 1974.

5) Convention on Biological Diversity of 2000.

6) Department of Environmental Affairs 'National Strategy for Sustainable Development and Action Plan (2011).

7) Department of Environmental Affairs, Environmental Management Frameworks: Guideline 6 (2012).

8) Department of Land Affairs, White Paper on South African Land Policy (1997).

9) Development Facilitation Act 67 of 1995.

10) General Environmental Policy GN R 51 in GG 15428 of 21 January 1994.

11) Green Paper on Development and Planning GN 626 in Government Gazette No. 20071 of 21 May 1999.

12) Infrastructure Development Act No. 23 of 2014 (IDA).

13) Intergovernmental Relations Framework Act No. 13 of 2005.

14) Kwazulu-Natal Planning and Development Act 6 of 2008

15) Less Formal Township Establishment Act No. 113 of 1991.

16) London Dumping Convention.

17) Municipal Planning and Performance Management Regulations Management. Regulations GN R 796 in GG 22605 of 24 August 2001.

18) Natal Private Township and Town-Planning Ordinance 10 of 1934.

19) National Biodiversity Framework GN 813 in GG No. 32474 of 3 August 2009.

20) National Environmental Management Act No. 107 of 1998.

21) National Environment Management: Protected Areas Act No. 57 of 2003.

22) National Environment Management Act: Biodiversity Act No. 10 of 2004.

23) National Heritage Resources Act No. 49 of 1999.

24) National Water Act No. 36 of 1998.

25) National Environmental Management Act: Environmental Impact Assessment Regulations GN R 982 in GG 38282 of 4 December 2014.

26) National Environmental Management Act: Environmental Impact Assessment Listing Notices GN R 983, 984 & 985 in GG 38282 of 4 December 2014.

27) National Environmental Management: Biodiversity Act (Act 10 Of 2004): National Biodiversity Framework (GNR 813 in GG 32474 of 3 August 2009).

28) National Environmental Management: Biodiversity Act: National list of ecosystems that are threatened and in need of protection GNR 1002 in GG 34809 of 9 December 2011.

29) National Environmental Management: Biodiversity Act: Publication of norms and standards for biodiversity management plans for ecosystems GNR 532 in GG 35486 2 July 2012.

30) National Environmental Management: Biodiversity Act No. 10 of 2004 'Guideline regarding the determination of bioregions and the preparation of and publication of bioregional plans' GNR 291 in GG 32006 of 16 March 2009.

31) National Environmental Management: Biodiversity Act No. 10 of 2004: Norms and standards for biodiversity management plans for ecosystems GNR 83 in GG 27302 of 7 February 2014.

32) National Environmental Management: Biodiversity Act No. 10 of 2004 National List of Threatened Ecosystems GN R 1447 in GG 32689 of 6 November 2009.

33) National Environmental Management: Biodiversity Act No. 10 of 2004: Draft National List of Threatened Ecosystems GN R 1477 in 32689.

34) National Environmental Management Act: Environmental Management Framework Regulations GN R 547 in GG 33306 of 18 June 2010.

35) National Environmental Management: Protected Areas Act: Biodiversity Policy and Strategy for South Africa: Strategy on Buffer Zones for National GN R 106 in GG 35020 of 8 February 2012.

36) National Environmental Management: Protected Areas Act No.57 of 2003: Norms and Standards for the Management of Protected Areas in South Africa GN R 382 in GG 39878 of 31 March 2016).

37) Northern Cape Planning and Development Act No. 7 of 1998.

38) Orange Free State Townships Ordinance 20 of 1947.

39) Physical Planning Act No. 88 of 1967

40) Physical Planning Act No. 125 of 1991.

41) Reconstruction and Development Programme 1994.

42) Removal of Restrictions Act No. 84 of 1967.

43) Rio Declaration on Environment and Development of 1992. A/CONF.151/26 (Vol 1).

44) Spatial Planning and Land Use Management White Paper GN R 1658 in GG 22473 of 20 July 2001.

45) Spatial Planning and Land Use Management Act No. 16 of 2013.

46) Strategy on Buffer Zones for National Parks GN R 106 in GG 35020 of 8 February 2012.

47) Transvaal Townships and Town Planning Ordinance 11 of 1931.

48) Township Ordinance (Cape) 22 of 1934.

49) UN Millennium Declaration of 8 September 2000. A/RES/55/2.

50) Western Cape Land and Development Act and Gauteng Planning and Development Act No.3 of 2003.

51) White Paper on Conservation and Sustainable Use of South Africa's Biological Diversity (1997).

52) White paper on reconstruction and development GN 1954 in GG No. 16085 of 23 November 1994.

53) World Heritage Convention Act No. 49 of 1999.

Case Law

1) *Bengwenyama Minerals (Pty) Ltd and Others v Genorah Resources (Pty) Ltd and Others* (4) SA 113 (CC).

2) *Camps Bay Ratepayers and Residents Association and Others v Minister of Planning, Culture and Administration Western Cape* 2001 (4) SA 294 (C).

3) *City of Cape Town v Provincial Minister of Local Government, Environmental Affairs and Development Planning in the Western Cape and Others* 2011 (4) All SA 270 (WCC).

4) *City of Johannesburg Metropolitan Municipality v Gauteng Development Tribunal and Others* 2010 6 SA 182 (CC).

5) *City of Johannesburg Metropolitan Municipality v Gauteng Development Tribunal* 2008 (4) SA 572 (W)

6) *City of Johannesburg Metropolitan Municipality v Gauteng Development Tribunal* 2010 (2) SA 554 (SCA); 2010 (2) BCLR 157 (SCA).

7) *Fuel Retailers Association of Southern Africa v Director-General: Environmental Management, Department of Agriculture, Conservation and Environment, Mpumalanga Province and Others* 2007 (6) SA 4 (CC); 2007 (10) BCLR 1059 (CC).

8) *HTF Developers (Pty) Ltd v Minister of Environmental Affairs and Tourism* (24371/05) [2006] ZAGPHC 132 (28 March 2006).

9) *King v Dykes* 1971(3) SA 540 (RA).

10) *Le Sueur and Another v Ethekwini Municipality and Others* (9714/11) [2013] ZAKZPHC 6 (30 January 2013).

11) *Maccsand (Pty) Ltd v City of Cape Town* 2012 4 SA 181 (CC).

12) *Magaliesberg Protection Association v MEC: Department of Agriculture, Conservation, Environment and Rural Development, North West Provincial Government and Others* (563/12) [2013] ZASCA 80.

13) *Minister of Local Government, Environmental Affairs and Development Planning, Western Cape v The Habitat Council and Others; Minister of Local Government, Environmental Affairs and Development Planning, Western Cape v City of Cape Town and Others* (117/13) [2014] ZACC 9; 2014 (5) BCLR 591 (CC); 2014 (4) SA 437 (CC) (4 April 2014).

14) *Minister of Local Government, Environmental Affairs and Development Planning of the Western Cape v Lagoonbay Lifestyle Estate (Pty) Ltd and Others* 2011 4 All SA 270 (WCC).

15) *Minister of Public Works and Others v Kyalami Ridge Environmental Association and Others* 2001 (3) SA 1151 (CC).

16) *S v Smith* (2008) SA 135.

17) *Shelfplett 47 (Pty) Ltd v MEC for Environmental Affairs and Development Planning* 2012 3 SA 441 (WCC).

18) *Swartland Municipality v Louw* 2010 5 SA 314 (WCC).

19) Tronox KZN Sands (Pty) Ltd v KwaZulu-Natal Planning and Development Appeal Tribunal.

20) *Wary Holdings (Pty) Ltd v Stalwo (Pty) Ltd* 2009 1 SA 337 (CC).

21) *Wary Holdings (Pty) Ltd v Stalwo (Pty) Ltd and Others* 2008 (11) BCLR 1123 (CC).

Websites

1) J Stacey 'Mining in Sensitive Areas' Available at: http://www.enviropaedia.com/topic/default.php?topic_id=332

2) M Jovanovid 'Legal Methodology & Legal Research and Writing: A Very Short Introduction' (undated). Available at: http://pogestei.ius.bg.ac.rs/docs/Legal%20methodology%20and%20legal%20research%20and%20writing.pdf.

3) http://www.sanbi.org.

4) https://www.mylexisnexis.co.za/auth/SignOn.aspx

5) 'Juta Law' available at: http://www.jutalaw.co.za/; '

6) West Law' available at: http://web2.westlaw.com/;

7) 'Saflii' available at: http://www.saflii.org/.

8) 'United Nations Millennium Development Goals' Available at: http://www.un.org/millenniumgoals/environ.shtml.

9) SANBI ‘Mainstreaming biodiversity into land-use regulation and management at the municipal scale: Midterm review report’ (2017). Available at: https://www.sanbi.org/wp-content/uploads/2018/03/biodiversity-and-land-use-project-midterm-review-report-november-2017-1.pdf.

10) SANBI ‘Biodiversity advisor: Planning and assessment’ Available at: http://biodiversityadvisor.sanbi.org/planning-and-assessment/environmental-assessments/what-us-bioregional-planning/systematic-biodiversity-planning/.

11) T Sunderland Landscape approach defies simple definition - and that's good Centre for International Forestry Research (27 August 2014) Forests News Available at: https://forestsnews.cifor.org/23834/landscape-approach-defies-simple-definition-and-thats-good?fnl=en.

12) Alliance for Water Stewardship (2014) The AWS International Water Stewardship Standard. Available at: a4ws.org/our-work/aws-system/the-aws-standard/.

13) P Murray ‘Zoning matters: A ‘SPLUMA’ score-card one year on’ De Rebus (2016) Available at: http://www.derebus.org.za/zoning-matters-spluma-score-card-one-year/.

14) Y Groenewald ‘Mapungubwe mining go-ahead’ Mail and Guardian 5/08/2010. Available at: https://mg.co.za/article/2011-09-02-mapungubwe-mining-goahead.

15) Peace Parks Foundation ‘Mining in the Mapungubwe area ceases-for now’ Press release11/09.10 http://www.ppf.org.za/news.

16) Media briefing on Environmental Authorisation Granted for Section 24G application by Coal of Africa in respect of Vele Colliery. Available at: https://www.environment.gov.za/mediarelease/environmentalauthorisation_section24g application_coalafrica.

17) VBR ‘Background to the Vhembe Biosphere Reserve’ Available at: http://www.vhembebiosphere.org/wp-content/uploads/2012/06/Background-and-current-work-VBR-May-2012.pdf

18) Ecological Sciences for Sustainable Development: Biosphere Reserves – Learning Sites for Sustainable Development, UNESCO (2017). Available at: http://www.unesco.org/new/en/natural-sciences/environment/ecological-sciences/biosphere-reserves/.

19) ESI Africa 'R39 Billion power station in Musina' 13/11/14 Available at: https://www.esi-africa.com/r39-billion-power-station-in-musina-limpopo/

Chapter 12: Annexures

12.1 *Proof of Ethics Approval*

Research Office

HUMAN RESEARCH ETHICS COMMITTEE (NON-MEDICAL)
R14/49 Snyman

CLEARANCE CERTIFICATE	PROTOCOL NUMBER: H16/07/36
PROJECT TITLE	Environmental spatial planning: Achieving sustainable development in sensitive areas
INVESTIGATOR(S)	Mr L Snyman
SCHOOL/DEPARTMENT	Wits School of Law/
DATE CONSIDERED	22 July 2016
DECISION OF THE COMMITTEE	Approved unconditionally
EXPIRY DATE	06 September 2019

DATE 06 September 2016 CHAIRPERSON (Professor J Knight)

cc: Supervisor : Professor T-L Humby

DECLARATION OF INVESTIGATOR(S)

To be completed in duplicate and **ONE COPY** returned to the Secretary at Room 10005, 10th Floor, Senate House, University.

I/We fully understand the conditions under which I am/we are authorized to carry out the abovementioned research and I/we guarantee to ensure compliance with these conditions. Should any departure to be contemplated from the research procedure as approved I/we undertake to resubmit the protocol to the Committee. **I agree to completion of a yearly progress report.**

Signature

07/09/16
Date

PLEASE QUOTE THE PROTOCOL NUMBER ON ALL ENQUIRIES

12.2 ***Field Research Questionnaire***

LOUIS SNYMAN – DOCTORAL RESEARCH STUDY

Environmental Spatial Planning: Achieving Sustainable Development in Sensitive Areas

Interviewee code and number……

Sector……

Contextual Questions

- Roles and responsibilities
  1) What department/organisation does you work for?
  2) What is your designation within the organisation?
- Area of concern
  3) In which province do you operate?
  4) In which park do you operate?
- Sensitivities
  5) What makes the area of concern of particular importance?
  6) What level of importance can be attributed the area and its associated sensitivities?

Instruments declared over the area

- Environmental
  7) Can you tell me about the history of spatial planning in this area?
  8) Which environmental plans / instruments have been initiated over the area of concern? E.g. Environmental Management Frameworks, Buffer Zones etc.
  9) Do any of these overlap?
- Spatial planning
  10) Which spatial planning instruments are applicable over the area? E.g. integrated development plans / spatial development frameworks etc.
  11) What experience have you had with the Integrated Development Plan?
  12) What experience have you had with the Environmental Management Framework?
  13) What experience have you had with the Buffer Zone?
  14) Are there conflicts that exist between these plans?
  15) What to you is the difference between SEA' and EMFs
  16) What are some of the weaknesses and strengths of these plans?
- Ecological Infrastructure
  17) Do the instruments respect and incorporate the use and importance of ecosystem services?
- Instrument construction
  18) What obstacles have you witnessed in the construction of these plans?
- Issues
  19) Have you witnessed any problems with the initiation and operation of these plans?

20) In your opinion, why do you see this problem arising?
21) What is your overall assessment of the quality of planning instruments being produced?
22) What are the main factors you have observed in the failure or success of implementing these plans?

Legislation and role-players

- Legislation
  23) What legislation covers the development and protection of the study area?
- Role-players
  24) What role-players do you deal with mostly?
  25) Are their evident power dynamics that exist over the declaration and management of these plans/frameworks?

Integration and co-operation

- Integration
  26) Do you think that the spatial framework as it exists is sufficient to pre-empt and plan for unconsidered development?
  27) Do you think that the state engages in sufficient planning in the process of selecting and designing SDFs/IDPs/environmental plans?
  28) Are the plans sufficiently dealing with the competing imperatives present in the area?
  29) Have you noticed any spatial discrepancies between various plans e.g. EMFs and IDPs?
- Co-operation
  30) It requires a multi-stakeholder approach to formulate and execute these plans, what kind of co-operative measures are put into place to secure participation?

Public participation and consultation

- Public participation
  31) What should the role of the community be in the design, implementation and review of these plans?
  32) How do you ensure that public consultation meetings in the design of conservation planning tools is adequate (adequate notice, presentations understandable, communities afforded sufficient time to have their say, accurate recording of proceedings of consultation)?
  33) How do you involve the municipalities in the process of overseeing the design and implementation of the environmental planning instruments?
  34) Would you describe these documents as reflecting the expressed needs of the impacted stakeholders?

Status and Compliance Monitoring

- Status
  35) In your opinion, what influence do the plans have on the nature of development in the sensitive area?

- Monitoring
  36) Please briefly describe the different forms of compliance monitoring that the department has conducted?
  37) How do you involve the municipalities in compliance monitoring?
- Compliance
  38) What, are the types of non-compliances regarding the applicable statutory provisions are commonly detected?
  39) In your experience, are companies' measures to rectify non-compliance following enforcement action sufficient?

Skills required

- Capacity
  40) Do the authorities have the capacity and skills to fulfil the obligations?
- Resources
  41) Do the authorities have the resources to fulfil these obligations?

12.3 ***Summary table of case study interview findings***	
Category Label	**Categories**
Regulatory integration	• Between planning and environmental management • Effects of the introduction of SPLUMA
Planning instrument integration	• Between planning instruments • Between environmental planning instruments • Between planning and environmental instruments • Numerous overlapping protected area declarations
Governmental mandate overlap/confusion	• Intra- departmental overlap • World heritage site authority overlap • Non-consultation of key stakeholders • Management authority governance • Co-operative governance • Confusion of roles and responsibility
Status and influence of planning instruments	• Planning instruments priority • Environmental planning influence • Licensing and EIA processes • Exercise of discretion
Capacity and resource constraints	• Municipalities weakness • Inspectors • Service backlog
Political Landscape	• Structural influence • Impact on sustainable development • Influence on decision-making • Appeal process and litigation
Compliance, monitoring and enforcement	• Monitoring and evaluation • Punitive measures and cost
Mapping sensitivity	• Collection of data • Scale • Mapping sensitivity and thresholds • Nodal development
Understanding principles and regulation	• Understanding sustainability • Understanding resilience • Understanding law • Understanding the nature of cultural rights
Conservation and development	• Conservation and development vs. Conservation or development • Reluctance to declare no-go • Integrated Environmental Management vs. Conservation • Consideration of alternatives • Influence of environmental goods and services

	• Long term vs. short term planning and conservation • Regional approach
Public participation	• Development of inclusive growth path • Collective buy-in to development and conservation • Local community inclusion • Environmental and developmental planning instruments
Buffer Zone Delineation	• Process • Roles and responsibility • Limitation of developmental rights • Lack of guidance on implementation
Public-Private partnerships	• Regional collaboration • Skills and resource transfer