

**UNIVERSITY OF KWAZULU-NATAL**

**Biodiversity Offsets and the EIA Process: The Fairbreeze Mine  
Conundrum**

**Felicity Elliott**

Dissertation submitted in partial fulfilment of the requirements for the degree of  
MASTER OF LAWS in Environmental Law

in the College of Law and Management Studies, School of Law

Supervisor's Name: Melissa Lewis

Student Number: 902478500

October 2014

## **ACKNOWLEDGEMENTS**

I would like to acknowledge and extend my heartfelt gratitude to all the people who have made the completion of this dissertation possible, specifically my family for their encouragement and patience, and Melissa Lewis who made time in between all her own work to give guidance and input.

## DECLARATION

I, **Felicity Ann Elliott**, declare that

- i. The research reported in this dissertation, except where otherwise indicated, is my original work.
- ii. This dissertation has not been submitted for any degree or examination at any other university.
- iii. This dissertation does not contain other persons' data, pictures, graphs or other information, unless specifically acknowledged as being sourced from other persons.
- iv. This dissertation does not contain other persons' writing, unless specifically acknowledged as being sourced from other researchers. Where other written sources have been quoted, then:
  - a. their words have been re-written but the general information attributed to them has been referenced;
  - b. where their exact words have been used, their writing has been placed inside quotation marks, and referenced.
- v. Where I have reproduced a publication of which I am an author, co-author or editor, I have indicated in detail which part of the publication was actually written by myself alone and have fully referenced such publications.
- vi. This dissertation does not contain text, graphics or tables copied and pasted from the Internet, unless specifically acknowledged, and the source being detailed in the dissertation and in the References sections.

Signed:

\_\_\_\_\_ Date: \_\_\_\_\_  
Felicity Elliott

## SUPERVISOR'S PERMISSION TO SUBMIT

As the candidate's supervisor I agree to the submission of this dissertation.

Signed:

\_\_\_\_\_ Date: \_\_\_\_\_

Melissa Lewis

## **ABSTRACT**

The concept of biodiversity offsets has been around since the 1970s, but it is only in the last decade that a substantial interest has been shown by international bodies and governments in what benefits offsets can provide and how such biodiversity offsets should be implemented. South Africa has also shown interest in the tool, although as a recent entry into the biodiversity offset arena, there is currently a dearth of literature around South Africa's regulatory and enabling legislation for biodiversity offsets and whether such legislation is adequate to ensure effective control and utilisation of biodiversity offsets.

Through the review of international guidelines, South African and foreign statutes and policy documents, and a case study, this dissertation explores whether South Africa's legislation currently provides an adequate framework for the implementation of biodiversity offsets, through the Environmental Impact Assessment (EIA) process, and how this framework might be improved.

This review shows that it is possible, within the constraints of administrative law, to utilise the EIA process to manage and implement biodiversity offsets. The review also highlights that there are several aspects which are not provided for in the legislation, which, it is put forward, would improve the effectiveness of biodiversity offsets in South Africa.

## TABLE OF CONTENTS

Acknowledgements.....	ii
Declaration.....	iii
Abstract.....	iv
Chapter 1 INTRODUCTION.....	1
1.1 Introduction.....	1
1.2 Research topic, scope and methodology.....	5
1.3 Structure of the dissertation.....	6
Chapter 2 INTERNATIONAL AND COMPARATIVE GUIDANCE ON BIODIVERSITY OFFSETS AND THEIR CONTRIBUTION TO CONSERVATION.....	7
2.1 Biodiversity offset legislation in foreign countries.....	7
2.2 Recognition of, and guidance on, biodiversity offsets in international fora.....	10
2.3 Biodiversity offset terminology.....	11
2.4 What makes a functional biodiversity offset?.....	15
2.4.1 Mitigation Hierarchy.....	15
2.4.2 No Net Loss.....	15
2.4.3 Limits to what can be offset.....	16
2.4.4 Additionality.....	16
2.4.5 Equivalency.....	17
2.4.6 Metrics.....	18
2.4.7 Duration, management, monitoring and compliance.....	18
2.4.8 Transparency.....	19
2.5 Effectiveness of biodiversity offsets.....	19
Chapter 3 SOUTH AFRICA’S POLICY FRAMEWORK FOR BIODIVERSITY OFFSETS.....	22
3.1 Environment sector.....	22
3.1.1 Mitigation hierarchy.....	23
3.1.2 No net loss of biodiversity.....	23
3.1.3 Thresholds for offsetting.....	25
3.1.4 Additionality.....	26
3.1.5 Metrics.....	26
3.1.6 Equivalency.....	27
3.1.7 Duration, management, monitoring and compliance.....	28
3.1.8 Public involvement.....	29
3.2 Forestry sector.....	29
3.3 Water and Mining Sectors.....	30
3.4 Municipal planning Sector.....	33
3.5 South Africa’s approach to biodiversity offsets.....	34

3.5.1	Legislative controls and tools .....	35
Chapter 4 SOUTH AFRICA’S LEGISLATIVE FRAMEWORK FOR BIODIVERSITY		
	OFFSETS IN THE ENVIRONMENTAL SECTOR.....	36
4.1	Biodiversity offset Compatibility with South Africa’s environmental law .....	36
4.1.1	Constitution.....	37
4.1.2	State’s trusteeship of biodiversity .....	38
4.1.3	National Environmental Management Act .....	41
4.1.3.1	NEMA Principles.....	41
4.1.3.2	Integrated Environmental Management.....	42
4.1.3.3	Environmental Authorisations .....	44
4.2	Tools to facilitate an uniform approach for the investigation, design and implementation of biodiversity offsets .....	47
4.3	Mechanisms to initiate and provide for the investigation and design of a biodiversity offset.....	50
4.4	Mechanisms to enforce the implementation and management of the biodiversity offset.....	54
4.5	Mechanisms to secure the legal protection of the offset for the required duration.....	57
4.5.1	The National Environmental Management Protected Areas Act.....	57
4.5.2	National Environmental Management Biodiversity Act.....	59
4.5.3	Conservation servitude.....	59
4.5.4	Contracts .....	60
4.5.5	Land use zonings.....	60
4.5.6	Trusts.....	60
4.5.7	Conclusion .....	61
4.6	Financial mechanisms for securing the long term management of biodiversity offsets .....	61
4.7	Mechanisms providing for the involvement of the surrounding communities in the offset process.....	64
4.8	Summary .....	65
Chapter 5 FAIRBREEZE MINE ENVIRONMENTAL AUTHORISATION .....		
5.1	Introduction to the Fairbreeze Mining project .....	67
5.1.1	Background.....	67
5.1.2	Roleplayers in the EIA application process .....	69
5.1.3	Basic Assessment Report documentation .....	70
5.1.4	Environmental authorisation.....	71
5.1.5	Appeals and appeal decision.....	72
5.2	Review of the Fairbreeze Mine Environmental Authorisation .....	73
5.2.1	Mitigation hierarchy.....	73
5.2.1.1	Assessment of the Onsite Mitigation Measures.....	74

5.2.2	No net loss of biodiversity .....	76
5.2.2.1	KZN draft offsets document .....	77
5.2.2.2	Level of information for informed decision making.....	78
5.2.2.3	Enforceability of the conditions.....	78
5.2.3	Securing the biodiversity offset sites .....	81
5.2.4	Management of the biodiversity offset sites .....	82
5.2.4.1	Financial.....	82
5.2.4.2	Compliance monitoring .....	84
5.2.5	Transparency of the biodiversity offset process .....	85
5.2.6	Administrative justice .....	88
5.2.7	Conclusion .....	89
Chapter 6 DISCUSSION AND CONCLUSION.....		91
6.1	Guidelines .....	92
6.2	Central register of biodiversity offsets.....	93
6.3	Legally securing the land use of biodiversity offsets.....	93
6.4	Long term management of biodiversity offsets .....	94
6.5	Amendment of the EIA Regulations .....	96
6.6	Viability of biodiversity offsets in the South African context.....	97
Bibliography .....		98

# CHAPTER 1

## INTRODUCTION

### 1.1 INTRODUCTION

A growing world population and greater demand for resources has resulted in significant habitat loss<sup>1</sup> and increasing pressure on biodiversity.<sup>2, 3</sup> A corresponding increasing understanding of the real impact of this degradation and loss of biodiversity in terms of the world economy and the health and well-being of people, in particular those most reliant on the direct use of resources,<sup>4</sup> has, however, highlighted that limits must be put in place to ensure the protection of biodiversity whilst still allowing for resource utilisation and development, namely, the implementation of sustainable use and development.

Sustainable development as a concept was first brought to the fore in the 1987 report by the World Commission on Environmental and Development termed 'Our Common Future', which is also referred to as the Brundtland report.<sup>5</sup> This sustainable development concept has subsequently become widely accepted<sup>6</sup> and appears in international instruments,<sup>7</sup> has been invoked in international courts and tribunals,<sup>8</sup> and

---

<sup>1</sup> Gillespie, A, *A Missing Piece of the Conservation Puzzle: Biodiversity Offsets*, prepared for New Zealand's Department of Conservation, 29 March 2012, available at <http://www.doc.govt.nz/Documents/conservation/missing-piece-of-the-conservation-puzzle.pdf> (accessed September 2013), 3.

<sup>2</sup> Article 2 of the Convention on Biological Diversity defines biodiversity as 'the variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species, and of ecosystems.' Convention on Biological Diversity, available at <http://www.cbd.int/convention/text/> (accessed September 2013), 3.

<sup>3</sup> Gillespie, op cit note 1, at 3-4; Nellemann, C & Corcoran, E (eds), *Dead Planet, Living Planet – Biodiversity and Ecosystem Restoration for Sustainable Development. A Rapid Response Assessment*, United Nations Environment Programme, available at <http://www.grida.no/publications/rr/dead-planet/> (accessed October 2013);<sup>6</sup> Millennium Ecosystem Assessment, *Ecosystems And Human Well-Being: Synthesis*, available at <http://www.millenniumassessment.org/documents/document.356.aspx.pdf> (accessed September 2013), 2; Kiesecker, JM *et al*, 'A Framework for Implementing Biodiversity Offsets: Selecting Sites and Determining Scale' (2009) 59 (1) *Bioscience*, 77–84, 77.

<sup>4</sup> The Millennium Ecosystem Assessment Report concluded that 'any progress achieved in addressing the Millennium Development Goals of poverty and hunger eradication, improved health, and environmental sustainability is unlikely to be sustained if most of the environmental services on which humanity relies continue to be degraded' - Millennium Ecosystem Assessment, op cit note 3, at 2.

<sup>5</sup> This report defined sustainable developments as 'development which meets the needs of the present without compromising the ability of future generations to meet their own needs'. United Nations 'Report of the World Commission on Environment and Development: Our Common Future' 1987 General Assembly Annex to document A/42/427 - Development and International Cooperation: Environment, available at [http://conspect.nl/pdf/Our\\_Common\\_Future-Brundtland\\_Report\\_1987.pdf](http://conspect.nl/pdf/Our_Common_Future-Brundtland_Report_1987.pdf) (accessed March 2014), at para 27.

<sup>6</sup> Sands, P & Peel, J *Principles of International Environmental Law* 3rd (2012), at 206.

<sup>7</sup> Examples include; (i) the Rio declaration which sets out 27 principles as determined at the 1987 United Nations Conference on Environment and Development, with Principle 2 and 3 specifically related to sustainable development; - United Nations, 'Rio Declaration of Environment and Development' Report of the 1992 United Nations Conference on Environment and Development, Rio de Janeiro, Brazil,

has provided a conceptual framework for the development of both international<sup>9</sup> and national environmental laws.

Sands puts forward that, internationally, sustainable development is recognised as commonly being composed of four elements, namely (i) the need to preserve resources for current and future generations (principle of intergenerational equity); (ii) exploitation of natural resources in a sustainable manner (principle of sustainable use); (iii) equitable use of natural resources (principle of intrageneration equity); and (iv) environmental considerations are integrated into economic and other plans, projects and programmes (principle of integration).<sup>10</sup>

One tool which is increasingly being put to the forefront as a mechanism to effect sustainable development is biodiversity offsets.<sup>11</sup> The concept of biodiversity offsets has been around since the 1970s<sup>12</sup> but it is only in the last decade that there has been a significant interest shown by international bodies and governments in what benefits offsets can provide and how such biodiversity offsets should be implemented.<sup>13</sup> In

---

A/CONF.151/26 (Vol. I) (1992), available at <http://www.unep.org/Documents.Multilingual/Default.asp?DocumentID=78&ArticleID=1163> (accessed July 2014); (ii) Agenda 21, which has the concept of sustainability as a thread throughout the document, but in particular looks at sustainable consumption (Chapter 4), sustainable human settlement development (Chapter 7), and the integration of environment and development (Chapter 8), - United Nations, *Agenda 21* 1992 United Nations Conference on Environment and Development, Rio de Janeiro, Brazil, available at <http://sustainabledevelopment.un.org/content/documents/Agenda21.pdf> (accessed September 2014); and (iii) the Convention on Biological Diversity, whereby the website for the CBD states that the convention 'was inspired by the world community's growing commitment to sustainable development, and that the convention represents a dramatic step forward in the conservation of biological diversity, the sustainable use of its components, and the fair and equitable sharing of benefits arising from the use of genetic resources', available at <http://www.cbd.int/history/default.shtml> (accessed July 2014).

<sup>8</sup> An example being the Gabčíkovo-Nagymaros Dam Project - Gabčíkovo-Nagymaros Project (Hungary/Slovakia), Judgment, 1. C. J. Reports 1997, at Para [140] available at <http://www.icj-cij.org/docket/files/92/7375.pdf> (accessed July 2014).

<sup>9</sup> International Law Association 'New Delhi Declaration of Principles of International Law Relating to Sustainable Development, 2 April 2002' *International Environmental Agreements: Politics, Law and Economics* (2002) 2: 211–216, available at <http://cisdl.org/tribunals/pdf/NewDelhiDeclaration.pdf> (accessed July 2014).

<sup>10</sup> Sands, *op cit* note 6, at 107.

<sup>11</sup> ten Kate, K *et al*, *Biodiversity offsets: Views, experience, and the business case.*, Gland & Cambridge: IUCN & Insight Investment (2004), 78; Business and Biodiversity Offsets Programme (BBOP), *Biodiversity Offset Design Handbook-Updated* Washington DC: BBOP (2012), available at <http://bbop.forest-trends.org/> (accessed September 2013), 1; McKenney BA & Kiesecker JM, 'Policy Development for Biodiversity Offsets: A Review of Offset Frameworks' (2010) 45 *Environmental Management* 165–176, 165; Gillespie *op cit* note 1 at 33.

<sup>12</sup> The 1970s' German and US legislation are the oldest examples of legislative biodiversity offset mechanisms - see Section 2.1 for more details in this regard.

<sup>13</sup> The Biodiversity Consultancy, *Government Policies on Biodiversity Offsets*, available at <http://www.thebiodiversityconsultancy.com/wp-content/uploads/2013/07/Government-policies-on-biodiversity-offsets1.pdf> (accessed July 2013), 3; ICMM & IUCN, *Independent Report on Biodiversity*

general, biodiversity offsets are used as a tool in circumstances where a project or programme will result in the loss of, or negative impact upon, biodiversity, and provides government and developers an option of going ahead with the project whilst ensuring biodiversity protection through an alternative mechanism.

The 2004 IUCN Report *Biodiversity Offsets: Views, Experience and the Business Case*, which provided the first international overview and assessment of biodiversity offsets, defined biodiversity offsets as:<sup>14</sup>

Conservation actions intended to compensate for the residual, unavoidable harm to biodiversity caused by development projects, so as to ensure no net loss of biodiversity. Before developers contemplate offsets, they should have first sought to avoid and minimise harm to biodiversity.

Subsequently, the Business and Biodiversity Offsets Programme (BBOP), which is an international collaboration between companies, financial institutions, government agencies and civil society organizations, established in November 2004 with the aim of formalising and guiding the utilisation and implementation of biodiversity offsets,<sup>15</sup> has provided a similar but more detailed definition:<sup>16</sup>

A measurable conservation outcome resulting from actions designed to compensate for significant residual adverse biodiversity impacts arising from development plans or projects after appropriate prevention and mitigation measures have been taken. The goal of biodiversity offsets is to achieve no net loss and preferably a net gain of biodiversity on the ground with respect to species composition, habitat structure, ecosystem function and people's use and cultural values associated with biodiversity.

There is currently no universally accepted definition of 'biodiversity offsets',<sup>17</sup> as this is a relatively new field which is still under development. BBOP, through their many citations in the literature of this definition, and the various standards and guidelines for

---

*Offsets*, prepared by The Biodiversity Consultancy (2012), available at [www.icmm.com/biodiversity-offsets](http://www.icmm.com/biodiversity-offsets) (accessed July 2013), 12.

<sup>14</sup> ten Kate, op cit note 11, at 13.

<sup>15</sup> Forest Trend website, Business and Biodiversity Offsets Programme Overview, <http://www.forest-trends.org/program.php?id=117> (accessed September 2013).

<sup>16</sup> BBOP (Handbook), op cit note 11, at 1.

<sup>17</sup> Gillespie, op cit note 1, at 9.

biodiversity offsets published by BBOP, does however appear to have gained international acceptance.

South Africa is a relatively recent entry into the biodiversity offset arena. The first official reference to biodiversity offsets was in South Africa's 2005 National Biodiversity Strategy and Action Plan, which states that a national policy framework is required to guide the implementation of biodiversity offsets in South Africa.<sup>18</sup> The first government guidelines on how to implement biodiversity offsets in South Africa were, however, drafted at provincial level, with the draft guidelines in 2007 by the Western Cape Province,<sup>19</sup> followed by the KwaZulu-Natal Province<sup>20</sup> in 2010 and Gauteng Province in 2012.<sup>21</sup> The National Department of Environmental Affairs is currently (2013/2014) drafting a policy and guidelines which are intended to form the national framework for utilisation of biodiversity offsets in South Africa.<sup>22</sup>

The need for this national framework on biodiversity offsets has largely resulted from (i) pressure from developers for standardisation and for clear guidelines on how the process will work in South Africa; (ii) the need for South Africa to clearly set out procedural and legislative processes to ensure that any conflicts with or divergences from international biodiversity offset norms can be identified for multinational companies working in South Africa, which will bring their own corporate requirements that have been based on international norms and standards; and (iii) the fact that biodiversity offsets, although recognised as a potentially important tool to unlock development, are also recognised as not being appropriate in all situations, such as where irreplaceable biodiversity would be adversely impacted or where adequate compensation cannot be provided.<sup>23</sup> Further, there have been concerns raised around

---

<sup>18</sup> The National Biodiversity Strategy and Action Plan report was developed to fulfill South Africa's international obligations in terms of Article 6 of the Convention on Biological Diversity. The National Biodiversity Strategies and Action Plans are the principal instruments for implementing the CBD at the national level, and South Africa's current plan clearly sets out that a framework on offsets is to be put in place – Department of Environmental Affairs and Tourism (DEAT), *South Africa's National Biodiversity Strategy Action Plan* (NBSAP) (2005), Outcome 1.3, Activity 1.3.10, 33 & 36.

<sup>19</sup> Western Cape Department of Environmental Affairs and Development Planning, *Provincial Guideline on Biodiversity Offsets (draft)*, Provincial Government of the Western Cape, Department of Environmental Affairs & Development Planning, Cape Town (2007).

<sup>20</sup> Ezemvelo KZN Wildlife, *Norms and Standards for Biodiversity Offsets (draft)*, Ezemvelo KZN Wildlife, Pietermaritzburg (2010).

<sup>21</sup> Gauteng Department of Agriculture and Rural Development, *Detailed Guideline on biodiversity Offsets for Gauteng Province (unpublished draft)*, (December 2012).

<sup>22</sup> Information provided at Biodiversity Offset Workshop with SANBI, DEA and provincial environment and conservation departments in April 2013.

<sup>23</sup> Ibid.

the effectiveness of biodiversity offsets, and whether many of the biodiversity offsets in place are inadequate and have resulted in biodiversity loss.<sup>24</sup>

## 1.2 RESEARCH TOPIC, SCOPE AND METHODOLOGY

Although draft provincial guidelines have been prepared and implemented in at least the Western Cape and KwaZulu-Natal Provinces, and there is a drive to set out clear national guidelines for South Africa's implementation of biodiversity offsets, there is currently a relative dearth of literature, and hence understanding, on South Africa's regulatory and enabling legislation for biodiversity offsets and whether such legislation is adequate to ensure effective control and utilisation of biodiversity offsets.

This dissertation explores whether South Africa's legislation currently provides an adequate framework for the implementation of biodiversity offsets, and how this framework might be improved. In this regard, although the dissertation will provide an overview of the general legislative and policy landscape for offsets in South Africa, its analysis will focus on the use of offsets in the Environmental Impact Assessment (EIA) process. This decision to focus on the EIA process was based on the fact that, currently, the EIA process is the tool being utilised to implement the majority of the biodiversity offsets in South Africa.

The review will utilise international guidelines, national and provincial statutes and policy documents (both South African and foreign), and a case study of an environmental authorisation and appeal thereof, as well as secondary sources in the form of books, journal articles and web based resources.

The case study to be utilised is the 2012 Fairbreeze environmental authorisation,<sup>25</sup> which required that a biodiversity offset be put in place to mitigate residual impacts of the proposed mining operation, and the associated appeal decisions.<sup>26</sup>

---

<sup>24</sup> Maron M *et al.*, 'Faustian bargains? Restoration realities in the context of biodiversity offset policies' (2012) 155 *Biological Conservation* 144; ten Kate, *op cit* 11, at 78.

<sup>25</sup> KZN Department of Agriculture and Environmental Affairs, Environmental Authorisation for the Construction of the Fairbreeze Mine and Related Activities, issued on 12 July 2012.

<sup>26</sup> KZN Department of Agriculture and Environmental Affairs 'Appeal decision relating to the environmental authorisation issued on 12 July 2012 for the construction of the Fairbreeze Mine and related activities for the appellant Twinstreams Blue People Advocacy Group, 11 June 2013, 21; KZN Department of Agriculture and Environmental Affairs 'Appeal decision relating to the environmental authorisation issued on 12 July 2012 for the construction of the Fairbreeze Mine and related activities for the appellant Wildlands Conservation Trust', 11 June 2013, 10; KZN Department of Agriculture and Environmental Affairs 'Appeal decision relating to the environmental authorisation issued on 12

### 1.3 STRUCTURE OF THE DISSERTATION

Chapter 2 of the dissertation provides an overview of the international guidance on biodiversity offsets and the manner in which offsets are addressed in the laws and policies of other countries. Thereafter, Chapter 3 sets out South Africa's approach to offsets, based on current provincial guidelines and the draft national guideline and policy, and considers whether this concurs with or differs from the international guidance, as largely set out by BBOP.

The review of whether South Africa's legislative framework (in particular, the country's laws pertaining to environmental impact assessments) can be broadly utilised to enable and regulate the utilisation of biodiversity offsets is set out in Chapter 4, with Chapters 5 reviewing (through the use of a case study) how biodiversity offsets are being implemented, and whether this implementation highlights any gaps or weaknesses in South Africa's laws. Recommendations and conclusions, including how any gaps or weaknesses identified in the South African law might be improved, are set out in Chapter 6.

---

July 2012 for the construction of the Fairbreeze Mine and related activities for the appellant WESSA, 11 June 2013,<sup>10</sup>; KZN Department of Agriculture and Environmental Affairs 'Appeal decision relating to the environmental authorisation issued on 12 July 2012 for the construction of the Fairbreeze Mine and related activities for the appellant Mtunzini Conservancy, 11 June 2013, 21.

## **CHAPTER 2**

### **INTERNATIONAL AND COMPARATIVE GUIDANCE ON BIODIVERSITY OFFSETS AND THEIR CONTRIBUTION TO CONSERVATION**

To set the context for an examination of biodiversity offsets in South Africa, the manner in which biodiversity offsets are addressed in other countries, and the recognition which offsets have received at the international level, are briefly discussed below. This chapter further provides an explanation of relevant terminology in respect of biodiversity offsets, and a brief discussion on the criteria that are being set (by international bodies and, to some extent, foreign countries) to guide what would be an acceptable standard for a biodiversity offset.

#### **2.1 BIODIVERSITY OFFSET LEGISLATION IN FOREIGN COUNTRIES**

There has been an increasing move towards the utilisation of biodiversity offset mechanisms, with the 2011 Ecosystem Marketplace report<sup>27</sup> finding 45 existing compensatory mitigation programs and the development of another 27 programmes underway. Many of these are on a voluntary basis, although there are an increasing number of national processes requiring the use of offset mechanisms. The 2012 Draft Global Monitoring Report on the Strategy for Resource Mobilization under the Convention on Biological Diversity found that over two thirds of countries have legal requirements, through environmental impact assessment statutes, policies and procedures, for compensation for environmental damages, and that nearly a quarter of them have already implemented or tested various forms of biodiversity offset mechanisms.<sup>28</sup> Examples of countries that have legislation supporting biodiversity offset mechanisms are set out in the table below.

---

<sup>27</sup> Madsen, B *et al*, *State of Biodiversity Markets Report: Offset and Compensation Programs Worldwide*. (2011), available at [http://www.forest-trends.org/documents/files/doc\\_2848.pdf](http://www.forest-trends.org/documents/files/doc_2848.pdf) (accessed September 2013), v.

<sup>28</sup> Convention on Biological Diversity, 'State Of Financing For Biodiversity: Draft Global Monitoring Report 2012 On The Strategy For Resource Mobilization Under The Convention' UNEP/CBD/COP/11/INF16, for COP11, available at <http://www.cbd.int/doc/meetings/cop/cop-11/information/cop-11-inf-16-en.pdf> (accessed October 2013), 29.

Australia	<p>The Environment Protection and Biodiversity Conservation Act 1999 (Act No 91 of 1999)<sup>29</sup> provides a legal framework to protect and manage nationally and internationally important flora, fauna, ecological communities and heritage places. The Act requires approvals for controlled actions and makes provision for compensation measures as part of the conditions of approvals.<sup>30</sup></p> <p>The various states also have legislation facilitating offset mechanisms, including: New South Wales through its Native Vegetation Act 2003 (Act No 103 of 2003),<sup>31</sup> Victoria through its Planning and Environment Act 1987 (Act No 45 of 1987, as amended 2004)<sup>32</sup> and associated 2002 Native Vegetation Management Framework ('Native Vegetation Management – A Framework For Action 2002');<sup>33</sup> and Western Australia through its Environmental Protection Act 1986 (Act No. 087 of 1986)<sup>34</sup> which requires approvals for clearing of vegetation and makes provision for compensation measures. New South Wales also has Part 7A of its Threatened Species Conservation Act 1995 (Act No. 101 of 1995 (as amended 2006))<sup>35</sup> which provides for the development and regulation of conservation banks.</p>
Brazil	<p>Brazil has two mechanisms of relevance to offsets: (i) The Forest Code (Law 4771/1965 as amended) requires that landowners must maintain a fixed minimum percentage of natural vegetative cover on their property, but allows those wanting to developed the entire property to compensate through purchasing other land; and (ii) The Protected Areas Law (Law no. 9985/2000) requires that development impacts, determined through environmental licensing and which cannot be avoided, must be compensated through contribution to the Protected Area Network, either through money or land.<sup>36</sup></p>
Canada	<p>The Canadian Fisheries Act (RCS 1985, c. F-14)<sup>37</sup> prohibits the destruction of fish habitat and requires that where impacts cannot be avoided or mitigated, they must be compensated through habitat recreation or restoration.<sup>38</sup></p>

<sup>29</sup> Available at [http://www.austlii.edu.au/cgi-bin/sinodisp/au/legis/cth/consol\\_act/epabca1999588/notes.html?stem=0&synonyms=0&query=Environment%20Protection%20and%20Biodiversity%20Conservation%20Act%201999%20\(Act%20No%2091%20of%201999\)](http://www.austlii.edu.au/cgi-bin/sinodisp/au/legis/cth/consol_act/epabca1999588/notes.html?stem=0&synonyms=0&query=Environment%20Protection%20and%20Biodiversity%20Conservation%20Act%201999%20(Act%20No%2091%20of%201999)) (accessed March 2014).

<sup>30</sup> Section 134 as well as 136 to 140A of the Environment Protection and Biodiversity Conservation Act 1999; see also the Environmental Offsets Policy which sets out when and how biodiversity offsets are to be undertaken in terms of the Act - Commonwealth of Australia *Environment Protection and Biodiversity Conservation Act 1999 Environmental Offsets Policy* (October 2012), available at <http://www.environment.gov.au/epbc/publications/pubs/offsets-policy.pdf> (accessed August 2013), 5 & 12.

<sup>31</sup> Available at [http://www.austlii.edu.au/au/legis/nsw/consol\\_act/nva2003194/](http://www.austlii.edu.au/au/legis/nsw/consol_act/nva2003194/) (accessed March 2014).

<sup>32</sup> Available at [http://www.austlii.edu.au/au/legis/vic/consol\\_act/paea1987254/](http://www.austlii.edu.au/au/legis/vic/consol_act/paea1987254/) (accessed March 2014).

<sup>33</sup> Available at [https://www.google.co.za/url?q=http://www.pyrenees.vic.gov.au/files/bf448a16-d6ea-4959-a098-9e4e010b80f4/VictoriasNativeVegetationManagementAFrameworkForAction.pdf&sa=U&ei=JY8IU-2mNdSshQeA\\_4H4Aw&ved=0CCMQFjAB&usq=AFQjCNFMpuAWMGwmzfo7yh6d36gf5Va06w](https://www.google.co.za/url?q=http://www.pyrenees.vic.gov.au/files/bf448a16-d6ea-4959-a098-9e4e010b80f4/VictoriasNativeVegetationManagementAFrameworkForAction.pdf&sa=U&ei=JY8IU-2mNdSshQeA_4H4Aw&ved=0CCMQFjAB&usq=AFQjCNFMpuAWMGwmzfo7yh6d36gf5Va06w) (accessed March 2014).

<sup>34</sup> Available at [http://www.austlii.edu.au/au/legis/wa/consol\\_act/epa1986295/](http://www.austlii.edu.au/au/legis/wa/consol_act/epa1986295/) (accessed March 2014).

<sup>35</sup> Available at [http://www.austlii.edu.au/au/legis/nsw/consol\\_act/tsca1995323/](http://www.austlii.edu.au/au/legis/nsw/consol_act/tsca1995323/) (accessed March 2014).

<sup>36</sup> Darbi, M *et al*, *International approaches to compensation for impacts on biological diversity*, final report (2009), available at [http://www.slu.se/Documents/externwebben/ltj-fak-dok/Landskapsarkitektur.%20planering%20och%20f%C3%B6rvaltning/Personal/CV/Jesper%20Persson/Projekt/Litteraturtips/Darbi\\_International%20approaches%20to%20Compensation.pdf](http://www.slu.se/Documents/externwebben/ltj-fak-dok/Landskapsarkitektur.%20planering%20och%20f%C3%B6rvaltning/Personal/CV/Jesper%20Persson/Projekt/Litteraturtips/Darbi_International%20approaches%20to%20Compensation.pdf) (accessed September 2013) 58-59; ten Kate, op cit note 11, at 30.

<sup>37</sup> Available at <http://laws-lois.justice.gc.ca/eng/acts/f-14/FullText.html> (accessed March 2014).

<sup>38</sup> Section 35(2) of the Canadian Fisheries Act and the Habitat Policy which sets out the hierarchy of compensation - Canadian Department of Fisheries and Oceans (DFO), *Policy for the Management of Fish Habitat* (1986), available at <http://www.dfo-mpo.gc.ca/Library/23654.pdf> (accessed October 2013), 21; Fisheries and Oceans Canada, *Practitioners Guide to Habitat Compensation For DFO Habitat Management Staff Version 1.1*, available at [http://www.dsao.net/Resources/DFO%20fact%20sheets/Compensation\\_Guide\\_e.pdf](http://www.dsao.net/Resources/DFO%20fact%20sheets/Compensation_Guide_e.pdf) (accessed October 2013), 2; ten Kate, op cit note 11, at 22.

China	China has a national regulatory program that requires developers impacting lands zoned for forestry to avoid, minimize, and then if there are still impacts to pay into a Forest Vegetation Restoration Fee Program. <sup>39</sup>
Columbia	National legislation Decreto 1753 of 1994 requires environmental licensing for developments where impacts must be compensated through reforestation or payment to a reforestation fund. <sup>40</sup>
Europe	Article 6(4) of the Habitats Directive (Council Directive 92/43/EEC of 21 May 1992) <sup>41</sup> requires that any impact on the Natura 2000 network <sup>42</sup> is avoided or where it cannot be avoided compensatory mechanisms put in place to ensure the continued coherence of the network. <sup>43</sup>
Germany	The German Federal Nature Conservation Act of 1976 (as updated in 2002) provides the framework for the Eingriffsregelung (Impact Mitigation Regulation), which aims to preserve the existing ecological situation by ensuring impairment of nature and landscape is either avoided or compensated. <sup>44</sup>
Mexico	The General Law of Ecological Equilibrium and Protection of the Environment Act of 1988 regulates Environmental Impact Assessments and, in conjunction with the Biodiversity Code, makes provision for compensation measures either through restoration or the Biodiversity Restoration and Preservation Fund. <sup>45</sup>
Switzerland	The Federal Law for the Protection of Nature and Landscape, 1966 in Switzerland mandates ‘reconstitution’ or ‘replacement’ of protected biotopes where impacts are unavoidable. <sup>46</sup>
United States of America (US)	The US has two main mechanisms to facilitate offsets: (i) Section 404 of the Clean Water Act (Clean Water Act of 1972, 33 U.S.C. §1251 et seq. (2002)) <sup>47</sup> regulates permits for development activities affecting wetlands, and allows for compensation through restoration, creation or enhancement of wetlands elsewhere; <sup>48</sup> and (ii) the

<sup>39</sup>Madsen, B *et al*, *State of Biodiversity Markets Report: Offset and Compensation Programs Worldwide* (2010), available at [http://www.forest-trends.org/documents/files/doc\\_2388.pdf](http://www.forest-trends.org/documents/files/doc_2388.pdf) (accessed September 2013), 44; Species banking.com website ‘Forest vegetation restoration fee (China)’ [http://www.speciesbanking.com/program/forest\\_vegetation\\_restoration\\_fee](http://www.speciesbanking.com/program/forest_vegetation_restoration_fee) (accessed March 2014).

<sup>40</sup>Madsen, 2010, op cit note 39, at 31.

<sup>41</sup> Available at <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CONSLEG:1992L0043:20070101:EN:PDF> (accessed March 2014).

<sup>42</sup> The Natura 2000 network is the European Union’s network of conservation areas which includes nature reserves and privately owned land, and which was established under Article 3 of the Habitats Directive.

<sup>43</sup> See McGillivray, D, ‘Compensating Biodiversity Loss: The EU Commission’s Approach to Compensation under Article 6 of the Habitats Directive’ (2012) 24(3) *Journal of Environmental Law*, 417-450, 431-432; and European Commission, ‘Managing Natura 2000 Sites: The provisions of Article 6 of the ‘Habitats’ Directive 92/43/EEC’ (2000), available at [http://ec.europa.eu/environment/nature/natura2000/management/docs/art6/provision\\_of\\_art6\\_en.pdf](http://ec.europa.eu/environment/nature/natura2000/management/docs/art6/provision_of_art6_en.pdf) (accessed October 2013), 44.

<sup>44</sup> Darbi, op cit note 36, at 25; Rundcrantz, K & Skärbäck, E ‘Environmental compensation in planning: A review of five different countries with major emphasis on the German System’ (2003) 13 *European Environment*, 204-226, 208.

<sup>45</sup> Darbi, op cit note 36, at 113-121.

<sup>46</sup> ten Kate, op cit note 11, at 31.

<sup>47</sup> Available at <http://www.gpo.gov/fdsys/pkg/USCODE-2002-title33/pdf/USCODE-2002-title33-chap26.pdf> (accessed March 2014).

<sup>48</sup> Matthews, JW & Endress, AG, ‘Performance criteria, compliance success, and vegetation development in compensatory mitigation wetlands’, (2008) 41 *Environmental Management* 130 – 141, 130; ten Kate, op cit note 11, at 22.

	<p>Endangered Species Act (Endangered Species Act of 1973, 16 U.S.C § 1531 et seq.)<sup>49</sup> makes provision for compensation mechanisms for developments that unavoidably impact on listed species.<sup>50</sup></p> <p>These two statutes also enable the establishment and use of wetland banking and conservation banking respectively.</p>
--	---

## 2.2 RECOGNITION OF, AND GUIDANCE ON, BIODIVERSITY OFFSETS IN INTERNATIONAL FORA

The 1970s' German and US legislation are the oldest examples of legislative biodiversity offset mechanisms, with other countries progressively putting legislation in place from the 1980s onwards. Since 2004, with the launching of BBOP, discussion on biodiversity offsets has also been taken into the international arena. This expansion into the international arena has been aided by the tabling of the BBOP approach at the 2006 Convention on Biological Diversity's (CBD) eighth Conference of the Parties (COP8),<sup>51</sup> and the resolution of CBD COP9 that biodiversity offsets should be considered as a means to attain the objectives of the CBD.<sup>52</sup> Parties to the CBD have further agreed at COP10 in 2010, through the 'Strategic Plan for Biodiversity 2011–2020 and the Aichi Targets',<sup>53</sup> to significant actions to halt, and in a number of instances, reverse the loss of biodiversity by the year 2020.<sup>54</sup> This opened the door to discussions on various mechanisms, including biodiversity offsets, to achieve these targets. This expansion of offsets discussions in the international arena was further

<sup>49</sup> Available at <http://www.gpo.gov/fdsys/pkg/USCODE-2002-title16/pdf/USCODE-2002-title16-chap35.pdf> (accessed March 2014).

<sup>50</sup> Section 10(a) of the Endangered Species Act, 1973; ten Kate, op cit note 11, at 25.

<sup>51</sup> Decision VIII/17 stated that contributions from business and industry towards the implementation of the Convention and its 2010 target could be facilitated by further work under the Convention to develop guidance for potential biodiversity offsets in line with the objectives of the Convention. – 'Convention on Biological Diversity, '2006 Report of the Eighth Meeting Of the Parties to the Convention On Biological Diversity', UNEP/CBD/COP/8/31, Decision VIII/17, available at <http://www.cbd.int/doc/meetings/cop/cop-08/official/cop-08-31-en.pdf> (accessed October 2013), 259.

<sup>52</sup> Convention on Biological Diversity, 'Decisions Adopted by the Conference Of the Parties to the Convention On Biological Diversity at its Ninth Meeting', UNEP/CBD/COP/9/29, Decision IX/11 'Review of the implementations of Articles 20 & 21', available at <http://www.cbd.int/doc/decisions/cop-09/full/cop-09-dec-en.pdf> (accessed October 2013), 45.

<sup>53</sup> Convention on Biological Diversity 'Decisions Adopted by the Conference Of the Parties to the Convention On Biological Diversity at its Tenth Meeting', UNEP/CBD/COP/10/27, Decision X/2 'The Strategic Plan for Biodiversity 2011-2020 and the Aichi Biodiversity Targets', available at <http://www.cbd.int/doc/decisions/cop-10/full/cop-10-dec-en.pdf> (accessed October 2013), 111.

<sup>54</sup> The Aichi targets include, *inter alia*: (i) halving and where possible halting the rate of loss of natural habitats, (ii) securing and improving the conservation status of threatened species, (iii) ecosystem resilience stocks to be enhanced through conservation and restoration of at least 15% of degraded ecosystems, (iv) at least 17% of terrestrial and inland water and 10% of coastal and marine areas to be conserved through a systems of protected areas and other effective area-based conservation measures, (v) ecosystems that provide essential services are to be restored and safeguarded - Convention on Biological Diversity, 'Strategic Plan for Biodiversity 2011–2020 and the Aichi Targets', available at <http://www.cbd.int/doc/strategic-plan/2011-2020/Aichi-Targets-EN.pdf> (accessed October 2013).

aided by a 2008 resolution of the Conference of the Parties to the Ramsar Convention on Wetlands of International Importance,<sup>55</sup> which encouraged decision-makers to adopt policies and guidelines related to biodiversity offsets,<sup>56</sup> and a resolution adopted at the 2012 World Conservation Congress, for the development of an IUCN policy on biodiversity offsets.<sup>57</sup> Further impetus was also provided by the inclusion of biodiversity offsets in various requirements of the international financial sector, such as those of the International Finance Corporation<sup>58</sup> and the Equator Principles Association.<sup>59</sup>

### 2.3 BIODIVERSITY OFFSET TERMINOLOGY

Notwithstanding the recognition of biodiversity offsets in the international arena and the guidelines and standards published by BBOP, there is, as yet, no standardised concept of a biodiversity offset. Currently, a number of different terms are used in the various foreign policies and statutes, which have a similar function to the biodiversity offset of attempting to reconcile economic and social development and biodiversity. These terms include ‘biobanking’, ‘mitigation banks’, ‘conservation banking’, ‘habitat credit trading’, ‘set-asides’, ‘compensation mitigation’, and ‘compensation’.<sup>60</sup>

---

<sup>55</sup> Convention on Wetlands of International Importance, commonly referred to as the ‘Ramsar Convention’, available at [www.ramsar.org](http://www.ramsar.org).

<sup>56</sup> Ramsar Convention, ‘Resolutions of the 10th Meeting of the Conference of the Contracting Parties’, Resolution X.12 ‘Principles for partnerships between the Ramsar Convention and the business sector’, available at [http://www.ramsar.org/pdf/res/key\\_res\\_x\\_12\\_e.pdf](http://www.ramsar.org/pdf/res/key_res_x_12_e.pdf) (accessed October 2013), 2.

<sup>57</sup> IUCN, ‘Resolutions and Recommendations’, WCC-2012-Res-110-EN ‘Biodiversity offsets and related compensatory approaches’ (2012), available at [www.iucn.org/dbtw-wpd/edocs/WCC-5th-005.pdf](http://www.iucn.org/dbtw-wpd/edocs/WCC-5th-005.pdf) (accessed October 2013), 161.

<sup>58</sup> The International Finance Corporation (IFC) is a global development institution which focuses exclusively on investment within the private sector of developing countries. The IFC has eight Performance Standards which define clients' responsibilities for managing their environmental and social risks. Performance Standard 6 (PS6), which was implemented on 1 January 2012, talks to the requirement for the mitigation hierarchy being followed and for offsetting residual biodiversity impacts. - International Financial Corporation, ‘World Bank Group IFC Performance Standards on Environmental and Social Sustainability 1 January 2012’, available at [http://www.ifc.org/wps/wcm/connect/c8f524004a73daeca09afdf998895a12/IFC\\_Performance\\_Standards.pdf?MOD=AJPERES](http://www.ifc.org/wps/wcm/connect/c8f524004a73daeca09afdf998895a12/IFC_Performance_Standards.pdf?MOD=AJPERES) (accessed October 2013), 2,6,40,42; ICMM & IUCN, op cit note 13, at 13.

<sup>59</sup> The Equator Principles (EPs) are a risk management framework, adopted by financial institutions for determining, assessing and managing environmental and social risk in projects, the Principles are primarily intended to provide a minimum standard for due diligence to support responsible risk decision-making. The Equator Principles Association members, which include 78 financial institutions covering 35 countries, adopted the IFC Performance Standards for implementation on 1 January 2012, which includes PS6 and the offsetting of residual impacts - Equator Principles website <http://www.equator-principles.com/index.php/about-ep/about-ep> (accessed October 2013).

<sup>60</sup> Gillespie, op cit note 1, at 9; Bull, JW *et al*, ‘Biodiversity Offsets in Theory and Practice’ (2013) 47(3), *Fauna & Flora International, Oryx*, 369-380, 370; Burgin, S, ‘BioBanking: an environmental scientist’s view of the role of biodiversity banking offsets in conservation’ (2008)17 *Biodiversity and Conservation*, 807–816, 807.

**Set asides** are in general not considered as biodiversity offsets, as they are considered to fall within the ‘avoidance’ section of the mitigation hierarchy,<sup>61</sup> with such land being incorporated into the development and managed as open space areas, corridors, buffers, conservation areas, etc.<sup>62</sup> The Brazil Forest Code, which requires forest to be set aside as a ‘Legal Reserve’ on private land, is an interesting mix as the onus to ‘set aside’ forest on the land (i.e. avoidance mitigation) can also be satisfied through the purchasing of another land parcel as a form of biodiversity offset.<sup>63</sup>

**BioBanking, mitigation banking, wetland banking, habitat banking, conservation banking, and habitat credit trading** are all terms for a similar mechanism. Broadly, an ecosystem (such as in the case of the US wetland mitigation banking) or habitat for a species (such as in the case of US conservation banking),<sup>64</sup> or a vegetation biome (such as in the case of the Australian biobanking),<sup>65</sup> is conserved or restored or created. The ecosystem or habitat’s ecological and ecosystem functioning is then converted into a set number of biodiversity credits that can be purchased by developers needing to offset a development which has comparable residual ecological impacts.<sup>66</sup> The long term management and liability of the offset, through the purchasing of the credit, is legally passed by the developer to a third party, the ‘bank’.<sup>67</sup> Banking, in general, facilitates offsetting for more than one project and thus is differentiated from a ‘**once of offset**’

---

<sup>61</sup> The mitigation hierarchy requires that impacts are first avoided, and if they can’t be avoided are then minimised, and where they can’t be minimised the impact is then remediated, and where they can’t be remediated are offset; see Section 2.4(a) for more discussion on the mitigation hierarchy.

<sup>62</sup> ten Kate, op cit note 11, at 10; UNEP, *EIA Training Manual*, 2 ed (2002), available at <http://www.unep.ch/etb/publications/EIAman/SecETopic7.pdf> (accessed October 2013), 323.

<sup>63</sup> Darbi, op cit note 36, at 58-59; Doswald, N *et al*, *Biodiversity offsets: voluntary and compliance regimes. A review of existing schemes, initiatives and guidance for financial institutions* (2012), available at [http://www.unepfi.org/fileadmin/documents/Biodiversity\\_Offsets-Voluntary\\_and\\_Compliance\\_Regimes.pdf](http://www.unepfi.org/fileadmin/documents/Biodiversity_Offsets-Voluntary_and_Compliance_Regimes.pdf) (accessed October 2013), 8.

<sup>64</sup> The USA’s wetland mitigation banking and conservation banking models are amongst the earliest examples of such banking, having commenced in the 1980s (Mead, DL ‘History and Theory: The Origin and Evolution of Conservation Banking’ in Carroll, N, Fox, J, Bayon, R (eds), *Conservation & Biodiversity Banking* (2008), 9-31, 12) and been facilitated through the Clean Water Act and the Endangered Species Act. The USA banks in general belong to private land owners/companies where the development and management of banks is considered a profitable business (Madsen 2010, op cit note 39, at 7).

<sup>65</sup> The New South Wales State (Australia) banking system is termed ‘biobanking’ and enabled through Part 7A of the Threatened Species Conservation Act of 1995 and the Threatened Species Conservation (Biodiversity Banking) Regulations of 2008. This scheme commenced in 2008 and biobanking can occur for all ecosystems and species listed in the Threatened Species Conservation Act of 1995 (Department of Environment & Climate Change, New South Wales, *Biobanking: Biodiversity Banking and Offset Scheme- Scheme Overview* (2007), available at [www.legislation.nsw.gov.au](http://www.legislation.nsw.gov.au) (accessed September 2013), 5).

<sup>66</sup> Doswald, op cit note 63, at 7; Bull, op cit note 60, at 2.

<sup>67</sup> Madsen 2010, op cit note 39, at 7; White, W ‘The Advantages and Opportunities’ in Carroll, N, Fox, J, Bayon, R (eds), *Conservation & Biodiversity Banking* (2008), 33-41, 36.

which is secured via the conservation or restoration or creation of ecosystems or habitats for a specific project or development.

The terms ‘**compensation**’ and ‘**mitigation**’ are defined differently in different countries. In the US, ‘mitigation’ or ‘compensation mitigation’ is the term used for biodiversity offsets (these being intended to compensate for unavoidable environmental damage). In other countries as well as the Europe Union, the term ‘mitigation’, however refers to the on-site actions to minimise harm (avoid, reduce and rehabilitate) and ‘compensation’ is the term utilised for biodiversity offsets.<sup>68</sup>

International initiatives (such as BBOP and the offsets requirements of financial institutions)<sup>69</sup> tend to follow the same approach as the EU with regards to the definition of mitigation, namely using this term for the, avoid, minimise and remediate section of the mitigation hierarchy. They however have ceased to utilise the term ‘compensation’, as the term has several meanings, including financial payment for damage associated with legal liability, whilst the intention of the biodiversity offset is for concrete on the ground conservation gains.<sup>70</sup>

Biodiversity offsets are broadly recognised as occurring through two main approaches, namely: (i) The creation, restoration or rehabilitation of habitat or ecosystems<sup>71</sup> and (ii) the prevention of loss of biodiversity/averting of risk.<sup>72</sup> These approaches are not mutually exclusive and can be used in combination.<sup>73</sup> Further approaches, such as

---

<sup>68</sup> Gillespie, op cit note 1, at 9; ten Kate, op cit note 11, at 9.

<sup>69</sup> See notes 58 and 59.

<sup>70</sup> ten Kate, op cit note 11, at 9; Business and Biodiversity Offsets Programme (BBOP), *Glossary*, 2<sup>nd</sup> ed (2012), available at [http://www.forest-trends.org/documents/files/doc\\_3100.pdf](http://www.forest-trends.org/documents/files/doc_3100.pdf) (accessed October 2013), 10.

<sup>71</sup> ‘Creation’ is the development of a new ecosystem, such as a wetland, where it did not exist. ‘Restoration’ is the return of an ecosystem/habitat to its original natural state, and ‘rehabilitation’ is to restore or improve some aspects or an ecosystem but not necessarily to fully restore all components. However, the term restoration is also often used to refer to actions which are better defined as rehabilitation (Roni, P *et al*, *Habitat rehabilitation for inland fisheries. Global review of effectiveness and guidance for rehabilitation of freshwater ecosystems* (2005) FAO Fisheries Technical Paper. No. 484, available at <ftp://ftp.fao.org/docrep/fao/008/a0039e/a0039e00.pdf> (accessed October 2013); Nellemann, op cit note 3, at 15).

<sup>72</sup> Such as averting risk of imminent or projected loss of biodiversity by securing areas for protection and effective management; or averting risk of imminent or projected loss of biodiversity by tackling the underlying causes of biodiversity loss in an area through working with communities to support sustainable livelihoods.

<sup>73</sup> ICMM & IUCN, op cit note 13, at 8; Commonwealth of Australia, op cit note 30, at 8; BBOP (Handbook), op cit note 11, at 8; Maron, op cit note 24, at 142; Norton, DA, ‘Biodiversity Offsets: Two New Zealand Case Studies and an Assessment Framework’, (2009) 43 *Environmental Management*, 698- 706, 698; Canadian DFO, op cit note 38, at 9.

monetary compensation, are also used as a mechanism in some foreign legislation. For example, Brazil requires financial contributions from developers towards the country's Protected Area Network, but this use is limited and does not fall within the scope of the biodiversity offset definition.<sup>74</sup> Other types of compensation, such as capacity building, education and research are not generally considered to be biodiversity offsets, although both BBOP and Australia indicate that such measures may form a limited portion of an offset, where such would give rise to measurable conservation outcomes.<sup>75</sup>

Further to these two main approaches, are two generally recognised categories of biodiversity offsets, namely '**in kind**' or '**like for like**' offsets and '**out of kind**' or '**trading up**' offsets. Whereby 'in kind' is where an offset provides the equivalent habitat type, species composition, ecological functionality, etc., of that which will be lost. An 'out of kind' offset does not compensate directly but provides alternative habitat which is desirable due to a high conservation status<sup>76</sup> or its national importance. This is referred to as 'trading up', and is considered in circumstances where 'like for like' is not feasible.<sup>77</sup>

The difficulty in operating within an arena that has different terminology, or different definitions for the same terminology, has been noted<sup>78</sup> and the commencement of the international standardisation of terminology is one of the outcomes of the BBOP association.<sup>79</sup>

In this dissertation, the definitions for 'mitigation'<sup>80</sup> and 'biodiversity offsets'<sup>81</sup> will be those used by BBOP, unless otherwise specified.

---

<sup>74</sup> Madsen 2010, op cit note 39, at 30.

<sup>75</sup> BBOP (Handbook), op cit note 11, at 8; Commonwealth of Australia, op cit note 30, at 8 & 29.

<sup>76</sup> Conservation status is the categorisation of species/vegetation based on how likely they are to become extinct in the future. Categories include *inter alia*: Critically Endangered, which has an extreme high risk of extinction in the wild, Endangered, which has a very high risk of extinction in the wild, Vulnerable, which has a high risk of extinction in the wild, and Near Threatened, which does not currently qualify as threatened but may in the near future – IUCN, *IUCN Red List Categories and Criteria: Version 3.1.*, 2<sup>nd</sup> ed, Gland, Switzerland and Cambridge, UK: IUCN (2012), available at [http://jr.iucnredlist.org/documents/redlist\\_cats\\_crit\\_en.pdf](http://jr.iucnredlist.org/documents/redlist_cats_crit_en.pdf) (accessed March 2014), 15.

<sup>77</sup> BBOP (handbook), op cit note 11, at 4; Bull, op cit note 60, at 372; McKenney, op cit note 11, at 169; Fisheries & Oceans Canada, op cit note 38, at 3.

<sup>78</sup> Ten Kate, op cit note 11, at 80.

<sup>79</sup> BBOP (*Glossary*), op cit note 70, at 10.

<sup>80</sup> BBOP (*Glossary*), op cit note 70, at 28 defines mitigation as 'measures which aim to reduce impacts to the point where they have no adverse effects' determined through the mitigation hierarchy.

<sup>81</sup> As explained above, BBOP has defined biodiversity offset as: 'A measurable conservation outcome resulting from actions designed to compensate for significant residual adverse biodiversity impacts arising from development plans or projects after appropriate prevention and mitigation measures have

## 2.4 WHAT MAKES A FUNCTIONAL BIODIVERSITY OFFSET?

Internationally, as led by BBOP<sup>82</sup> but also reflected in many of the foreign national legislation requiring compensation mechanisms,<sup>83</sup> the following have been determined as being the minimum requirements for a biodiversity offset to be considered functional and of benefit to biodiversity.<sup>84</sup>

### 2.4.1 Mitigation Hierarchy

The strict implementation of the mitigation hierarchy to determine whether a biodiversity offset is necessary is central to the BBOP approach,<sup>85</sup> and is in general the approach taken by the various countries' legislation (as listed above), including the US, where the hierarchical approach was first established.<sup>86</sup> The mitigation hierarchy is a sequential assessment framework where impacts are first avoided, and if they cannot be avoided are then minimised, and where they cannot be minimised the impact is then remediated. The last step of the mitigation hierarchy is that if, after following all the above steps, there is still a residual impact, consideration could be given to whether such an impact could be offset.<sup>87</sup>

### 2.4.2 No Net Loss

Central to biodiversity offsets,<sup>88</sup> and also a requirement of many of the above listed compensation mechanisms, is that at a minimum 'no net loss' of biodiversity is

---

been taken', and has explained that '[t]he goal of biodiversity offsets is to achieve no net loss and preferably a net gain of biodiversity on the ground with respect to species composition, habitat structure, ecosystem function and people's use and cultural values associated with biodiversity'.

<sup>82</sup> BBOP's principles for biodiversity offsets, BBOP (Handbook), op cit note 11, at 10.

<sup>83</sup> Such as the US wetland and conservation compensation mitigation, Canadian fisheries compensation requirements, Australia federal and state offset requirements, EU compensation requirements for impacts on Natura 2000 network, and Germany's Eingriffsregelung compensation requirements.

<sup>84</sup> McKenney 2010, op cit note 11, at 168.

<sup>85</sup> BBOP (Handbook), op cit note 11, at 10.

<sup>86</sup> McKenney, op cit note 11, at 167; Dolswald, op cit note 63, at 6; US Environmental Protection Agency and US Department of the Army (USEPA & Army), 'Memorandum of Agreement Between the Environmental Protection Agency and the Department of the Army Concerning the Determination of Mitigation Under the Clean Water Act Section 404(b)(1) Guidelines. February 8, 1990.' (1990), available at <http://water.epa.gov/lawsregs/guidance/wetlands/mitigate.cfm> (accessed October 2013), Sect II.A; Commonwealth of Australia, op cit note 30, at 7; European Commission, 'Guidance document on Article 6(4) of the 'Habitats Directive' 92/43/EEC: Clarification of the Concepts of: Alternative Solutions, Imperative Reasons of Overriding Public Interest, Compensatory Measures, Overall Coherence, Opinion of the Commission' (2007), available at [http://ec.europa.eu/environment/nature/natura2000/management/docs/art6/guidance\\_art6\\_4\\_en.pdf](http://ec.europa.eu/environment/nature/natura2000/management/docs/art6/guidance_art6_4_en.pdf) (accessed October 2013), 4.

<sup>87</sup> ICMM & IUCN, op cit note 13, at 10; McKenney 2010, op cit note 11, at 167. BBOP (Handbook), op cit note 11, at 7.

<sup>88</sup> This requirement is contained within BBOP's definition of biodiversity offset.

achieved.<sup>89</sup> That is, the biodiversity offset must ensure that after the development impacts have occurred there has been a neutral effect on biodiversity<sup>90</sup> or, preferably, a net gain of biodiversity.<sup>91</sup>

### 2.4.3 Limits to what can be offset

Related to the no net loss and the mitigation hierarchy concepts is the acknowledgment that there are limits to what can be offset through a biodiversity offset process. The threshold for this limit depends on a number of factors, such as the sensitivity and value of ecosystems and ecosystem services, or the irreplaceability/rarity of species or habitat. There may also be instances in which the offsets proposed do not adequately compensate for the calculated impacts, or cannot be offset in a socially acceptable manner.<sup>92</sup> The exact definition for this limit is, however, very complex and is generally dealt with in terms of broad guidelines, such as those provided by BBOP,<sup>93</sup> for case by case decision-making.

### 2.4.4 Additionality

The concept of additionality is considered a fundamental principle of biodiversity offsets, whereby a biodiversity offset must always deliver biodiversity benefits through conservation actions over and above those already planned by other parties or required by legislation.<sup>94</sup>

---

<sup>89</sup> Canadian DFO, op cit note 38, at 7; Commonwealth of Australia, op cit note 30, at 6; European Commission 2007, op cit note 43, at 13; USEPA & Army, op cit note 86, at SectII.B.

<sup>90</sup> BBOP defines this as 'no net reduction overall in the type, amount and condition (or quality) of biodiversity over space and time' - Business and Biodiversity Offsets Programme (BBOP), *Resource Paper: No Net Loss and Loss-Gain Calculations in Biodiversity Offsets* (2012), available at [http://www.forest-trends.org/documents/files/doc\\_3103.pdf](http://www.forest-trends.org/documents/files/doc_3103.pdf) (accessed October 2013), 2.

<sup>91</sup> ten Kate, op cit note 11, at 11 & 13; Maron, op cit note 24, at 142; Darbi, op cit note 36, at 168; Madsen 2010, op cit note 39, at 38-39; Bull, op cit note 60, at 371.

<sup>92</sup> Gillespie, op cit note 1, at 28; ICMM & IUCN, op cit note 13, at 18; European Commission 2007, op cit note 86, at 13; Business and Biodiversity Offsets Programme (BBOP), *Resource Paper: Limits to What Can Be Offset*. (2012), available at [http://www.forest-trends.org/documents/files/doc\\_3128.pdf](http://www.forest-trends.org/documents/files/doc_3128.pdf) (accessed October 2013), 2.

<sup>93</sup> BBOP (limits to offsetting), op cit note 92, at 12-16.

<sup>94</sup> BBOP (handbook), op cit note 11, at 29; Commonwealth of Australia, op cit note 30, at 22; European Commission 2000, op cit note 43, at 45; McKenney, op cit note 11, at 169 &170; ICMM & IUCN, op cit note 13, at 19.

### 2.4.5 Equivalency

An offset must always, at a minimum, provide an equivalence of gains to that of project impacts.<sup>95</sup> This required equivalency is based on: type and quality, location of offset and time scale of deliverance of offset.<sup>96</sup>

In terms of type and quality, the offset should preferably be an ‘in kind’ type providing the equivalent of what will be lost, although ‘trading up’ can be considered in circumstances where ‘like for like’ is not feasible.<sup>97</sup>

The location of an offset has a high impact on equivalency, and often a decision must be undertaken between locating within the immediate area, which allows for local no net loss of ecosystem functionality and ecosystem services, and locating within the landscape or catchment which allows for incorporation of broader conservation and connectivity priorities.<sup>98</sup>

The timeframe for the delivery of the completed offset again has a high impact, as the offset needs to be gained within a timescale that would ensure ‘no net loss’ of biodiversity or social concerns.<sup>99</sup> This is not always easy as restoration of biodiversity and even ecosystem services can take many years to achieve, and this could create a time lag between the project commencing and the actual no net loss being achieved. This time lag seems, however, to be an accepted fact,<sup>100</sup> with only the EU requiring that the offset is functional prior to impacts being effected.<sup>101</sup> BBOP does also note that time lag impacts are not acceptable where such could result in irreversible biodiversity loss.<sup>102</sup>

---

<sup>95</sup> Commonwealth of Australia, op cit note 30, at 17; European Commission 2000, op cit note 43, at 45; US Department of Defense, US Environmental Protection Agency, US Department of Agriculture, US Department of the Interior, and US Department of Commerce, ‘Federal Guidance for the Establishment, Use and Operation of Mitigation Banks. 60 Fed. Reg. 58605-58614. November 28, 1995’ (1995), available at [www.fws.gov/habitatconservation/Corps%20banking%20guide.pdf](http://www.fws.gov/habitatconservation/Corps%20banking%20guide.pdf) (accessed October 2013), SecII.D.5.

<sup>96</sup> ICMM & IUCN, op cit note 13, at 20; Commonwealth of Australia, op cit note 30, at 16-17.

<sup>97</sup> BBOP (handbook), op cit note 11, at 4; Bull, op cit note 60, at 372; McKenney, op cit note 11, at 169; Fisheries & Oceans Canada, op cit note 38, at 3.

<sup>98</sup> ten Kate, op cit note 11, at 62-63; ICMM & IUCN, op cit note 13, at 20; BBOP (handbook), op cit note 11, at 30 & 77.

<sup>99</sup> ICMM & IUCN, op cit note 13, at 29.

<sup>100</sup> Commonwealth of Australia, op cit note 30, at 23; US Department of the Defense, op cit note 95, at II.D.6; BBOP (handbook), op cit note 11, at 88. McKenney, op cit note 11, at 169.

<sup>101</sup> European Commission 2000, op cit note 43, at 45.

<sup>102</sup> BBOP (no net loss), op cit note 90, at 16.

## 2.4.6 Metrics

The determination of equivalency and associated desired no net loss requires some measure of ecological and ecosystem functionality that will be lost and a related measure of how much needs to be offset to ensure no net less. These are referred to as ‘metrics’ and there are numerous different metrics that are available to calculate losses and gains and the required offsets. Such calculations often require multiple metrics to cover all aspects, such as habitat for threatened species, vegetation types or ecosystems, movement corridors and connectivity, location of and timeframes for delivery of offsets, and uncertainty of success of the offset.<sup>103</sup>

## 2.4.7 Duration, management, monitoring and compliance

A central principle for the implementation of biodiversity offsets is the requirement that an offset must be in place for the duration of the impacts resulting from the project/development, which in many cases, such as urban development, would be in perpetuity.<sup>104</sup> To facilitate this, it is in general, required that the biodiversity offset sites be secured through appropriate legal mechanisms such as protected area legislation or, in the US and Australia, easements and conservation covenants which register land use restrictions against the title deeds.<sup>105</sup> The financial costs of the management and monitoring of the biodiversity offset must be secured through an appropriate mechanism, such as a trust fund.<sup>106</sup>

The literature emphasises that an offset must be legally enforceable to ensure compliance and the delivery and maintenance of the biodiversity offset.<sup>107</sup>

---

<sup>103</sup> Maron, op cit note 24, at 142; BBOP (no net loss), op cit note 90, at 9; Doswald, op cit note 63, at 14; Quetier, F & Lavorel, S, ‘Assessing ecological equivalence in biodiversity offset schemes: key issues and solutions’ (2011) 144 *Biological Conservation* 2991–2999, 2993-2994.

<sup>104</sup> BBOP (handbook), op cit note 11, at 10; McKenney, op cit note 11, at 172; European Commission (2007), op cit note 86, at 19; Commonwealth of Australia, op cit note 30, at 18-19; US Dept of Defense, op cit note 95, at E.2; US Department of the Interior (US DOI), ‘Guidance for the establishment, use and operation of Conservation Banks’ (2003), available at [http://www.fws.gov/endangered/esa-library/pdf/Conservation\\_Banking\\_Guidance.pdf](http://www.fws.gov/endangered/esa-library/pdf/Conservation_Banking_Guidance.pdf) (accessed October 2013), B.1.

<sup>105</sup> ICMM & IUCN, op cit note 13, at 30; Commonwealth of Australia, op cit note 30, at 18; US Dept of Defense, op cit note 95, at E2; McKenney, op cit note 11, at 172.

<sup>106</sup> ten Kate, op cit note 11, at 66; European Commission (2007), op cit note 86, at 19; US DOI, op cit note 104, at D.4; ICMM & IUCN; op cit note 13, at 30; McKenney, op cit note 11, at 172; US Dept of Defense, op cit note 95, at E2-E3.

<sup>107</sup> McKenney, op cit note 11, at 172; Bull, op cit note 60, at 374.

## 2.4.8 Transparency

One of the BBOP principles<sup>108</sup> is that the design and implementation of biodiversity offsets must be adequately communicated to the public, and many countries' national legislation also requires public input into the process.<sup>109</sup>

## 2.5 EFFECTIVENESS OF BIODIVERSITY OFFSETS

Despite the above requirements, the BBOP guidance for the design and implementation of biodiversity offsets (which is receiving increasing international support), and the rapid increase in the implementation of biodiversity offsets under voluntary mechanisms and national legislation, the literature still reflects a number of concerns with regards to the effectiveness of offsets. The first concern centres on the ability to first accurately determine the full biodiversity loss and then to replace that biodiversity loss.

Biodiversity is a complex entity to measure as it includes hierarchical levels of organization from genes to ecosystems, with elements at each level varying in time and space, and diverse interactions within and between these levels.<sup>110</sup> Any measure of biodiversity is thus a proxy for this complex entity, with no single metric capturing the full extent of biodiversity.<sup>111</sup> An example of this complexity, is given by Burgin, who notes that the long term survival of a species requires knowledge and measuring of habitat requirements, metapopulation consideration,<sup>112</sup> dispersal, effects of fragmentation, ecosystem functioning, population/ecosystem viability and genetic diversity.<sup>113</sup>

Restoration of habitats or ecosystems is an uncertain science, and although some types of wetlands can be restored to functionality relatively easily, the restoration of full biodiversity functionality is not as straight forward.<sup>114</sup> Other ecosystems are even more

---

<sup>108</sup> BBOP (handbook), op cit note 11, at 10;

<sup>109</sup> European Commission (2000), op cit note 43, at 38; US Dept of Defense, op cit note 95, at C.5; US DOI, op cit note 104, at C.7; Canadian DFO, op cit note 38, at 17.

<sup>110</sup> Walker, S et al 'Why bartering biodiversity fails', (2009) 2 *Conservation Letters* 149 -157, 150.

<sup>111</sup> Bull, op cit note 60, at 371.

<sup>112</sup> A metapopulation is a network of local populations linked by dispersal. The term is used to describe systems in which local populations periodically go extinct with recolonisation occurring by migration from other local populations - Margule, CR & Pressey, RL, 'Systematic conservation planning' (2000) 405 *Nature* 243 -253, 247.

<sup>113</sup> Burgin, op cit note 60, at 811.

<sup>114</sup> Maron, op cit note 24, at 143; Gardner, R C, 'Rehabilitating nature: a comparative review of legal mechanisms that encourage wetland restoration efforts' (2003) 52 *Catholic University Law Review* (2003) 573 -620, 576.

difficult to restore completely, and such restoration can take 100 years or longer,<sup>115</sup> examples being peat wetland (which is generated on geological time) or a mature forest.<sup>116</sup> For many species this delay in restoration, even on a temporary basis, may permanently damage populations.<sup>117</sup> Replacement of biodiversity loss to full ‘no net loss’ is thus often uncertain, with the actual reckoning only taking place after the project’s impacts have already been realised.

Further to the replacement of biodiversity loss is the concern that there is insufficient monitoring and compliance enforcement, with many of the offsets currently in place showing incomplete or total lack of compliance and ability to deliver the required offset.<sup>118</sup>

These concerns are not unwarranted and, as noted in the BBOP overview document:<sup>119</sup>

the scientific community continue to explore related issues in natural and social science, such as limits to what can be offset, tests for ecological equivalence, currencies and metrics for measuring loss and gain, and approaches for ensuring that local communities and indigenous peoples benefit from projects.

Further, the best practice for biodiversity offsets is currently evolving and requires continued input from all stakeholders.<sup>120</sup>

Biodiversity offsets are thus acknowledged as being in their infancy, with many of the identified problems and kinks in the process and the actual long term viability of offsets, requiring further monitoring and scientific research. Despite these flaws, the need for balancing development and biodiversity is an immediate and pressing problem and it appears that biodiversity offsets as one of the tools to promote sustainable

---

<sup>115</sup> Burgin, op cit note 60, at 811-812; Maron, op cit note 24, at 142; Bekessy, SA *et al*, ‘The biodiversity bank cannot be a lending bank’ (2010) 3 *Conservation Letters* 151–158, 152.

<sup>116</sup> Quetier, op cit note 103, at 1991.

<sup>117</sup> Walker, op cit note 110, at 152; Maron, op cit note 24, at 145.

<sup>118</sup> Gibbons, P, and Lindenmayer, D B, ‘Offsets for land clearing: No net loss or the tail wagging the dog?’ (2007) 8 *Ecological Management & Restoration* 26–31,28; Bull, op cit note 60, at 369; Walker, op cit note 110, at 152; Matthews, op cit note 48, at 136; Quetier, op cit note 103, at 2991.

<sup>119</sup> Business and Biodiversity Offsets Programme (BBOP), *To No Net Loss and Beyond: An Overview of the Business and Biodiversity Offsets Programme* (2013) Washington DC: Business and Biodiversity Offsets Programme, available at [www.forest-trends.org/documents/files/doc\\_3319.pdf](http://www.forest-trends.org/documents/files/doc_3319.pdf) (accessed October 2013), 10.

<sup>120</sup> *Ibid*, 12.

development is attracting the attention of governments, the financial community and companies.<sup>121</sup>

The question thus appears to be whether biodiversity offset design and supporting scientific assessments will catch up with the stated full theoretical benefits and start producing the on the ground conservation gains that would contribute to sustainability.

---

<sup>121</sup> Ibid,13.

## **CHAPTER 3**

### **SOUTH AFRICA'S POLICY FRAMEWORK FOR BIODIVERSITY OFFSETS**

Biodiversity offsets in South Africa are neither mandatory nor specifically provided for in South African law, but several sectors are investigating the utilisation of biodiversity offsets, including the environment, forestry, water, mining and municipal planning sectors. Currently there is no accepted over-arching framework in South Africa to coordinate these approaches, although, as discussed below, each of the sectors has considered the international guidance and principles for functional biodiversity offsets, as set out by BBOP and found in the offsets regulations of many foreign countries.

The approach taken by each of these sectors is briefly set out below and the differences and similarities between the various South African approaches and the international and comparative guidance outlined above (referred to hereunder as the international approach) are examined. This chapter concludes, by making suggestions about the legislative controls and tools which are required to implement biodiversity offsets in South Africa.

#### **3.1 ENVIRONMENT SECTOR**

The environment sector within South Africa is managed concurrently by the national and provincial<sup>122</sup> Departments of Environment and covers a wide spectrum of issues,<sup>123</sup> such as air pollution, waste management, coastal and marine management, biodiversity and conservation, as well as land use planning and management through environmental authorisations. The utilisation of biodiversity offsets within this sector is, however, currently only being investigated and utilised within the environmental authorisation process.<sup>124</sup>

---

<sup>122</sup> Schedule 4 of the Constitution of the Republic of South Africa, 1996.

<sup>123</sup> Here the concept of environment is limited to the administrative separation of environmental functions as provided for by NEMA and the specific environmental legislation provided for by this Act. There are other elements of environment that do not fall into this administrative separation including water, heritage, marine resources, etc.

<sup>124</sup> The National Environmental Management Act 107 of 1998 (NEMA) sets out the framework for environmental authorisations, which requires that the potential consequences for/ or impacts on the environment of listed or specified activities must be considered, investigated, assessed and reported on to the competent authority (S24(1)) and that such identified activities may not commence without authorisation from the competent authority (S24F). The associated Environmental Impact Assessment Regulations, 2010, set out the process and the lists of activities that require environmental authorisation - Government Notice R543(process), GN R544 (listing notice 1), GN R545 (listing notice 2), and GN R546 (listing notice 3) in Government Gazette No. 33306 of 18 June 2010.

As noted in Chapter 1, three provincial guidelines have thus far been drafted (by the Department of Environmental Affairs and Development Planning within the Western Cape Province in 2007, Ezemvelo KZN Wildlife<sup>125</sup> within the KwaZulu-Natal Province in 2010, and the Department of Agriculture and Rural Development within the Gauteng Province in 2013).<sup>126</sup> The National Department of Environmental Affairs has also charged the South African National Biodiversity Institute (SANBI)<sup>127</sup> with the development of a national framework for the implementation of biodiversity offsets.<sup>128</sup>

These draft guidelines, although developed separately by the three provinces, follow the same general principles and approach. The national framework<sup>129</sup> as it currently stands also follows these same fundamental principles, which can be seen to closely follow those set out by BBOP. The approach within the environment sector includes the following:

### **3.1.1 Mitigation hierarchy**

Biodiversity offsets are regarded as the last option and may only be considered once all other avenues of mitigation have been investigated (as provided in the mitigation hierarchy).<sup>130</sup>

### **3.1.2 No net loss of biodiversity**

A biodiversity offset must ensure no net loss of biodiversity,<sup>131</sup> although South Africa's interpretation and baseline for this no net loss differs from the international approach, which proposes a strict no net loss of biodiversity based on restoration principles.<sup>132</sup>

---

<sup>125</sup> Ezemvelo KZN Wildlife is the trading name for the KwaZulu-Natal Conservation Services, which is a public entity that falls under the MEC of Department of Agriculture and Environmental Affairs.

<sup>126</sup> The Gauteng draft has not been released to the public and is currently in the process of being finalised.

<sup>127</sup> The South African National Biodiversity Institute was established by Section 10 of the National Environmental Management: Biodiversity Act 10 of 2004 and the institute reports to the National Department of Environmental Affairs.

<sup>128</sup> Information provided at Biodiversity Offset Workshop with SANBI, DEA and Provincial environment and conservation departments in April 2013.

<sup>129</sup> The national framework is currently in the drafting phase, but the principles underpinning the framework have been set out at a workshop attended by government departments and presented to BBOP – Manuel, J *Overview of the South African framework for Biodiversity Offsets*, presentation to the BBOP Community of Practice, 22 May 2013, available at <http://bbop.forest-trends.org/documents/files/jmanuelppt.pdf> (accessed December 2013).

<sup>130</sup> Western Cape DEADP, op cit note 19, at iii & 5; Ezemvelo KZN Wildlife, op cit note 20, at iii & 6; Gauteng, op cit note 21, at 6; Manuel, op cit note 129.

<sup>131</sup> This requirement is central to government's obligation to ensure the protection of the environment for current and future generations and its requirement to ensure sustainable use of the environment. These requirements are further discussed in Section 4.1

<sup>132</sup> BBOP (Handbook), op cit note 11, at 80.

South Africa's baseline is centred on the requirement that there is no net loss to the biodiversity targets and the biodiversity network.<sup>133</sup> That is, the no net loss concept trades loss for protection of the biodiversity network, and thus aims to ensure that representative areas of ecosystems and associated species, and biodiversity underpinning important ecosystem services, are secured for public protection in perpetuity.<sup>134</sup> This 'lower requirement' is stated as being justified on the basis that, (i) South Africa as a developing country requires land for economic expansion, and (ii) restoration of many of the habitats within South Africa, particularly the grasslands and fynbos biomes, is not economically feasible and such restoration does not achieve the biodiversity levels of pre-disturbance. Restoration of some biomes could also take decades, and in some cases centuries, to achieve the required mature habitat to support the biodiversity levels of pre-disturbance.<sup>135</sup>

Although South Africa's no net loss is a lower requirement than that set out in the international arena<sup>136</sup> and by many foreign countries, it is an established fixed baseline that can be used to determine success or failure in coming years, and thus could be said to address a flaw, the lack of a defined baseline, which has been identified in several reviews of the offset process.<sup>137</sup> This approach does however rely heavily on the accurate calculation of biodiversity targets, covering all species, habitats, ecosystems and ecosystem services, to ensure that full functionality of biodiversity in South Africa is retained. A large onus is thus placed on the spatial planning undertaken by the provinces to compile plans which identify biodiversity areas that provide for all levels of biodiversity and all levels of ecosystems.<sup>138</sup> Particularly when such plans can only be

---

<sup>133</sup> This biodiversity network is determined through systematic conservation planning. Systematic conservation planning is an internationally recognised means to identify the areas required to ensure the conservation and management of biodiversity. Such areas are determined through the setting of targets, indicating how much of each feature is required in order to conserve a representative sample of biodiversity pattern (ecosystems, habitats, species and genes) and associated ecological processes, and are areas that maintain ecological and evolutionary processes that allow biodiversity to persist in the long term- DEAT, 'Guideline regarding the determination of bioregions and the preparation of and publication of bioregional plans', published in Government Notice No 291 in Government Gazette No. 32006 of 16 March 2009, 25.

<sup>134</sup> Brownlie, S and Botha, M, 'Biodiversity offsets: adding to the conservation estate, or 'no net loss'?' (2009) 27 *Impact Assessment and Project Appraisal*, 230.

<sup>135</sup> Western Cape DEADP, op cit note 19, at 9; Ezemvelo KZN Wildlife, op cit note 20, at 27; Gauteng op cit note 21 at 32-33; Manuel, op cit note 129.

<sup>136</sup> By BBOP and a number of financial institutions such as those associated with the International Finance Corporation and the Equator Principles Association.

<sup>137</sup> Refer to Section 2.5 for further discussion in this regard.

<sup>138</sup> An ecosystem can be defined as a very small unit such as a drop of water, or aggregated to a wetland, or a wetland complex or ever larger as the entire planet. DEAT, Bioregional Plans, op cit note 133, at 9-10. Ecosystems can thus be subdivided into smaller ecosystems or aggregated into larger ecosystems,

compiled based on best available science, which, although continuously improved, cannot be said to be all encompassing.<sup>139</sup>

### 3.1.3 Thresholds for offsetting

Thresholds or limits for offsetting are based on the potential significance of the residual impacts, with a medium to high significance being considered for offsets, a low significance not requiring an offset and a very high significance being a fatal flaw and not offsettable. The guidelines indicate that significance was utilised in setting the threshold limits as the evaluation of significance of impacts and the potential for mitigation was already a central requirement of the National Environmental Management Act (NEMA) and its EIA Regulations.<sup>140</sup> It is likely that the utilisation of significance levels was also guided by the international approach, as the use of significance of impacts to evaluate potential for offsets, and the potential that very high significance is non-offsettable, is also a feature of the international guidelines.<sup>141</sup>

Guidance is given on what circumstances would create these three significance levels.<sup>142</sup> This guidance is based, in line with the international approach, on the individual assessment of vulnerability and irreplaceability<sup>143</sup> of ecosystems, species and ecosystem services.<sup>144</sup> In addition to the individual assessments, the South African environmental sector's approach<sup>145</sup> also requires the categorisation of the three levels,

---

and the thus question arises at what level must ecosystem integrity be maintained to fulfil the sustainability requirement.

<sup>139</sup> Driver, M, Cowling, RM & Maze, K, 'Planning for Living Landscapes; Perspectives and Lessons from South Africa' Center for Applied Science at Conservation International Cape Town (2003), available at [http://www.cepf.net/documents/living\\_landscapes.pdf](http://www.cepf.net/documents/living_landscapes.pdf) (accessed September 2013), 43.

<sup>140</sup> Western Cape DEADP, op cit note 19, at 9; Ezemvelo KZN Wildlife, op cit note 20 at 27, Gauteng, op cit note 21, at 37; Manuel, op cit note 129;

S24(4)(a)(iv) of NEMA requires that all applications for environmental authorisation must investigate the proposed activities' impacts on the environment and assess the significance of these impacts. In the EIA Regulations, 2010, this assessment requirement is linked to the determination of residual impacts, through the requirement that the significance of the impact is assessed as well as the extent to which the impact may be reversed or mitigated (R22 & R31).

<sup>141</sup> BBOP (limits to offsetting), op cit note 92, at 3 & 12.

<sup>142</sup> Low, Medium to high, and Very high.

<sup>143</sup> Where 'Vulnerability' is the likelihood or imminence of biodiversity loss due to impacts such as ongoing cumulative impacts, fragmentation, degradation and or habitat loss, over harvesting etc; and 'Irreplaceability' is the uniqueness of the biodiversity and whether there are other options for conserving that biodiversity. - Ezemvelo KZN Wildlife op cit note 20 at 32.

<sup>144</sup> Western Cape DEADP, op cit note 19, at 27-28 & 74-81; Ezemvelo KZN Wildlife, op cit note 20, at 32 & 106-115; Gauteng, op cit note 21, at 38-39; Manuel, op cit note 129.

<sup>145</sup> This approach is explicitly set out in the draft national framework, and in the Gauteng draft guideline (Gauteng, op cit note 21, at 41 & 44-47, which was developed at the same time as the national framework was being drafted. The Western Cape (Western Cape, op cit note 19, at 27) and KZN draft guidelines (Ezemvelo KZN Wildlife, op cit note 20, at 32) also refer to spatial planning as a means to

based on spatial planning<sup>146</sup> information and biodiversity maps,<sup>147</sup> which are available at a national and provincial level and, in some cases, at a finer scale.<sup>148</sup>

### 3.1.4 Additionality

In line with the international approach, biodiversity offsets are required to achieve gains above and beyond measures that are already required by law or would have occurred had the offset not taken place. The types of actions that would constitute an offset are the prevention of loss of biodiversity through securing areas and/or averting risk. Unlike the international approach, the creation and restoration of habitat or ecosystems is, in general, not considered as a viable offset action, except with regards to certain wetland types. Rehabilitation of habitat or ecosystems is further considered to be a management action and would not constitute a stand-alone offset, but would only be considered if combined with securing areas and averting risk.<sup>149</sup> Monetary compensation, where the cost of securing and managing a site was paid to a third party (banking or a conservation fund), is set out as an option, however it is noted that at this time no mechanisms are in place to facilitate the banking option. It has further been noted that payment into a fund managed by conservation authorities has risks in terms of capacity constraints of the said authorities to manage the various funds and banks.<sup>150</sup> The main type of offset recognised is therefore the securing of area with associated actions to avert risk.

### 3.1.5 Metrics

In order to meet the requirement of no net loss of biodiversity beyond the scientific targets established for a particular biodiversity feature or ecosystem, the guidelines, as

---

determine significance levels although less guidance is provided on how this could be used to determine whether a biodiversity offsets could be considered.

<sup>146</sup> Spatial planning is undertaken by systematic conservation assessments. See op cit note 133 for an explanation of systematic conservation assessments.

<sup>147</sup> GIS based maps which delineate areas of priority biodiversity, termed critical biodiversity areas (features/area required to achieve conservation targets) and ecosystem support areas (features/area required to maintain the critical biodiversity areas). These maps are a visual representation of the area required to conserve and maintain biodiversity and are based on required biodiversity targets and irreplaceability and vulnerability concepts. The methodology for determining these delineations and maps has been standardised through workshops with SANBI and the provinces, and the intention is for such maps to be compiled for all of the provinces.

<sup>148</sup> The inclusion of systematic planning information and maps is aimed at ensuring that cumulative impacts do not compromise biodiversity persistence and representivity (i.e. viability of biodiversity) – Manuel, op cit note 129.

<sup>149</sup> Western Cape DEADP, op cit note 19, at 9; Ezemvelo KZN Wildlife, op cit note 20, at 27-28; Manuel, op cit note 129.

<sup>150</sup> Western Cape DEADP, op cit note 19, at 58; Ezemvelo KZN Wildlife, op cit note 20, at 90; Gauteng, op cit note 21, at 82; Manuel, op cit note 129.

with the international approach, require that a metric<sup>151</sup> must be utilised to determine the loss and gains and to calculate the type and size of the offset required.<sup>152</sup>

The metrics currently set out in the provincial guidelines, and which also appear to be the approach that the national framework is undertaking, provide guidance on how to undertake the basic first calculations but still leave the modifiers as a case by case assessment based on relevant species and site specific scientific knowledge and assessments. The metrics thus do not provide for a fool proof calculation and are still based on available expert knowledge and the decision-making of authorities. These metrics are also largely based on terrestrial ecosystems and do not provide adequate guidance for systems such as wetlands, which can undergo rehabilitation and restoration and which thus also need to take into account functional equivalency in the metrics.

### 3.1.6 Equivalency

The proposed offset site should preferably be an ecological equivalent (like for like), although trading up would be considered on a case by case basis, in circumstances when the habitat which is to be impacted has a low threat/conservation status and the offset will result in the securing of valuable threatened habitat.<sup>153</sup> The location of the offset site(s) must also be determined on a landscape basis, and must be located so as to provide comparable ecosystem services<sup>154</sup> (specifically to those parties adversely

---

<sup>151</sup> The metric to calculate the loss and gains is ecosystem and area (calculated in hectares) based, meaning that the size of the offsets is calculated firstly utilising the size of the impacted site multiplied by a ratio generated by the conservation status [Critically Endangered, Endangered, Vulnerable, or Least Threatened] of the vegetation (ecosystem) and the existing protection level for that vegetation type [This first basic ratio is also referred to as a conservation outcome multiplier and is one of the methodologies recognised in the international guidance - BBOP( no net loss), op cit note 90, at 19.] The size of biodiversity offset is then adjusted to take into account other factors, such as the condition of the site, the presence of threatened or protected species, important ecological process areas, or important ecosystem services, levels of risk or uncertainty associated with the success of the biodiversity offset, and time lags before the biodiversity offset would be achieved [Western Cape DEADP, op cit note 19, at 53; Ezemvelo KZN Wildlife, op cit note 20, at 78; Gauteng op cit note 21, at 86; Manuel, op cit note 129].

<sup>152</sup> Western Cape DEADP, op cit note 19, at 44; Ezemvelo KZN Wildlife, op cit note 20, at 64; Gauteng, op cit note 21, at 86; Manuel, op cit note 129.

<sup>153</sup> Western Cape DEADP, op cit note 19, at 45-46; Ezemvelo KZN Wildlife, op cit note 20, at 66-67; Gauteng op cit note 21, at 80; Manuel, op cit note 129.

<sup>154</sup> Ecosystems services are benefits that are derived from the natural capital of an ecosystem and which can be categorised as goods, services and attributes. 'Goods' are harvestable resources, such as water and food; 'services' are processes, such as erosion control or treatment of waste; and 'attributes' are recreational or cultural. – Turpie, J, 'Environmental and Resource Economics' in *Fuggle & Rabies' Environmental Management in South Africa*, Strydom, HA & King, ND (eds) 2 ed (2009) 46.

affected by impacts on ‘their’ ecosystem services); and be as close to the impacted site as possible, preferably within the same sub-catchment.<sup>155</sup>

### **3.1.7 Duration, management, monitoring and compliance**

Offsets are aimed to be maintained in perpetuity and are thus required to be secured and further managed for at least the lifetime of the impacts.<sup>156</sup> The proposals for the national framework provide that the securing of an offset must be through the proclamation of the land as a nature reserve under the National Environmental Management: Protected Areas Act 57 of 2003 (NEMPA). The reason for this preference is that this secures the land in perpetuity, provides controls for management of the biodiversity and also precludes mining of the land.<sup>157</sup> However, it has been acknowledged that not all offset sites will comply with the legal requirements for a nature reserve, especially wetlands, which in South Africa are small scattered units within the landscape.<sup>158</sup> The provincial draft guidelines suggest that sites could also be secured through conservation servitudes, Protected Environments (NEMPA), and biodiversity agreements under S44 of the National Environmental Management: Biodiversity Act 10 of 2004 (NEMBA).<sup>159</sup>

The draft provincial guidelines also requires that funding must be provided for any immediate rehabilitation programmes, the long term management of the land, the auditing and monitoring of the offset, and the management of the fund itself.<sup>160</sup> The draft provincial guidelines further stipulate that the enforcement of an offset, and compliance with the required management, monitoring and auditing, must be part of the conditions of the environmental authorisation, as continued compliance is required to ensure a viable long term offset.<sup>161</sup>

---

<sup>155</sup> Western Cape DEADP, op cit note 19, at 56; Ezemvelo KZN Wildlife, op cit note 20, at 84; Manuel, op cit note 129.

<sup>156</sup> Western Cape DEADP, op cit note 19, at 57; Ezemvelo KZN Wildlife, op cit note 20, at 87; Gauteng, op cit note 21 at 100; Manuel, op cit note 129.

<sup>157</sup> Minerals are owned by the state and not by the landowners, thus the setting aside of land for conservation use does not automatically exclude the minerals from been exploited by an entity licensed by the Department of Mineral Resources. The exception to this is provided in S48 of NEMPA, which prohibits commercial prospecting or mining activities in Special Nature Reserves, National Parks, and Nature Reserves [S48(1)(a)] as well as in World Heritage sites, Marine Protected Areas, Specially Protected Forest Areas, Forest Nature Reserves and Forest Wilderness Areas [S48(1)(c)]. Further S48(1)(b) prohibits commercial prospecting or mining activities in Protected Environments unless written permission is obtained from both the Minister and the Minister for Mineral Resources.

<sup>158</sup> Discussion at workshops with SANBI.

<sup>159</sup> Western Cape DEADP, op cit note 19, at 59; Ezemvelo KZN Wildlife, op cit note 20, at 88; Gauteng, op cit note 21 at 101.

<sup>160</sup> Western Cape DEADP, op cit note 19, at 60; Ezemvelo KZN Wildlife, op cit note 20, at 91; Gauteng, op cit note 21 at 101.

<sup>161</sup> Western Cape DEADP, op cit note 19, at 41-42; Ezemvelo KZN Wildlife, op cit note 20, at 61.

### 3.1.8 Public involvement

The involvement of the public in the offsets calculations and design is expected to occur through the mechanisms provided for in the EIA Regulations, 2010.<sup>162</sup>

## 3.2 FORESTRY SECTOR

The forestry sector is managed by the National Department of Agriculture, Forestry and Fisheries (DAFF) under the National Forest Act,<sup>163</sup> which addresses management of plantations<sup>164</sup> and the protection and conservation of natural forests and protected trees.<sup>165</sup>

The Department of Agriculture, Forestry and Fisheries has compiled a four page document to provide guidance on DAFF's approach to offsets,<sup>166</sup> which states that biodiversity offsets could be considered within the licensing process required for the destructions of trees within natural forests<sup>167</sup> and the destruction of protected trees.<sup>168</sup>

The guideline sets out that it is the preference of DAFF that offset requirements are integrated into the environmental authorisation process;<sup>169</sup> however, if requirements are not incorporated or not incorporated satisfactorily, then offsets should be managed through the licensing application process.<sup>170</sup> As with the environment sector's approach to biodiversity offsets, DAFF will only consider an offset as a last resort after it has been proven that the land use change or development is absolutely necessary and that no feasible alternatives exist, and (in the case of natural forest) that the development fulfils the requirements for exceptional circumstances.<sup>171</sup>

---

<sup>162</sup> Western Cape DEADP, op cit note 19, at 82-89; Ezemvelo KZN Wildlife, op cit note 20, at 116-123; Chapter 6 of the EIA Regulations, 2010.

<sup>163</sup> Act 84 of 1998.

<sup>164</sup> Plantations are defined as 'a group of trees cultivated for exploitation of the wood, bark, leaves or essential oils in the trees' under S2 of the National Forest Act.

<sup>165</sup> The Minister may declare trees belonging to a particular species, or a particular tree, group of trees or woodland as protected under S12 of the National Forest Act.

<sup>166</sup> Department of Agriculture, Forestry and Fisheries (DAFF) 'Guidance on Off-Sets: Approach of DAFF Regarding Off-Sets as Condition for the Licensing Of Destruction of Protected Trees and Natural Forests' (2012).

<sup>167</sup> S7 of the National Forest Act.

<sup>168</sup> S15 of the National Forest Act.

<sup>169</sup> As managed by the environment sector through the National Environmental Management Act 107 of 1998 (NEMA) and its EIA Regulations, 2010.

<sup>170</sup> DAFF, op cit note 166, at 1.

<sup>171</sup> S3(3)(a) of the NFA states that natural forest may only be destroyed in favour of development in exceptional circumstances, whereby 'exceptional circumstances' is defined as capital projects of national, regional or local strategic significance where no alternative routes or locations are feasible or

Two pathways are allowed for offsets, namely:

- (i) The setting aside of an area for conservation. This area must be in the same province that the destruction occurs and should be of the same vegetation type.<sup>172</sup> This land must be secured through the declaration of a protected area and the land either donated to the Provincial Conservation Agency or managed privately, with only the latter option requiring long term funding options.<sup>173</sup>
- (ii) The placement of money within a trust fund which is to be used for conservation purposes, preferably within the same vegetation type.<sup>174</sup>

The guideline also provides guidance on the metrics required for the calculation of the required offset or monetary compensation. For natural forest, the metric is a basic multiplier with the ratio to be determined by rare forest types, forest types declared as threatened or critical biodiversity areas.<sup>175</sup>

### 3.3 WATER AND MINING SECTORS

South Africa's water sector is managed by the National Department of Water Affairs under the National Water Act, 1998.<sup>176</sup> The mining sector is managed by the National Department of Mineral Resources (DMR) under the Minerals and Petroleum Resources Development Act (MPRDA),<sup>177</sup> although other departments, such as those responsible for the environment<sup>178</sup> (EIA Regulations<sup>179</sup>) and water (Water Use Licences)<sup>180</sup> have authorisation requirements that also manage mining activities.

---

possible - Department of Agriculture, Forestry and Fisheries, *Policy Principles and Guidelines for Control of Development Affecting Natural Forests*, available at [http://www.nda.agric.za/doaDev/sideMenu/ForestryWeb/webapp/Documents/PolicyGuide\\_NaturalForestsDev.pdf](http://www.nda.agric.za/doaDev/sideMenu/ForestryWeb/webapp/Documents/PolicyGuide_NaturalForestsDev.pdf) (accessed December 2013), 9.

<sup>172</sup> DAFF, op cit note 166, at 2.

<sup>173</sup> DAFF, op cit note 166, at 3.

<sup>174</sup> DAFF, op cit note 166, at 2.

<sup>175</sup> Multiplier from 12 to a maximum of 30 – DAFF, op cit note 166, at 3.

<sup>176</sup> National Water Act 36 of 1998.

<sup>177</sup> Act 28 of 2002.

<sup>178</sup> Environmental authorisations for the mining sector have been a point of contention between the Environment and Mineral Departments. Initially the EIA Regulations did not require environmental authorisations for mining activities and the EIA Regulations, 2010, which did list mining activities (Activities 19 and 20 in Listing Notice 1), were and are still suspended in respect of these activities. The 2010 listing of mining activities was derived from extensive negotiations between the two sectors, which determined that the Department of Mineral Resources would be the competent authority for mining activities for 18 months and this would then revert back to the Department of Environment. This negotiated process was set out in the National Environmental Management Amendment Act 62 of 2008 and the Mineral and Petroleum Resources Development Amendment Act 49 of 2008. This process was, however, only initiated when the commenced date for the MPRDA amendment Act was published as 7 June 2013, thus setting the date for DMR to be a competent authority, for these mining activities, as December 2014.

For the water and mining sectors, discussion on the need for an offsets guideline was initiated by the SANBI Grassland Programme<sup>181</sup> as part of its interactions within the mining sector, and the draft guideline<sup>182</sup> was developed through the subsequent partnership of the Grassland Programme with the Department of Water Affairs.

The draft Wetland Guideline developed under this partnership relates only to wetlands (that is, the document is specific to one type of ecosystem only), and is intended for applications through the MPRDA, as well as the Environmental Authorisation and Water Use License processes.<sup>183</sup> Further, once this guideline is finalised, the National Department of Water Affairs proposes to *Gazette* the guideline under the National Water Act as a standard for the implementation of wetland offsets.

A similar approach to that set out in environment sector's draft guidelines is taken, with the international principles discussed above forming the framework of the draft Wetland Guideline,<sup>184</sup> namely: implementation of the mitigation hierarchy;<sup>185</sup> that there are limits to what can be offset;<sup>186</sup> offsets must ensure no net loss;<sup>187</sup> offsets should not consist of activities already required by law (additionality);<sup>188</sup> and offsets must be secured for as long as the impacts occur.<sup>189</sup> Offsets should be designed on a landscape/catchment basis,<sup>190</sup> using best available information, and should provide a fair and balanced outcome (equitable outcome) in terms of surrounding communities and conservation needs.<sup>191</sup>

---

<sup>179</sup> Environmental Impact Assessment Regulations, 2010, supra note 124.

<sup>180</sup> Water uses, as listed in S21 of the National Water Act, require a water use license under S22(b) of the same Act.

<sup>181</sup> The Grasslands Programme commenced in 2008, and is a 20-year partnership between national and provincial government departments, conservation agencies, non-governmental organisations, municipalities, and the private sector which seeks to sustain and secure the biodiversity and associated ecosystem services of the grasslands biome for the benefit of current and future generations. See <http://www.sanbi.org/programmes/working-country-wide/grasslands-programme>.

<sup>182</sup> Department of Water Affairs and South African National Biodiversity Institute (DWA & SANBI), *Wetlands offsets: a best practice guideline for South Africa* (draft) (2013).

<sup>183</sup> DWA & SANBI, op cit note 182, at 5.

<sup>184</sup> DWA & SANBI, op cit note 182, at 14.

<sup>185</sup> DWA & SANBI, op cit note 182, at 14.

<sup>186</sup> DWA & SANBI, op cit note 182, at 15 and 23.

<sup>187</sup> DWA & SANBI, op cit note 182, at 16.

<sup>188</sup> DWA & SANBI, op cit note 182, at 17.

<sup>189</sup> DWA & SANBI, op cit note 182, at 17.

<sup>190</sup> DWA & SANBI, op cit note 182, at 15.

<sup>191</sup> DWA & SANBI, op cit note 182, at 14.

Further as with the environment sector's approach, the draft Wetland Guideline provides guidance on the threshold for the limits to what can be offset, with low residual impacts in general not requiring offsets and very high significant impacts been considered 'non-offsetable'. Guidance on what is non-offsetable is provided as both a broad description<sup>192</sup> and a specific list of wetland types or circumstances that would result in the impacts being of very high significance and thus non-offsetable.<sup>193</sup> This list is similar to the environmental sector's concept of utilising the spatial planning generated information to determine significance.

The draft guideline sets out that the wetland offsets can be delivered through one or a combination of mechanisms, namely: (i) protection through implementation of legal mechanisms to secure the wetland; (ii) averted loss of a wetland which is under threat through current activities (such as farming methods) or degradation (such as erosion gullies and headcuts); (iii) rehabilitation through the improvement of wetland condition, function and associated biodiversity; (iv) establishment through the creation of a new wetland system; and (v) direct compensation for ecosystem services lost through monetary means or provision of lost service through engineering structures (such as a water treatment plant).<sup>194</sup> The first three mechanisms are similar to those proposed in the environment sector. Establishment of a new wetland is specific to this ecosystem, as creation of a new habitat would not be possible in most terrestrial systems. The direct compensation is also not provided for in the environment sector, although a similar but parallel concept is proposed, where resource use is replaced or subsidised to avert risk (over harvesting, etc.) on a habitat.<sup>195</sup>

The draft Wetland Guideline, in its assessment of residual impacts and no net loss, looks at three aspects: the intrinsic value of the wetland (hydrological functionality, conservation status and species habitat), the ecosystem services provided by the wetland,<sup>196</sup> and the wetland's importance as a water resource in terms of water resource

---

<sup>192</sup> Offsets should not be used with respect to the following: Ecosystems or habitats of high irreplaceability (i.e. those ecosystems/habitats which are unique or rare or are restricted in distribution and/ or abundance), or high vulnerability; as well as activities with highly significant impacts on ecosystem services and water resources - DWA & SANBI, op cit note 182, at 15.

<sup>193</sup> DWA & SANBI, op cit note 182, at 23.

<sup>194</sup> DWA & SANBI, op cit note 182, at 17-18.

<sup>195</sup> Ezemvelo KZN Wildlife, op cit note 20, at 28.

<sup>196</sup> See note 154 for more information on ecosystems services.

management and water resource quality objectives.<sup>197</sup> The metric used to determine the loss and gains is based on an ecosystem approach,<sup>198</sup> as is also followed by the environmental sector.<sup>199</sup>

In terms of securing the offsets for long term outcomes, the draft guideline sets out that wetland offsets need to be secured through appropriate legal mechanisms, which include declaring the site a formally protected area or the use of a conservation servitude registered on the title deeds; and that the long-term management of the offset needs to be secured through financial provision by the developer in the form of a fund.<sup>200</sup> It is also required that monitoring of the implementation and long term management of the offset be undertaken, based on an agreed upon plan with milestones and associated indicators and final condition targets.<sup>201</sup>

As with the environment sector's draft guidelines, there is a requirement for a report that clearly sets out the impacts, proposed offsets with calculations, proposed timeframes for implementation, the monitoring and management plan.<sup>202</sup>

### **3.4 MUNICIPAL PLANNING SECTOR**

Several municipalities, including the City of Cape Town, eThekweni Metropolitan Municipality and uMgungundlovu District Municipality, have investigated the utilisation of biodiversity offsets through municipal planning legislation.<sup>203</sup> At this

---

<sup>197</sup> The national water resource quality objectives are set in terms of S13 of the National Water Act 36 of 1998 and establish the required resource quality in terms of instream flow, water quality, instream and riparian habitat and aquatic biota (S1 of National Water Act of 1998). The water resource management requirements are set by the relevant catchment agencies and the National Water Resource Strategy as per S5 & S6 and Chapter 7 of the National Water Act.

<sup>198</sup> DWA & SANBI, op cit note 182, at 15.

<sup>199</sup> However, the concept around the calculation method differs, with the wetland guideline using fractional multiplier (this includes calculations based on protection level, regional and national importance, value of species within wetland, condition of the wetland buffer and connectivity within the landscape), which reduces the extent of the required offset area based on the biodiversity significance of the wetland - DWA & SANBI, op cit note 182, at 30-35. In international practice, multipliers are generally used to account for risk and uncertainty and are used to increase offset areas - BBOP (Handbook) 2012, op cit note 11, at 88. The environment sector's methodology does not follow this practice of fractional multipliers, and instead uses multipliers for additional habitat requirement (species, ecosystem services, etc), as well as risk and uncertainty, as per the international approach. There is a fundamental difference in the two methodologies, which could create confusion for developers when requiring authorisations from both the environment and mining/water departments.

<sup>200</sup> DWA & SANBI, op cit note 182, at 54.

<sup>201</sup> DWA & SANBI, op cit note 182, at 56.

<sup>202</sup> DWA & SANBI, op cit note 182, at 56.

<sup>203</sup> In the case of eThekweni, offsets have already been incorporated into planning authorisations, for example the Sun Coast Casino which was required to undertake an offset to mitigate impacts on 1ha of

stage, no municipal guidelines have been developed, although the eThekweni Metropolitan Municipality is currently investigating the possibility of piloting a conservation bank within the municipality.<sup>204</sup>

### 3.5 SOUTH AFRICA'S APPROACH TO BIODIVERSITY OFFSETS

As explained hereinabove, there are several sectors investigating the utilisation of biodiversity offsets for their sector's application processes. The various approaches have, in general, followed the same lines, as in all cases the international discussions and guidelines for offsets have been utilised as the frameworks. The South African approach thus appears to be in line with current BBOP and international thinking. Although, in this regard it is noted that the BBOP guidelines are relatively new and have not been well tested at this time, thus, no conclusion can be drawn around the viability of the biodiversity offset approach.

Further to this, guidelines can only lay down general principles to govern the use of biodiversity offsets. The determination of whether an offset should be considered and how it is managed and enforced comes down to the available legislative controls and tools, as well as the decisions made by the application authorities,<sup>205</sup> which themselves can be influenced by resource and time constraints and the difficulty of balancing the three sustainability pillars (social, economic and environmental sustainability) in a developing country.

---

dune vegetation during the construction of the casino, with the offset being the re-creation of vegetated dunes using a ratio of 12:1.

<sup>204</sup> Discussion at eThekweni workshop 'Exploring the opportunity to pilot a conservation banking scheme in eThekweni municipality' on 29 November 2013.

<sup>205</sup> Decision making by officials has a significant impact on the outcomes of a project, and it has been noted that in making such decisions officials often have motivations that are different from their statutory mandates, including personal choices, political pressure, practical problems in enforcing complex conditions, etc. – Walker, op cit note 110, at 153; Evans, R 'Decision Making in the Environmental Impact Assessment Process' available at [http://dukespace.lib.duke.edu/dspace/bitstream/handle/10161/8416/R.%20Evans%20-%20Decision%20Making%20in%20the%20EIA%20Process\\_FINAL.pdf?sequence=1](http://dukespace.lib.duke.edu/dspace/bitstream/handle/10161/8416/R.%20Evans%20-%20Decision%20Making%20in%20the%20EIA%20Process_FINAL.pdf?sequence=1) (accessed July 2014), 4.

Further, decision-making which includes a biodiversity offset can be considered as multi-objective, multi-criteria decisions, which have to contend with many conflicting constraints between the various environmental options, and the accumulation of large amounts of project-specific information - Evans, *ibid*, at 5. The impact of officials on decision making is, however, outside the scope of this investigation and will not be discussed in further detail.

### **3.5.1 Legislative controls and tools**

Based on the above guidelines and frameworks, it is submitted that the legislative controls and tools required for implementing the biodiversity offsets in South Africa and specifically the environment sector, can be grouped into seven themes. Namely:

1. Legislation framework that enables, or at a minimum does not prohibit, the utilisation of biodiversity offsets.
2. Tools to facilitate a uniform approach to the investigation, design and implementation process.
3. Mechanisms to initiate and provide for the investigation and design of a biodiversity offset.
4. Mechanisms to enforce the implementation of the offset to the desired standard.
5. Mechanisms to secure the legal protection of the offset for the required duration.
6. Financial mechanisms to secure the long term management of the offset.
7. Mechanisms providing for the involvement of surrounding communities in the biodiversity offset process.

The above grouping has been presented to facilitate and structure the discussion in Chapter 4, which will critically assess whether South African law, in particular its laws relating to environmental authorisations, adequately provides for the mechanisms identified above as being necessary for the implementation of biodiversity offsets.

## **CHAPTER 4**

### **SOUTH AFRICA'S LEGISLATIVE FRAMEWORK FOR BIODIVERSITY OFFSETS IN THE ENVIRONMENTAL SECTOR**

Biodiversity offsets are being required, on a case by case basis, by government authorities in the context of various authorisation processes.<sup>206</sup> It is these existing application processes, which are currently being used to provide, the mechanisms for the initiation and investigation of offsets, the design of the offsets and enforceable conditions for monitoring and implementation.

This chapter looks at whether South Africa's current legislation pertaining to the Environmental Authorisation, Environmental Impact Assessment process (as administered by the national and provincial environmental authorities) provides an adequate framework for the utilisation of biodiversity offsets.

The investigation of this framework is structured around the seven themes identified in Chapter 3 as being required for biodiversity offsets to be implemented within South Africa.

#### **4.1 BIODIVERSITY OFFSET COMPATIBILITY WITH SOUTH AFRICA'S ENVIRONMENTAL LAW**

At this stage, no legislation is in place that directly refers to or mandates the implementation of biodiversity offsets. This section thus investigates whether the use of biodiversity offsets is consistent with basic principles underlying South African environmental law, and whether the current legislation enables, or at a minimum does not prohibit, the utilisation of biodiversity offsets. The investigation below considers whether the use of biodiversity offsets is consistent with the public trust doctrine, the NEMA principles, and the concept of IEM, and whether there are any provisions of NEMA which might be seen as enabling offsets.

---

<sup>206</sup> Application processes such as the EIA Regulations, mining permits and licences, water use licences, forestry licences, town planning approvals, etc.

### 4.1.1 Constitution

The framework for South Africa's environmental legislation is contained within the environmental right<sup>207,208</sup> of S24 of the Constitution.<sup>209</sup> Where sub-section (b) creates a constitutional imperative to protect the environment through reasonable legislative and other measures,<sup>210</sup> whereby the protection of the environment through these reasonable legislative and other measures requires the prevention of ecological degradation, promotion of conservation, and the securing of ecologically sustainable development.<sup>211</sup>

This requirement for sustainability is seen to be central to South Africa's environmental legislation,<sup>212</sup> with the environmental right requiring that the promotion of justifiable economic and social development must be pursued<sup>213</sup> and NEMA setting out that all development must ensure a balancing of the three sustainability pillars, with such development being socially, economically and environmentally sustainable.<sup>214</sup> Biodiversity offsets on the face of it could be said to uphold this requirement for balancing the three pillars of social, economic and environment, as they are put forward as a means to allow the unlocking of economic and social development, whilst still providing for conservation and protection of biodiversity.

It could thus be argued that although the environmental right does not specifically provide for offsets, legislative or 'other measures'<sup>215</sup> taken to implement biodiversity

---

<sup>207</sup> Kotzé LJ, 'The Judiciary, the Environmental Right and the Quest for Sustainability in South Africa: A Critical Reflection' (2007) 16(3) *RECIEL*, 298.

<sup>208</sup> This term serves to describe a fundamental human right to have a safe and protected environment and does not imply that the environment has a right. - Blackmore, A 'The relationship between the NEMA and the Public Trust: The importance of NEMA principles in safeguarding South Africa's biodiversity' - in prep, 2014

<sup>209</sup> Constitution of the Republic of South Africa, 1996, which reads as 'Everyone has the right- (a) to an environment that is not harmful to their health or well-being; and (b) to have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that- (i) prevent pollution and ecological degradation; (ii) promote conservation; and (iii) secure ecologically sustainable development and the use of natural resources while promoting justifiable economic and social development'.

<sup>210</sup> Kidd, M, *Environmental Law* 2ed (2011), 23; Environmental right, *ibid*.

<sup>211</sup> S24(b)(i) to (iii) of the Constitution, *op cit* note 209.

<sup>212</sup> Kidd, *op cit* note 210, at 18; Paterson, A, 'Fuelling the Sustainable Development Debate in South Africa' *South African Law Journal* (2006) 123(1), 62; *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) at para [58-60]; *MEC, Department Of Agriculture, Conservation And Environment And Another v HTF Developers (Pty) Ltd* 2008 (2) SA 319 (CC) at para [65].

<sup>213</sup> S24(b)(iii) of the Constitution, *op cit* note 209.

<sup>214</sup> S2(3) NEMA.

<sup>215</sup> The meaning or interpretation of 'other measures' is not provided for in the Constitution, (Kidd, *op cit* note 210, at 24; du Plessis, A, 'Adding Flames To The Fuel: Why Further Constitutional Adjudication Is Required For South Africa's Constitutional Right To Catch Alight' (2008) 15 *SAJELP*,

offsets would not be in contradiction of the constitutional requirements of the environmental right.

#### 4.1.2 State's trusteeship of biodiversity

In addition to the sustainability requirement is the fact that, in South Africa, the State is the trustee of the environment and biological diversity.<sup>216</sup> The question thus arises whether this trusteeship allows for the biodiversity offset concept which, in effect, sanctions the significant loss of biodiversity in one area as a means to secure biodiversity in another area.

The State's trusteeship is based on the environmental right, which requires that the State must ensure that the environment is protected for present and future generations.<sup>217</sup> This protection is to be attained<sup>218</sup> through mechanisms that prevent ecological degradation, promote conservation and ensure that the exploitation of the environment through utilisation of resources and development is sustainable. Thus, protection of the environment is, in large part, seen as meaning the sustainable<sup>219</sup> use thereof. This is further set out in NEMBA, which requires that the State must manage, conserve and sustain South Africa's biodiversity.<sup>220, 221</sup>

---

72) although it has been put forward that 'other measures' would include policies and programmes, (*Government of the Republic of South Africa v Grootboom* 2001 (1) SA 46 (CC) at para [42]; Kidd, op cit note 210, at 24; du Plessis, op cit note 215, at 73) and could be construed to include the implementation of legislative measures, environmental law compliance and enforcement measures, mechanisms to promote environmental education, (Kidd, op cit note 210, at 24; du Plessis, op cit note 215, at 73; Kotzé, op cit note 207, at 301) as well as administrative measure (Kotzé, op cit note 207, at 301; du Plessis, op cit note 215, at 7).

<sup>216</sup> S24 of Constitution, op cit note 209, requires that 'the environment is protected for the present and future generations'; Section 2(4)(0) of NEMA states that '[t]he environment is held in public trust for the people, the beneficial use of environmental resources must serve the public interest and the environment must be protected as the people's common heritage'; Section 3 of NEMBA states that 'in fulfilling the rights contained in section 24 of the Constitution, the state ... must (a) manage, conserve and sustain South Africa's biodiversity and its components and genetic resources'.

<sup>217</sup> S24 of the Constitution, op cit note 209.

<sup>218</sup> S24(b)(i) to (iii) of the Constitution, op cit note 209.

<sup>219</sup> Sustainable development is defined in S(1) of NEMA as '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'.

<sup>220</sup> S3 of NEMBA, (own emphasis); op cit note, 216.

<sup>221</sup> This concept of public trust aligns with that set out by Sax, who in 1970 wrote a seminal article on the public trust concept, in which he noted that the public trust and the principal requirement for government to promote the public interest does not require the preservation of every inch of public trust property – Sax, J 'The Public Trust Doctrine in Natural Resource Law: Effective Judicial Intervention', 68 *Michigan Law Review* (1970) 68(3) 471 – 566, 488.

The level required to sustain biodiversity and ensure intergenerational equity is not explicitly provided for, although NEMBA does provide that sustainable use of a biological resource<sup>222</sup> requires that the resource must be used in such a way and at a rate that ‘(a) would not lead to its long-term decline; (b) would not disrupt the ecological integrity of the ecosystem in which it occurs; and (c) would ensure its continued use to meet the needs and aspirations of present and future generations of people’.<sup>223</sup>

Biological resources, obviously only constitute a component of biodiversity,<sup>224</sup> but this definition nevertheless provides an indication of the expected approach with regards to biodiversity sustainability and development, where such development must not lead to long term decline of biodiversity, must maintain the ecological integrity of the ecosystem and must ensure its continued existence for present and future generations.<sup>225</sup>

South Africa’s current approach to the conservation of biodiversity and its incorporation into sustainable development is through systematic conservation planning tools.<sup>226</sup> This approach arises from the fundamental principle underpinning South Africa’s management and conservation of biodiversity, namely, the necessity to be strategic, focused and supportive of sustainable development, due to limited resources available for biodiversity management and conservation and the need for development

---

<sup>222</sup> S1 of NEMBA defines indigenous biological resources as ‘... any resource consisting of- (i) any living or dead animal, plant or other organism of an indigenous, species (ii) any derivative of such animal, plant or other organism; or (iii) any genetic material of such animal, plant or other organism’.

<sup>223</sup> Definition of sustainable in S1 of NEMBA.

<sup>224</sup> S1 of NEMBA defines biodiversity as ‘the variability among living organisms from all sources including, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part and also includes diversity within species, between species, and of ecosystems’.

<sup>225</sup> This is further supported in:

(a) The NEMA principles and criteria for sustainable development – S2(4)(a)(i) of NEMA provides that ‘[s]ustainable development requires the consideration of all relevant factors including ... that the disturbance of ecosystems and loss of biological diversity are avoided, or, where they cannot be altogether avoided, are minimised and remedied’.

(b) The 2008 National Biodiversity Framework, which defines sustainable development as ‘development that avoids: (i) loss and degradation of natural habitat in threatened ecosystems and critical biodiversity areas; (ii) further introduction or spread of invasive alien species; (iii) over-abstraction of water beyond the limits of the ecological reserve; (iv) over-harvesting of species; and (v) further contributions to climate change’ - Department of Environmental Affairs and Tourism (DEAT), ‘South Africa’s National Biodiversity Framework’ in Government Notice No. 813 in Government Gazette No. 32474 of 3 August 2009.

<sup>226</sup> DEAT bioregional plans, op cit note 133, at 24; DEAT, National Biodiversity Framework, op cit note 225, at 44 and 57; Department of Environmental Affairs (DEA), Department of Mineral Resources, Chamber of Mines, South African Mining and Biodiversity Forum and South African National Biodiversity Institute, *Mining and Biodiversity Guideline: Mainstreaming Biodiversity into the Mining Sector*, Pretoria (2013), 24; DEAT (NBSAP), op cit note 18, at 68; See note 133 for explanation of Systematic Conservation Assessments.

in South Africa.<sup>227</sup> Systematic conservation planning basically identifies areas of biodiversity priority, which adequately represent biodiversity features within a defined region and which ensure the maintenance and persistence of this identified biodiversity. Thus, the tool provides for areas that can be developed or modified and those areas which are critical for maintenance of biodiversity. This approach is provided for in the 2008 National Biodiversity Framework,<sup>228</sup> through the development of provincial spatial plans, as well as legislated through S40 of NEMBA, which provides for the publishing of bioregional plans, although currently the majority of provincial and district plans have not been published.

South Africa's current approach to biodiversity conservation and the State's trusteeship of biodiversity, thus, already accepts the concept that there can be loss of biodiversity in an area, and that such would not impact on the maintenance and persistence of biodiversity as a whole, as long as the identified biodiversity network is maintained.<sup>229</sup> The environmental sector's approach to biodiversity offsets is also based on maintaining the required biodiversity network.<sup>230</sup> The question, whether this trusteeship allows for the biodiversity offset concept, on the face of it and based on current practice, appears to be in the affirmative.

An outstanding question, which falls outside the scope of this dissertation, is whether the current biodiversity practices could be said to fulfil the State's required trusteeship on all occasions. This question arises as NEMBA requires that this biodiversity<sup>231</sup> which must be sustained, managed and protected, includes all of its components and genetic resources.<sup>232</sup> Thus, in using spatial planning to provide the tools to determine sustainability, as noted in Chapter 3 above, a large onus is placed on the provinces, when undertaking spatial planning, to compile plans which accurately and fully identify all the levels of biodiversity that need to be conserved.

---

<sup>227</sup> DEA 2013, op cit note 226, at 7.

<sup>228</sup> Compiled in terms of S38 & 39 of NEMBA.

<sup>229</sup> DEAT, National Biodiversity Framework, op cit note 225, at 37.

<sup>230</sup> See discussion in Chapter 3, in particular Section 3.1 and op cit note 133.

<sup>231</sup> S1 NEMBA op cit note 224.

<sup>232</sup> NEMBA, op cit note at 216.

### 4.1.3 National Environmental Management Act

The National Environmental Act is an overarching framework statute which gives effect to the environmental right<sup>233</sup> as set out in the Constitution.<sup>234</sup> The provisions which could be applicable to the implementation of the biodiversity offsets (specifically, the principles which guide the implementation of the Act and the Integrated Environmental Management chapter) will be briefly looked at below.

#### 4.1.3.1 NEMA Principles

The principles in the National Environmental Act (NEMA)<sup>235</sup> apply to actions of all organs of states which may significantly affect the environment. The principles do not themselves empower decision makers to exercise or perform a particular function,<sup>236</sup> but do form the framework against which the provisions of NEMA, and other laws concerned with the protection and management of the environment must be analysed and interpreted.<sup>237, 238</sup>

Biodiversity offsets could be said to be in line with the NEMA principles as offsets may only be considered after the strict implementation of the mitigation hierarchy<sup>239</sup> and

---

<sup>233</sup> S24 of the Constitution, op cit note 209.

<sup>234</sup> Kidd, op cit note 210, at 35; *MEC, Department Of Agriculture, Conservation And Environment And Another v HTF Developers (Pty) Ltd*, supra note 212, at para [24]; *Fuel Retailers Association of Southern Africa v Director-General: Environmental Management, Department of Agriculture, Conservation and Environment, Mpumalanga Province, and Others*, supra note 212, at para [59].

<sup>235</sup> S2 of NEMA.

<sup>236</sup> Smith Ndlovu Summers Environmental Law Specialists, 'Memorandum of Advice: The implementation of financial biodiversity offsets in the context of South Africa's environmental law and laws applicable to the regulation of public finances' prepared for SANBI, 31 January 2012 (unpublished), 8.

<sup>237</sup> Kidd, op cit note 210, at 39-40; Smith Ndlovu Summers, op cit note 236, at 8; *MEC for Agriculture, Conservation, Environment and Land Affairs v Sasol Oil (Pty) Ltd* 2006 All SA 17 (SCA), at para [15]; *MEC, Department Of Agriculture, Conservation And Environment And Another v HTF Developers (Pty) Ltd* supra note 212, at para [29].

<sup>238</sup> S2(1)(c) and S2(1)(e) of NEMA which state respectively that the principles 'serve as guidelines for organs of state exercising any public or administrative function in terms of NEMA, or any statutory provision concerning the protection of the environment' and 'guiding the interpretation, administration and implementation of NEMA and any other law concerned with the protection or management of the environment'.

<sup>239</sup> S2(4)(a) (i) of NEMA: 'That the disturbance of ecosystems and loss of biological diversity are avoided, or, where they cannot be altogether avoided, are minimised and remedied' (own emphasis).

S2(4)(a)(ii) of NEMA: 'That pollution and degradation of the environment are avoided, or, where they cannot be altogether avoided, are minimised and remedied' (own emphasis).

S2(4)(a)(iii) of NEMA: 'That the disturbance of landscapes and sites that constitute the nation's cultural heritage is avoided, or where it cannot be altogether avoided, is minimised and remedied' (own emphasis).

S2(4)(a)(viii) of NEMA: 'That negative impacts on the environment and on people's environmental rights be anticipated and prevented, and where they cannot be altogether prevented, are minimised and remedied' (own emphasis).

may only be considered if such an offset will ensure no net loss of biodiversity.<sup>240</sup> The biodiversity offset approach also encapsulates the concept that environmental damage<sup>241</sup> and the consequences of an activity are the responsibility of the developer/polluter for the lifetime of the activity.<sup>242</sup> Biodiversity offsets could also be said to be in line with the principle that environmental management be undertaken in terms of the best practical environmental option available,<sup>243</sup> which is defined as being that which provides the most benefit or causes the least damage to the environment as a whole, at a cost acceptable to society, in the long term as well as in the short term.<sup>244</sup>

Thus, on the face of it, the NEMA principles do not preclude the use of biodiversity offsets, although, as noted above, the principles do not themselves provide enabling provisions.

#### **4.1.3.2 Integrated Environmental Management**

S23 of NEMA sets out the general objectives of integrated environmental management (IEM), namely, that impacts on the environment are, in a transparent manner, to be identified, predicted and adequately evaluated in terms of the risk, consequences and options for mitigation, with a view to minimising negative impacts, maximising benefits, and promoting compliance with the S2 NEMA principles. Again, these provisions do not preclude the implementation of biodiversity offsets, as biodiversity offsets could be said to fulfil the requirements for IEM.<sup>245</sup>

Further to this, S23 of NEMA also establishes that the objective of IEM is to employ an environmental management method best suited to ensuring that a particular activity is

---

<sup>240</sup> S2(4)(a)(vi) of NEMA ‘that the development, use and exploitation of renewable resources and the ecosystems of which they are part do not exceed the level beyond which their integrity is jeopardised’ (own emphasis).

<sup>241</sup> 2(4)(p) of NEMA: ‘The costs of remedying pollution, environmental degradation and consequent adverse health effects and of preventing, controlling or minimising further pollution, environmental damage or adverse health effects must be paid for by those responsible for harming the environment’ (own emphasis).

<sup>242</sup> 2(4)(e) of NEMA: ‘Responsibility for the environmental health and safety consequences of a policy, programme, project, product, process, service or activity exists throughout its lifecycle’ (own emphasis).

<sup>243</sup> 2(4)(b) of NEMA: ‘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’ (own emphasis).

<sup>244</sup> Definition of ‘best practical environmental option’ in S1 of NEMA.

<sup>245</sup> Smith Ndlovu Summers were of a similar view - Smith Ndlovu Summers, op cit note 236, at 10.

pursued in accordance with the NEMA principles.<sup>246</sup> These environmental management methods are not defined in NEMA, however, NEMA does list several environmental management instruments which can be utilised to implement IEM, ranging from strategic, to spatial and site specific instruments, including EIAs.<sup>247</sup>

Although biodiversity offsets are not explicitly recognised, in light of the requirement that the methods referred to in S23 must facilitate the application of the NEMA principles of sustainability and no net loss of biodiversity, and the fact that a wide range of instruments are recognised as implementing IEM,<sup>248</sup> it could be argued that, as above, this provision, while not currently explicitly providing for biodiversity offsets, does not preclude their implementation.

The current provisions appear clear in their intention that such modes or instruments be established and managed through regulations under S24(5)(bA).<sup>249</sup> This provision does allow for additional environmental management instruments to be developed and adopted in time,<sup>250</sup> which could provide for biodiversity offsets as a stand-alone instrument,<sup>251</sup> or for amendments to the existing EIA Regulations, 2010,<sup>252</sup> to incorporate biodiversity offsets. This would, however, require the publishing of regulations (or the amendment thereof).

---

<sup>246</sup> S23(2)(f) of NEMA: ‘identify and employ the modes of environmental management best suited to ensuring that a particular activity is pursued in accordance with the principles of environmental management set out in Section 2’.

<sup>247</sup> Department of Environmental Affairs and Tourism (DEAT), *Overview of Integrated Environmental Management*, Integrated Environmental Management Information Series 0, Department of Environmental Affairs and Tourism, Pretoria (2004), 8;

S24(5)(bA) of NEMA: ‘(i) environmental management frameworks; (ii) strategic environmental assessments; (iii) environmental impact assessments; (iv) environmental management programmes; (v) environmental risk assessments; (vi) environmental feasibility assessments; (vii) norms or standards; (viii) spatial development tools (ix) any other relevant environmental management instrument that may be developed in time’.

<sup>248</sup> DEAT, 2004, op cit note 247 at, 8 – States that South Africa’s thinking around IEM has evolved from only been associated with authorisations of controlled activities to been viewed as an underlying philosophy and suite of tools that can be infused into decision-making by all sectors of society.

<sup>249</sup> S24(5)(bA) of NEMA: ‘The Minister, or an MEC with the concurrence of the Minister, may make regulations ... laying down the procedure to be followed for the preparation, evaluation and adoption of prescribed environmental management instruments’.

<sup>250</sup> S24(5)(bA)(ix) of NEMA: ‘any other relevant environmental management instrument that may be developed in time’.

<sup>251</sup> An instrument established outside the EIA Regulations, would have the advantage of being available for utilisation in the environmental authorisation process but could also allow for use in policies, programmes and other projects that are not listed but have significant impacts that can’t be minimised or remediated on site or within an area.

<sup>252</sup> EIA Regulations, 2010 published in GN 543 in GG 33306 of 18 June 2010.

#### 4.1.3.3 Environmental Authorisations

The EIA regulatory framework established in terms of S24 of NEMA is the established legal instrument to implement IEM and the environmental right at the project level, and as such is the instrument in place to ensure no net loss of biodiversity and the implementation of the public trust.<sup>253</sup> The EIA Regulations is further the mechanism that the environment sector is currently utilising to implement biodiversity offsets.

Again, as with the provisions discussed above, S24 of NEMA does not explicitly refer to biodiversity offsets. The question is thus: Does S24 indirectly enable or in fact preclude the implementation of biodiversity offsets?

S24(1) of NEMA provides that the potential consequences for or impacts on the environment of listed activities<sup>254</sup> must be considered, investigated, assessed and reported on to the competent authority. S24(4) provides the requirements for the report, namely that such must include an investigation of, *inter alia*: (i) the potential consequences for or impacts on the environment of the activity and assessment of the significance of those potential consequences or impacts;<sup>255</sup> (ii) mitigation measures to keep adverse consequences or impacts to a minimum;<sup>256</sup> and (iii) formulation of arrangements for the monitoring and management of consequences for or impacts on the environment.<sup>257</sup>

As observed in a memorandum of advice produced by Smith Ndlovu and Summers Attorneys for SANBI,<sup>258</sup> no express reference to the possibility of implementing measures to offset for adverse residual impacts is made in S24(1) or S24(4). The other measures in the mitigation hierarchy of avoid, minimise and remedy are, however, explicitly required to be taken into account. This is seen in the requirement for the investigation of alternatives, which could bring about avoidance and minimisation of negative consequences; and the investigation of mitigation measures, which would

---

<sup>253</sup> With public trust, being the protection of the environment for current and future generations and the requirement that the use of the environment provides for intergeneration equity. See Section 4.1.2 and note 216 and 221 for further discussion around this issue.

<sup>254</sup> S24(2) of NEMA.

<sup>255</sup> S24(4)(a)(iv) and 24(4)(b)(i) of NEMA.

<sup>256</sup> S24(4)(b)(ii) of NEMA.

<sup>257</sup> 24(4)(b)(v) of NEMA.

<sup>258</sup> Smith Ndlovu Summers, op cit note 236, at 11.

include means to minimise adverse consequences or impacts to a minimum acceptable level, as well as the possibility of remediation subsequent to the impact.<sup>259</sup>

Further, the consistent requirement for what must be considered for sustainable development, in terms of the NEMA principles, is the need for impacts to be avoided, minimised or remedied.<sup>260</sup> Again, these criteria do not explicitly include the last step of the mitigation hierarchy, namely biodiversity offsets.

It could be argued that the omission of the final step of the mitigation hierarchy, in the principles and S24, demonstrates that NEMA does not currently enable the biodiversity offset tool. However, it could also be argued that the criteria for determining sustainability are not exhaustive,<sup>261</sup> and that the terms ‘mitigate’ and ‘remedy’ are broad enough to allow for the implementation of biodiversity offsets.

Neither NEMA nor the EIA Regulations, 2010, provides a definition of these terms. The 1992 IEM Guideline Series does however define mitigate as ‘the implementation of practical measures to reduce adverse impacts or enhance beneficial impacts of an action’.<sup>262</sup> The dictionary defines the terms mitigate and remedy, respectively, as to make (something bad) less severe or serious,<sup>263</sup> and a means of counteracting or eliminating something undesirable.<sup>264</sup>

The dictionary and the IEM guideline definitions provide a wide meaning of the two terms and it could be argued that biodiversity offsets, in offsetting residual impacts, are a means to counteract and make good on an undesirable impact, as well as a means to make this impact less severe, by offsetting the feature/ecosystem/function that is lost or impacted upon within the surrounding area.

---

<sup>259</sup> Requirement of the environmental management programme which must be included in the EIA report - S24N(2)(f) of NEMA; as well as R22(2)(i)(v) and R31(2)(l)(v) of the EIA Regulations, 2010, which requires an assessment of the extent to which impacts can be reversed.

<sup>260</sup> S2(4)(a)(i) to (iii) and (viii) of NEMA, op cit note 239.

<sup>261</sup> S2(4)(a) of NEMA sets out that sustainable development requires the consideration of all relevant factors, including eight specific criteria which are articulated in the provision.

<sup>262</sup> Department of Environmental Affairs, *Glossary of terms used in Integrated Environmental Management*, Integrated Environmental Management Guideline Series No 6 (1992), 5.

<sup>263</sup> Oxford Dictionary, available at <http://www.oxforddictionaries.com/definition/english/> (accessed January 2014).

<sup>264</sup> Ibid.

The Smith Ndlovu and Summers report suggests that the terms mitigate and remediate must be viewed broadly in terms of the purpose of the EIA regime<sup>265</sup> and NEMA.<sup>266</sup> When interpreted against the backdrop of the polluter pays principle,<sup>267</sup> and considering that offsets for residual impacts could assist decision-makers in identifying the best practicable environmental option and in the promotion of sustainable development, it could be said that the use of offsets measures is broadly in line with the purpose and context of the EIA regime.<sup>268</sup>

Following this line of argument, that mitigate and remedy must be looked at in broad terms, as a means to fulfil the requirement of sustainable development and to allow for the determination of the best environmental option, and bearing in mind the dictionary definitions of these terms, it could be argued that the terms remedy and mitigate thus do allow for the final step in the mitigation hierarchy, the biodiversity offsets.

This argument could further be supported by S24O of NEMA, which sets out the criteria that must be assessed by competent authorities when undertaking a decision for an environmental authorisation. This provision requires that the competent authority take into account measures that may be taken to (i) protect the environment from harm resulting from the activity being applied for, and (ii) prevent, control, abate, or mitigate any substantially detrimental environmental impacts or environmental degradation.<sup>269</sup> It could be argued that these requirements do not preclude biodiversity offsets being considered as a means to protect the environment from harm and as a means to control or mitigate the residual impacts arising from the activity.<sup>270</sup>

In summary, NEMA contains no explicit reference to biodiversity offsets. NEMA, in providing for IEM mechanisms to ensure the most efficient process to restore and safeguard the biodiversity estate from necessary landscape transformation, does, however, arguably include an implicit reference to biodiversity offsets. It thus could be

---

<sup>265</sup> To identify, assess and evaluate the impacts of proposed listed activities with an ultimate view to identifying and authorising '*the best practicable environmental option*' – Smith Ndlovu Summers, op cit note 236, at 11.

<sup>266</sup> To, *inter alia*, give effect to sustainable development by providing the framework for the EIA Regime - Smith Ndlovu Summers, op cit note 236, at 11.

<sup>267</sup> The polluter pays principle is the concept that any person involved in an activity that creates pollution, must be responsible for the costs involved in the prevention of that pollution as well as the costs involved in dealing with the consequences, to humans and the environment, of pollution that has occurred- Kidd, op cit note 210 at 7-8.

<sup>268</sup> Smith Ndlovu Summers, op cit note 236, at 12.

<sup>269</sup> S24O(b)(ii)(aa) and (bb) of NEMA.

<sup>270</sup> This argument concurs with that put forward by the Smith Ndlovu Summers Report - Smith Ndlovu Summers, op cit note 236, at 13.

argued that NEMA does not prohibit the utilisation of biodiversity offsets, and that further, the IEM environmental authorisation process concept could be said to enable the implementation of biodiversity offsets.

#### **4.2 TOOLS TO FACILITATE AN UNIFORM APPROACH FOR THE INVESTIGATION, DESIGN AND IMPLEMENTATION OF BIODIVERSITY OFFSETS**

Biodiversity offsets have significant implications for the regulators, applicants and the general public. For biodiversity offsets to be managed and implemented in a transparent and uniform manner, a standardised approach and methodology needs to be in place. Such approach needs to provide guidance but have sufficient flexibility to be utilised for different activities and landscapes, and to allow for use of the most updated techniques and methodologies. Mechanisms in South African law which could facilitate this standardisation are regulations, norms and standards,<sup>271</sup> policies and guidelines.

Regulations provide for legally binding, enforceable requirements, as can norms and standards (although this depends on the provisions within the relevant Act), whilst policies and guidelines are not legally binding but must be taken into account by government and developers. The statutory mandates of officials in the Department of Environmental Affairs to adopt such mechanisms, and which mechanisms would seem to provide the most appropriate means for standardisation of biodiversity offsets, is discussed below.

S23(3) of NEMA provides for the publishing of manuals and/or guidelines to ensure the coordination of the competent authorities' actions and procedures related to the environmental authorisation process. S24(J) of NEMA further provides for the publication of guidelines to guide the implementation, administration and institutional arrangements of the EIA regulations. These two provisions could respectively provide for the publishing of the National Framework for Biodiversity Offsets as a means of

---

<sup>271</sup> The norms and standards tool provides for a description of a desired state (norm) and the measurable means to achieve that state (standards), and are general prescriptive in the methods required to be used. S9(1)(a) of NEMBA does make provision for norms and standards to be issued for the achievement of any of the objectives of this act, including the management and conservation of South Africa's biological diversity and its components. The NEMBA norms and standards, as with guidelines, are not legally binding requirements. On this basis, and in determining between the two, it is put forward that guidelines would better provide for the flexibility required in an offset tool and thus would be more effective than norms and standards for implementation of offsets. Norms and standards were thus not investigated further.

standardisation between national and provincial approaches, as well as provide for guidance on specific aspects of the biodiversity offset process, for example the utilisation of trust funds.

The use of guidelines and policies to assist government in the protection of the environment for current and future generations is implicitly provided for in the S24 environmental right<sup>272</sup> and has been discussed in case law.<sup>273</sup> In the *Sasol Oil* case,<sup>274</sup> Justice Cachalia stated that:

The adoption of policy guidelines by state organs to assist decision makers in the exercise of their discretionary powers has long been accepted as legally permissible and eminently sensible.

He further stated that in circumstances where policy/guidelines exist:

An affected party would then have to demonstrate that there is something exceptional in his or her case that warrants a departure from the policy.

Such would thus require all parties to utilise the guideline(s), and would allow for the required flexibility of implementation. The framework policy and associated guidelines could thus provide the tool for the uniform implementation of biodiversity offsets. It is however noted that the above guidelines are restricted to the NEMA environmental authorisation process and would not provide for a uniform approach across all sectors. Further, although guidelines and policies must be utilised when available, they cannot be enforced rigidly,<sup>275</sup> which allows for flexibility in terms of updated techniques, but can also result in decision-makers having to continually defend positions taken and thus adding an administrative burden.

---

<sup>272</sup> The environmental right (see note 209) must be implemented through legislative and other measures (my emphasis), whereby other measures has been set out as including policies and guidelines, see note 215.

<sup>273</sup> For example in *BP Southern Africa (Pty) Ltd v MEC for Agriculture, Conservation, Environment and Land Affairs* 2004 (5) SA 124 (W) at [155 B]; *MEC for Agriculture, Conservation, Environment and Land Affairs, Gauteng v Sasol Oil and Another* (2006) supra note 237, at para [19]; *Bato Star Fishing (Pty) Ltd v Minister of Environmental Affairs* 2004 (4) SA 490 (CC) at para [48].

<sup>274</sup> *MEC for Agriculture, Conservation, Environment and Land Affairs, Gauteng v Sasol Oil and Another*, supra note 237, at para [19].

<sup>275</sup> *MEC for Agriculture, Conservation, Environment and Land Affairs, Gauteng v Sasol Oil and Another* supra note 237 at para [19].

As noted above, regulations are enforceable, but this also means that they cannot be amended quickly to take into account new knowledge. It is possible that regulations could be used to provide the framework for the offset, in conjunction with guidelines that would allow for more detailed guidance on processes. In this regard regulations may be issued through several provisions provided for in NEMA and NEMBA.

The EIA Regulations, 2010, published under section 24(5) of NEMA could be amended to provide for the steps of the offset process and an associated guideline(s) could be published in terms of S24J to provide more detailed guidance.

A potentially wider provision is S44 of NEMA, which provides that the Minister may make regulations to carry out the general purpose and the provisions of this Act. The general purpose of NEMA being to provide a framework for enacting the environmental right set out in the Constitution, and to *inter alia* provide for certainty with regards to decision-making that affects the environment, as well as to provide a framework for integrating environmental management into all development activities. Looking at the general purpose of NEMA and the S23 provision for integrated environmental management, regulations could thus be published for implementation of biodiversity offsets which would have a wider scope than the Environmental Authorisation process and could apply to any process where the decision may significantly affect the environment.

NEMBA has a similar provision in terms of which regulations may be published relating to any other matter that may be necessary to facilitate the implementation of NEMBA.<sup>276</sup> It could be argued that biodiversity offsets are a tool to ensure the management and conservation of biological diversity, and thus that the regulation of this tool would facilitate the implementation of NEMBA.<sup>277</sup> Publishing regulations under NEMBA could potentially set a clear distinction between biodiversity offsets and the EIA Regulations. That is, clearly recognising that although biodiversity offsets can be utilised through the EIA Regulations, these offsets are not solely tied to the EIA process and may also be used by other sectors such as agriculture, forestry, mining etc.

---

<sup>276</sup> S97(1)(h) of NEMBA.

<sup>277</sup> The objectives of NEMBA is set out in S2 with S2(a)(i) specifically stating that one of the objectives is to provide 'for management and conservation of biological diversity and the components of such biological diversity.

It is put forward that a combination of regulations with policy and guidelines could provide a good framework to ensure a uniform approach to the investigation, design and implementation of biodiversity offsets through the EIA process, and that the enabling provisions to introduce such a framework are available in South African law. In addition it is also noted that there is provision in South African law for this approach to be extended beyond the EIA process, providing for a uniform approach by all sectors.

#### **4.3 MECHANISMS TO INITIATE AND PROVIDE FOR THE INVESTIGATION AND DESIGN OF A BIODIVERSITY OFFSET**

The policies/guidelines discussed in Chapter 3 provide that biodiversity offsets are triggered by the determination that there is residual impact(s), of medium to high significance, which cannot be avoided, mitigated or remediated. Thus, tools are required that provide for the determination of the type of impacts and the significance of these impacts. Further, tools are required that would allow for the investigation into the viability of biodiversity offsets and how such biodiversity offsets should be designed and managed.

NEMA provides for the identification of activities which require environmental authorisations,<sup>278</sup> and currently the lists of activities have been provided for in terms of Listing Notices 1, 2 and 3,<sup>279</sup> which were published with the EIA Regulations, 2010. These lists identify activities that may potentially have a significant impact on the environment (Listing Notice 1 and 2) or activities that may potentially have a significant impact if occurring within identified sensitive geographic regions (Listing Notice 3). It is likely that many of the activities/projects that have significant impacts on the environment and biological diversity would thus have to follow the environmental authorisation process.

This environmental authorisation process<sup>280</sup> requires the submission of a report to the competent authority for decision-making,<sup>281</sup> with the report being required to provide, amongst other aspects, detailed information on the predicted impacts and the significance of these impacts.<sup>282</sup> The report would thus provide information on whether

---

<sup>278</sup> S24(2) of NEMA.

<sup>279</sup> Supra note 124.

<sup>280</sup> As set out in the provisions of S24 of NEMA and the EIA Regulations, 2010.

<sup>281</sup> Basic assessment report (BAR) required in R22(1) and R23, and an Environmental Impact Assessment Report (EIR) required in R31(1) and R34(1) of EIA Regulations, 2010.

<sup>282</sup> R1 of EIA Regulations, 2010, defines significant impact as 'an impact that by its magnitude, duration, intensity or probability of occurrence may have a notable effect on one or more aspects of the

a project has been determined to have residual impacts,<sup>283</sup> and the significance level<sup>284</sup> of these remaining impacts.

The EIA process as currently set out will thus be able to provide the information required to determine if a biodiversity offset investigation should be initiated. This biodiversity offset process should be formally initiated by the competent authority, as such has significant implications for biodiversity, and requires extensive investigations which have cost and time implications for the applicant.<sup>285</sup> Residual impacts can only be identified once there has been a full investigation of the site, the activities, the impacts and the consideration of the mitigation hierarchy. The determination of whether a biodiversity offset is needed and/or could be considered can thus only occur towards the end of the process currently provided for in South Africa's EIA legislation,<sup>286</sup> namely, at the time of compilation of the basic assessment reports (BAR) or environmental impact assessment reports (EIR).

Although it was noted above that the competent authority should formally initiate the offset investigation, there are currently no constraints in the EIA Regulations which would stop the applicant from undertaking a full biodiversity offset investigation, without first obtaining approval.<sup>287</sup> The applicant could also approach the competent authority after the compilation of the draft BAR or EIR and public participation

---

environment'. To determine the level of significance, the report is required to include an assessment of alternatives and cumulative impacts, the nature of the impact, the extent and duration of the impact and probability of the impact occurring, the degree the impact can be reversed (remediated) or mitigated, and the degree to which the impact may cause irreplaceable loss of resources- R22(2)(i) and R31(2)(l) of EIA Regulations, 2010.

<sup>283</sup> Impacts that cannot be avoided, mitigated or remediated.

<sup>284</sup> Impacts of low significance need not be offset, and no further investigation is thus required. Impacts of very high significance would not be able to be adequately offset and thus offsets should not be an option in this case. The level where offsets may be considered as an option, is thus where impacts are of medium to high significance.

<sup>285</sup> There is however no constraints set out in the EIA regulations which would stop the applicant from undertaking an entire offset process without first obtaining approval from the competent authorities.

<sup>286</sup> EIA process for BAR: Application submitted, draft BAR is undertaken which undergoes a public participation process, and the final BAR is submitted to the competent authority. The report must be accepted before a decision can be undertaken on whether to grant or deny authorisation.

EIA process for Scoping EIA: Application submitted, scoping undertaken and a draft scoping report compiled which undergoes a public participation process, the final scoping report is submitted to the competent authority. When the competent authority accepts the scoping report, investigations are undertaken as per the scoping plan and a draft EIR is compiled which undergoes public participation process, and the final EIR is submitted to the competent authority. The report must be accepted before a decision can be undertaken on whether to grant or deny authorisation.

<sup>287</sup> This could place pressure on the competent authority to accept that a biodiversity offset should be followed, as the applicant would have spent time and money to obtain the information on the offset. A formalised biodiversity offset process as discussed in Section 4.2, would allow for controls that would protect both the applicant and the competent authority.

process and request that approval is granted for a biodiversity offset process to be initiated.

If initiated by the competent authority, without a request from the applicant, such can only occur when the final BAR or EIR is submitted. Further, the only option available to the competent authority, under the current EIA provisions, is to reject<sup>288</sup> the submitted BAR or EIR and request the submission of an amended report.<sup>289</sup> The competent authority, in the letter rejecting the report, must provide instructions on what must be undertaken to provide all the required information for a decision to be made. The EIA Regulations stipulate that such instructions could either be a request for additional information<sup>290</sup> or the submission of a report on any specialist study.<sup>291</sup> Either of these instructions would allow for the investigation and design of a biodiversity offset to be undertaken and the information provided to the competent authority.

The decision to reject a BAR or EIR is considered as an administrative action.<sup>292</sup> The question is, therefore, whether the rejection of the report, in order to request an investigation of biodiversity offsets, is allowed within the constraints of administrative law<sup>293</sup> and the provisions of the EIA Regulations.

Administrative law requires that an administrative decision be rationally related to the purpose for which the power was given.<sup>294</sup> In this regard, the requirement for BARs and EIRs is that the content of these reports must provide the competent authority with sufficient information to determine whether the application for environmental

---

<sup>288</sup> R24(1)(b) and R34(2)(b) of EIA Regulations, 2010.

<sup>289</sup> R24(2)(a) and (b); and R34(2)(b)(ii) of the EIA Regulations, 2010.

<sup>290</sup> R24(2)(a) of the EIA Regulations, 2010 states 'the competent authority must request the EAP managing the application to submit such additional information as the competent authority may require'; R34(2)(b)(ii) of the EIA Regulations, 2010 states that the competent authority may 'request the applicant to make such amendments to the report as the competent authority may require for acceptance of the environmental impact assessment report'.

<sup>291</sup> R24(2)(b) of the EIA Regulations, 2010 states that 'the competent authority must request the EAP managing the application to submit a report on any specialist study or specialised process as the competent authority may require in relation to any aspect of the proposed activity'; and for the EIA report the submission of specialist reports is already provided for in the content of an EIA report (R31(2)(q)) and R34(2)(b)(ii) of the EIA Regulations, 2010.

<sup>292</sup> S1 of Promotion of Administrative Justice Act 3 of 2000 (PAJA) defines an administrative action as 'any decision taken, or any failure to take a decision, by- (a) an organ of state, when... (ii) exercising a public power or performing a public function in terms of any legislation ... which adversely affects the rights of any person and which has a direct, external legal effect'.

<sup>293</sup> Decisions must be lawful, procedurally fair and reasonable – S33 Constitution and S3 and S6 of PAJA.

<sup>294</sup> *Pharmaceutical Manufacturers Association of SA; In re: Ex parte Application of President of the RSA* 2000 2 SA 674 (CC) at para 85.

authorisation should be granted or denied.<sup>295</sup> The purpose for which competent authorities are given the mandate to accept or reject these reports is thus to ensure that these reports do in fact provide sufficient information to provide the basis for an informed decision. Indeed, the EIA Regulations themselves articulate reasons for which a report may be rejected, and these include that the report does not materially/substantially comply with the required content<sup>296</sup> and non-compliance to guidelines.<sup>297</sup>

The required information which would allow the competent authority to make this informed decision is set out in the Regulations,<sup>298</sup> although this is not an exhaustive list and does allow for other information not listed. One of these factors required in the report is the investigation of mitigation measures,<sup>299</sup> which (based on the broad interpretation of ‘mitigation’ discussed above) can be argued to include biodiversity offsets. On this basis it could be argued that a competent authority’s rejection of a BAR or EIR, pending an investigation of biodiversity offsets falls within the competent authority’s mandate under the EIA Regulations and constitutes a reasonable administrative action.

For investigations into a potential biodiversity offset to be triggered the environmental assessment practitioner would have to have identified that remaining residual impacts could not be otherwise resolved, and that the activity could potentially have a significant impact on the environment. The applicant, on review of this information, has the option to withdraw the application before submission of the BAR or EIA report. Submission of the report thus indicates desire on the part of the applicant to continue with the development. The request to consider a biodiversity offset as a means to facilitate this process thus could be argued as being reasonable and procedurally fair.

It could thus be said that the EIA Regulations do allow for the investigation of biodiversity offsets, however it could be further argued that the current process as

---

<sup>295</sup> R22(2) and R31(2) of the EIA Regulations, 2010, state that ‘the report must contain all information that is necessary for the competent authority to consider the application and reach a decision’.

<sup>296</sup> R24(1)(b)(ii) and R34(2)(b) of the EIA Regulations, 2010.

<sup>297</sup> R24(1)(b)(ii) of the EIA Regulations, 2010. Also provide for rejection of the BAR in cases where the report has not taken into account guidelines applicable in respect of the basic assessment reports. This is not relevant in this case as it is not non-compliance with a guideline that is the issue but the need for further information.

<sup>298</sup> A list is provided of what must be contained within these two reports in R22(2) and R31(2) of the EIA Regulations, 2010.

<sup>299</sup> R22(2)(i)(vii) and R22(2)(j) and R31(2)(k) of the EIA Regulations, 2010.

provided for is not efficient. The Regulations do not stipulate when a biodiversity offset should be initiated, and do not require that such can only be formalised by the competent authority. Further, the only way in which the competent authority can currently initiate an offset investigation is by rejecting the BAR or EIR. It is suggested that the amendment of the EIA Regulations, to better facilitate these points, in conjunction with a guideline, would allow for a more streamlined process.

#### **4.4 MECHANISMS TO ENFORCE THE IMPLEMENTATION AND MANAGEMENT OF THE BIODIVERSITY OFFSET**

The reports submitted may indicate that a biodiversity offset is a feasible option and may also provide details of what would need to be undertaken to ensure that this offset would fulfil the requirements of no net loss and on the ground conservation gains, as well as the long term management requirements. Does the legislation, however, allow the competent authority to enforce these requirements of securing, rehabilitating, managing, monitoring and reporting, through conditions of the environmental authorisation (EA)?

R37(1)(d) of the EIA Regulations, 2010 sets out that the EA must specify conditions subject to which the activity may be undertaken. This provision then goes on to list what must be included. This list is not, however, exhaustive<sup>300</sup> and therefore does not preclude the competent authority from imposing other conditions. This is further supported by R37(2)(f), which provides that the competent authority may include any other condition that is considered necessary for the protection of the environment.

The decision to grant an EA with associated conditions is an administrative action.<sup>301</sup> The action of the competent authority must thus be lawful, reasonable and fair; the competent authority must not exercise powers or perform a function beyond that conferred upon it by law;<sup>302</sup> any decision taken must be rationally related to the purpose for which the power was given and to the information in front of the competent

---

<sup>300</sup> Wording states ‘ including conditions determining’ (my emphasis).

<sup>301</sup> See op cit note 292.

<sup>302</sup> *Fedsure Life Assurance Ltd v Greater Johannesburg Transitional Metropolitan Council* 1999 (1) SA 374 (CC) at para [58]; *Affordable Medicines Trust and Others v Minister of Health and Others* 2006 (3) SA 247 (CC) at para [49].

authority;<sup>303</sup> any decision taken must have been preceded by a fair procedure; and the decision must be consistent with NEMA and the principles of NEMA.

The EIA process, through the submission of an amended report, would provide the applicant with a reasonable opportunity to make representations concerning whether the applicant is prepared to consider biodiversity offsets, and to present the offsets options which the applicant considers to be feasible and achievable. The information in the amended report, which should contain the report on the biodiversity offset investigation and proposals as well as the financial implications of the offset's implementation and management,<sup>304</sup> should, on the face of it, provide the competent authority with sufficient information to determine if the activity could be considered to be sustainable. In addition, the report should provide sufficient information for the competent authority to determine the best practicable environmental option, which provides the most benefit or causes the least damage to the environment as a whole, at a cost acceptable to society.<sup>305</sup> Thus, it could be argued that a decision under these circumstances could be considered reasonable and fair.<sup>306</sup>

Would such a biodiversity offset condition(s) be within the empowering provision of R37 and considered rationally related to such powers? As noted above, R37 provides that the competent authority may impose any condition necessary for the protection of the environment. A biodiversity offset could be argued as being a means to protect the environment, and thus conditions relating to its enforcement could be considered to be within the empowering provision of R37.

---

<sup>303</sup> *SLC Property Group (Pty) Ltd and Another v Minister of Environmental Affairs and Economic Development (Western Cape) and Another* 2008 1 All SA 627 (C) at para [41-42] – Longlands case.

<sup>304</sup> In the *Longlands* case, the judgment clearly stated that conditions of authorisation must avoid unquantified financial burdens - *Supra* note 303 at para [52].

<sup>305</sup> As required by NEMA principles and broadly by S24(4) of NEMA.

<sup>306</sup> This could potentially be challenged if the biodiversity offset, which is intended to mitigate the residual negative impacts arising from the activity, commences or is finalised only after the impacts have already been effected on the ecosystem. Land requiring many years of rehabilitation in order to get the environment to a state that would be in accordance to a required biodiversity offset, could be said to have a high risk of failure and that such risk is all owned by biodiversity and not the project. The *Fuel Retailer* cases have clearly set out the requirement that a decision must be based on sustainability of the project, and it could be argued, that in these cases, that the biodiversity risk associated with the decision means that there could not be certainty of the sustainability of the project. It is put forward that in these cases, it could be argued that the decision to grant authorisation based on a biodiversity offset, which may take years to come to fruition and /or which may not rehabilitate to the required level, could be deemed unreasonable.

Further to this, with regards to R37, the conditions imposed must be rationally connected to the listed activity being authorised.<sup>307</sup> Broadly, the concept of a biodiversity offset could be said to be rationally connected to the activity as the offset would be managing/mitigating the residual negative impacts arising from the activity.

This direct connection to the activity could, however, vary and may not be considered reasonable where offsets types are not directly linked to mitigating the impact (such as out of kind offsets,<sup>308</sup> where the offset is not directly mitigating the activity's impacts; or where the location of the offset is so far removed from the activity site that it may not be reasonable to assert a link). The Smith Ndlovu and Summers Report additionally highlights that there may not be a rational link where the offset exceeds the lifecycle of the project and its impacts.<sup>309</sup> This is related to S24E of NEMA,<sup>310</sup> which requires that 'adequate provision is made for the on-going management and monitoring of impacts of the activity on the environment throughout the lifecycle of the activity' (own emphasis). However, in light of the South Africa situation, where restoration of habitat/ecosystems is generally not possible, is financially unfeasible, or can only occur over a period of several decades,<sup>311</sup> it is likely that the majority of projects would have long term impacts even beyond the closure of the project. The Smith Ndlovu and Summers report thus argues that, in these cases, the 'imposition of an offset in perpetuity may be both reasonable and legally defensible'.<sup>312</sup>

Further to the above, on the ability of EA conditions to enforce biodiversity offsets, it must also be noted that the holder of the EA is responsible for the implementation of conditions. The EA can thus impose duties upon the applicant/EA holder to implement and manage a biodiversity offsets, but cannot impose such conditions on a third party. Financial donations or land donations to a third party by the applicant as a means to

---

<sup>307</sup> The purpose of S24 of NEMA is to determine the consequences of a listed activity(ies) and how best to optimise the resulting positive environmental impacts and how best to avoid the resulting detrimental impacts on the environment, or where these can't be avoided, ensure mitigation and management of impacts to acceptable levels. The purpose of the EIA Regulations, 2010, is to regulate the procedures required to implement S24 of NEMA. The purpose of R37 of the EIA Regulations, 2010, is thus to ensure that the activity is undertaken and managed in such a way that detrimentally impact on the environment are mitigated to an acceptable level.

<sup>308</sup> Out of kind offsets are those which do not provide for the same habitat/ecosystem/species that is damaged by the activity, but provide for another type habitat/ecosystem/species of a potentially higher conservation value, or that is under greater threat of extinction; See also Section 2.4(e).

<sup>309</sup> Smith Ndlovu Summers, op cit note 236, at 9.

<sup>310</sup> S24E sets out the minimum conditions for an environmental authorisation.

<sup>311</sup> See note 135; and Section 2.5.

<sup>312</sup> Smith Ndlovu Summers, op cit note 236, at 36.

implement the biodiversity offset, if imposed as conditions, thus only control the donation and not the implementation and management of the offset. Currently, it thus appears that the applicant must be held responsible for all phases of the offset to allow for enforceability through the EA conditions.

#### **4.5 MECHANISMS TO SECURE THE LEGAL PROTECTION OF THE OFFSET FOR THE REQUIRED DURATION**

Conditions of an EA can set out controls for implementation and management of an offset, and this would allow for enforcement of a biodiversity offset. This does, however, place a burden on the competent authority in terms of compliance monitoring and further does not protect the land from other legally authorised processes, such as mining, whereby the minerals are owned by the state and not by the land owner. The following discussion examines alternative mechanisms to secure biodiversity offsets, and ensure the viability of the biodiversity offset, under other legislation.

##### **4.5.1 The National Environmental Management Protected Areas Act**

The National Environmental Management: Protected Areas Act 57 of 2003 (NEMPAA) provides for several types of protected areas as well as mechanisms to manage these protected areas.

An area may be declared as a nature reserve (NR),<sup>313</sup> and although this is subject to the area complying with the nature reserve criteria, these criteria are wide enough to accommodate biodiversity offsets.<sup>314</sup> The declaration of private land as a nature reserve may be initiated by the landowner,<sup>315</sup> allowing the competent authority to place the onus on the applicant to initiate the nature reserve declaration. The terms of the written agreement entered into with the landowner are binding on the successors in title and must be recorded in a notarial deed and registered against the title deeds of the property,<sup>316</sup> thus ensuring that the land is maintained and managed as a nature reserve. The management of the nature reserve may be assigned to the landowner, an organ of state or suitable organisation,<sup>317</sup> thus allowing for the option of a landowner, conservation body or third party to manage the nature reserve. Such management must

---

<sup>313</sup> S23(1)(a)(i) of NEMPAA.

<sup>314</sup> S23(2) of NEMPAA lists the criteria as, *inter alia*: '(b) To protect the area if the area has significant natural features or biodiversity, or is in need of long-term protection for the maintenance of its biodiversity or for the provision of environmental goods and services; (c) To provide for a sustainable flow of natural products and services to meet the needs of a local community'.

<sup>315</sup> S35(1) of NEMPAA.

<sup>316</sup> S35(3)(a) and (b) of NEMPAA.

<sup>317</sup> S38(1)(a) of NEMPAA.

be undertaken in terms of a management plan<sup>318</sup> and performance indicators,<sup>319</sup> and the performance monitored by the MEC or Minister.<sup>320</sup>

Protection provided by the declaration includes the prohibition of prospecting or mining within a nature reserve,<sup>321</sup> and there being limited circumstances in which a declared nature reserve may be withdrawn.<sup>322</sup> In terms of management of the reserve, the protection is, however, limited to the removal of the management authority in instances of non-performance.<sup>323</sup> A trust fund with sufficient money to ensure the staffing and management of the reserve would ensure that the State does not have to take on the financial burden of the offset and would provide the option for another party to be designated as the management authority.<sup>324</sup>

A protected environment (PE) may be declared<sup>325</sup> subject to the area complying with the PE criterion, and, as with the NR, these criteria are wide enough to accommodate biodiversity offsets.<sup>326</sup> Again, as with the NR, the landowner may initiate the process,<sup>327</sup> the management of the PE may be assigned to the landowner, an organ of state or suitable organisation,<sup>328</sup> and management is required to be undertaken in terms of a management plan<sup>329</sup> and performance indicators,<sup>330</sup> and the performance monitored by the MEC or Minister.<sup>331</sup>

Protection provided through the declaration of a PE is more limited than in the case of the NR, as the PE is not registered against the title deeds, is not transferable to a successor in title,<sup>332</sup> and is only established for a limited period.<sup>333</sup> Withdrawal from a

---

<sup>318</sup> S39(2) of NEMPAA.

<sup>319</sup> S43(3) of NEMPAA.

<sup>320</sup> S43(3) of NEMPAA.

<sup>321</sup> S48(1)(a) of NEMPAA.

<sup>322</sup> S24(1) of NEMPAA - A nature reserve may only be withdrawn by resolution of the National Assembly or by resolution of the Legislature depending on whether the nature reserve was declared by the Minister or the MEC respectively.

<sup>323</sup> S44(2) of NEMPAA.

<sup>324</sup> See Section 4.6 below for more details on financial obligations around offsets.

<sup>325</sup> S28(1)(a) of NEMPAA.

<sup>326</sup> S28(2) of NEMPAA lists the criteria as, *inter alia*: '(b)To enable owners of land to conserve biodiversity on their land and to seek legal recognition therefor; (c) to protect the area if the area is sensitive to development due to its- (i)biological diversity and/or ... (v)provision of environmental goods and services; ... (e) to ensure that the use of natural resources in the area is sustainable'.

<sup>327</sup> S35(1) of NEMPAA.

<sup>328</sup> S38(1)(b) of NEMPAA.

<sup>329</sup> S39(2) of NEMPAA.

<sup>330</sup> S43(3) of NEMPAA.

<sup>331</sup> S43(3) of NEMPAA.

<sup>332</sup> S28(3) of NEMPAA.

PE can be undertaken by a notice in the *Gazette*<sup>334</sup> and mining or prospecting may be undertaken if authorised by the Minister of Environmental Affairs and the Cabinet member responsible for minerals.<sup>335</sup> Further to this, as with the NR, the protection around good management is limited to the removal of the management authority in instances of non-performance.

#### **4.5.2 National Environmental Management Biodiversity Act**

The National Environmental Management Biodiversity Act 10 of 2004 provides for the utilisation of biodiversity management agreements. In this regard, the Minister is empowered to enter into an agreement with any suitable person, organisation or organ of state regarding the implementation of a biodiversity management plan<sup>336</sup> (whereby a biodiversity management plan is a plan that is drawn up to ensure the long-term survival in nature of a species or ecosystem).<sup>337</sup> Such plans and agreements have recently been opened to utilisation by the biodiversity stewardship programme,<sup>338</sup> and could potentially be utilised for biodiversity offsets in a similar manner. However, they are based on a voluntary system<sup>339</sup> and may not be an appropriate tool to enforce compliance with a condition of an environmental authorisation.

#### **4.5.3 Conservation servitude**

A conservation servitude could be imposed upon a landowner in favour of a third party, requiring the landowner to restrict activities and land uses to those consistent with the desired conservation aims. Such a servitude agreement would be recorded in a notarial deed and registered against the title deeds of the property as a personal servitude.<sup>340</sup> In the case of biodiversity offsets, the third party would likely be a juristic person such as a conservation authority, as personal servitudes do not extend beyond the lifetime of the

---

<sup>333</sup> The South African Stewardship programme is currently implementing a period of 3 to 4 years with the Protected Environment declarations.

<sup>334</sup> S29(a) of NEMPAA.

<sup>335</sup> S48(1)(b) of NEMPAA.

<sup>336</sup> S44 of NEMBA.

<sup>337</sup> S43(1) of NEMBA.

<sup>338</sup> Department of Environmental Affairs 'Norms and Standards for Biodiversity Management Plans for Ecosystems' in Government Notice 83 in Government Gazette 37302 of 17 February 2014, 9.

<sup>339</sup> DEA 2014, op cit note 338, at 13, and S43(2) of NEMBA 'Before approving a draft biodiversity management plan, the Minister must identify a suitable person, organisation or organ of state which is willing to be responsible for the implementation of the plan' (my emphasis).

<sup>340</sup> S65 of the Deeds Registries Act 47 of 1937, as amended. Praedial servitudes, S75 of the Deeds Registries Act, although allowing for the servitude to be in perpetuity were not investigated as such are related to two land parcels, dominant and servient tenements, where the servient land grants rights to the dominant land such as a right of way or for service pipelines. As such, praedial servitudes would not be usable for biodiversity offsets.

person in whose favour the servitude is created and cannot be transferred, and thus to ensure the land is secured the third party would need to be a juristic person. The personal servitude would be binding on successors in title and thus could provide for long term protection from non-compatible land activities. However, this would not provide control over how the land was managed, such as in terms of alien clearing, fire management etc, and would also not provide for protection against mining rights.

#### **4.5.4 Contracts**

The applicant can enter into a legal agreement with the landowner, or the applicant (if the landowner) with the competent authority or conservation authority, requiring that the land is managed in a manner that gives effect to the biodiversity offset requirements.<sup>341</sup> Such an agreement would only bind the landowner and not any successors in title, and would generally only operate for a fixed period. Further, the contract would not provide for protection against mining rights.

#### **4.5.5 Land use zonings**

Property can be zoned for conservation use by the municipality under the relevant provincial planning acts or ordinances.<sup>342</sup> This provides a very low level of protection, as an application can always be made to have the land rezoned. The zoning also does not enforce conservation management of the land and the land would not be protected against mining rights.

#### **4.5.6 Trusts**

Another mechanism could be a trust, set up by the applicant, in terms of the Trust Property Control Act, 1988.<sup>343</sup> Ownership of the land would be vested in the trust and the trustees would manage and control the land in accordance with the biodiversity offset management plan and the trust deeds, which would specify the purpose of the trust, the nature of the trust property, the trustees' duties and when and how the trust may be terminated.<sup>344</sup> This would provide good protection in terms of implementation of the plan, but land would not be protected against mining rights.

---

<sup>341</sup> Such contracts are part of the stewardship programme, where biodiversity agreements are based on contracts between land owner and the conservation authority.

<sup>342</sup> For example in the KZN province this would be the KZN Planning and Development Act 6 of 2008.

<sup>343</sup> Act 57 of 1988.

<sup>344</sup> Smith Ndlovu Summers, op cit note 236, at 48.

#### **4.5.7 Conclusion**

In terms of the best protection provided for the long term management of biodiversity, the nature reserve appears to be the best option in terms of providing for management of the offset, and protection from non-compatible land uses such as mining. This is the option put forward in the draft National Biodiversity Offset proposal and that proposed by the provincial guidelines. However, as noted in Chapter 3, it would not be practical to secure the smaller area offsets, in particular wetlands which may be located in several areas to make up one offset, through a nature reserve. In these cases, a mix of conservation servitudes and contracts may have to be utilised. It is suggested that the amendment of the EIA Regulations to allow for the establishment of conservation servitudes and the placement of such against the property's title deeds, as set out in NEMPAA, would provide for more security for these smaller areas that would not fall within the NR criteria.

Further to this, both conservation servitudes and NR have to follow a legal procedure to be initiated and implemented. This process would take time and thus the securing of land would have to be considered as a condition which needed to be met before the authorised activity, or parts thereof, could commence.<sup>345</sup>

#### **4.6 FINANCIAL MECHANISMS FOR SECURING THE LONG TERM MANAGEMENT OF BIODIVERSITY OFFSETS**

In order for a biodiversity offset to achieve its objectives, it is necessary to ensure that the land is managed in accordance with the aims of the biodiversity offset in the long term and, in some cases, in perpetuity. Such management would include any ongoing rehabilitation work and maintenance management, such as fire breaks, block burning, fencing, alien clearing, and control of poaching. Long term monitoring and auditing of the site would also be required to provide feedback on compliance. This would require financial mechanisms beyond that of securing the land.

The requirement for such long term financial input for the maintenance of the biodiversity offset could be a condition of the environmental authorisation.<sup>346</sup> A condition requiring the applicant to fund the long term management of the biodiversity

---

<sup>345</sup> R37(1)(d) of the EIA Regulations, 2010.

<sup>346</sup> In the *Longlands* case, supra note 303, it was noted that the financial burden on the applicant must be clearly quantified prior to a decision being undertaken. Financial requirements would thus have to be set out in the report prior to a decision being undertaken on the offset.

offset may however not protect against insolvency, death of the applicant, or the closure of the company. All of which could result in the biodiversity offset not being managed in the long term or falling to the State to manage, resulting in financial implications for the State.

S24P of NEMA provides for financial provisions for remediation of environmental damage. This section is intended to allow for the financial provisions,<sup>347</sup> similarly required by the MPRDA, for the rehabilitation, management and closure of environmental impacts related to mining projects. The provision allows for the Minister to utilise the funds if the applicant fails to undertake the required activities<sup>348</sup> and allows the funds to be re-assessed to ensure that the amount is sufficient to undertake the required work,<sup>349</sup> and such money is protected from insolvency of the holder.<sup>350</sup> This provision is intended for mining and prospecting applications<sup>351</sup> and is intended to only last until the closure of the mine. Provision is, however, made for this to be extended to other applications within NEMA.<sup>352</sup> It could be argued that this provision could be made applicable to biodiversity offsets which are required in environmental authorisations, where such would allow for securing of funding for long term maintenance for the lifetime of the activity. This would, however, require that the Minister or MEC extended this provision to environmental authorisations, with relevant changes to make such applicable to the lifetime of the biodiversity offset, which is not the case at the moment.

Another mechanism would be donation of the land and/or the financial transfer to a third party, such as a conservation organisation or the State. These options were assessed by the Smith Ndlovu and Summers Report<sup>353</sup> which determined that no organ of state is mandated to implement biodiversity offsets, thus money transferred to a Department could not be withdrawn as a direct charge against the Revenue Fund.<sup>354</sup> All

---

<sup>347</sup> Where financial provisions is the setting aside of funding, in a manner that secures such funding i.e. a bond, before a project commences.

<sup>348</sup> 24P(2) of NEMA.

<sup>349</sup> 24P(3) & (4) of NEMA.

<sup>350</sup> 24P(6) of NEMA provides that 'the Insolvency Act, 1936 (Act No. 24 of 1936), does not apply to any form of financial provision contemplated in subsection (1) and all amounts arising from that provision'.

<sup>351</sup> 24P(1) of NEMA.

<sup>352</sup> 24P(7) of NEMA provides that the Minister or MEC 'may in writing make subsections (1) to (6) with the changes required by the context applicable to any other application in terms of this Act' (my emphasis).

<sup>353</sup> Smith Ndlovu Summers, op cit note 236, at 28-31 and 53 and 55.

<sup>354</sup> S15(1)(a)(ii) & 24(1)(a)(ii) of the Public Finance Management Act 1 of 1999 (PFMA).

money received by an organ of state must be paid into the Revenue Fund,<sup>355</sup> with the exception of money received in trust for a specific purpose.<sup>356</sup> Money received in trust for a specific purpose must be held in a separate trust for each portion of the money received.<sup>357</sup> Thus, money paid to, for example, the Department of Environmental Affairs would be required to be set up as individual trusts and must be appropriately managed by the Department,<sup>358</sup> placing a burden on the state to manage the biodiversity offset.

Money transferred to a public entity,<sup>359</sup> such as a conservation authority, is exempt from entering the Revenue Fund.<sup>360</sup> The founding statutes of the conservation authority would however, have to provide the mandate to implement a biodiversity offset and empower the establishment of a trust to manage the biodiversity offsets. The conservation authority would be liable for the administrative burden of managing the trust and ensuring that sufficient funding is available to manage the various biodiversity offsets. With conservation authorities experiencing similar resource constraints as are experienced by government, this may not be possible for conservation authorities to take on.

Money transferred to a public benefit organisation (PBO) or trust is also a possibility.<sup>361</sup> There is further potential for a PBO to be specifically set up to manage biodiversity offset trusts, with such trusts been managed in terms of the Property Control Act, 1988.

With regards to the fund mechanism the Smith Ndlovu Summers report concluded that

a trust fund is a legally independent institution and is an important mechanism because it is a dedicated legal mechanism to cater for public interest objectives. As such it is better placed to

---

<sup>355</sup> S11 & S26 of PFMA.

<sup>356</sup> S13(1)(f)(ii) & S22(1)(d)(ii) of PFMA.

<sup>357</sup> R14.3 of Treasury Regulations for departments, trading entities, constitutional institutions and public entities in Government Notice R255 in Government Gazette 27388 dated 15 March 2005, as amended.

<sup>358</sup> R14.2.2 of the Treasury Regulations.

<sup>359</sup> Defined in S1 of PFMA as a 'board commission, company, corporation, fund or other entity established in terms of the national or provincial legislation'; Schedules 2 and 3 provide a list of such entities, which includes provincial Conservation bodies, such as Ezemvelo KZN Wildlife.

<sup>360</sup> S13(i)(b) & S22(1)(b) of PFMA.

<sup>361</sup> In cases where existing PBO's or trusts as used, and not ones specifically set up for biodiversity offsets, the ability of such PBOs or trusts to accept a biodiversity offset responsibility would be based on the flexibility of its founding documents.

offer perpetual succession and avoid being influenced by partisan (either private or public sector) interests.<sup>362</sup>

Purchasing of credits from a conservation bank would preclude the need for financial mechanisms to manage the biodiversity offset. The conservation bank would, however, have to be set up and managed through legal mechanisms to ensure that the management of the land meets the required standard and continues in perpetuity. Currently, the legal mechanisms to establish these conservation banks are not in place, and thus credits are not a current biodiversity offset option.

Based on the above, it thus appears that trusts<sup>363</sup> are the best mechanism currently available to be utilised by environmental authorisations. In this regard, conditions could be written into authorisations, such as environmental authorisations, to control the setting up of the type of trust, the duties of the trustees (including management of the offset, monitoring and reporting), as well as the mechanisms for dismantling the trust.

#### **4.7 MECHANISMS PROVIDING FOR THE INVOLVEMENT OF THE SURROUNDING COMMUNITIES IN THE OFFSET PROCESS**

In South Africa the requirement for public participation during the EIA process is set out in common law through the *audi alteram partem* rule;<sup>364</sup> the Constitution through the right to just administrative action<sup>365</sup> and the right to access information;<sup>366</sup> the two acts that give effect to these constitutional requirements, the Promotion of Access to Information Act 2 of 2000 (PAIA) and the Promotion of Administrative Justice Act 3 of 2000 (PAJA); Chapter 5 of NEMA<sup>367</sup> and the NEMA principles;<sup>368</sup> as well as Chapter 6 of the EIA Regulations, 2010.

---

<sup>362</sup> Smith Ndlovu Summers op cit note 236 at 61.

<sup>363</sup> See Section 4.5.6 for further details on trusts.

<sup>364</sup> The right to be heard is clearly linked to the environmental right and the assessing of environmental impacts through the landmark case *Director: Mineral Development, Gauteng Region and Sasol Mining(pty) Ltd v Save the Vaal Environment and Others* 1999 (2) SA 709 (SCA), at para 20.

<sup>365</sup> Section 33 of the Constitution.

<sup>366</sup> Section 32 of the Constitution.

<sup>367</sup> Section 23(2)(d) and Section 24(4)(v) of NEMA which respectively state ‘ensure adequate and appropriate opportunity for public participation in decisions that may affect the environment’ and ‘public information and participation procedures which provide all interested and affected parties, including all organs of state in all spheres of government that may have jurisdiction over any aspect of the activity, with a reasonable opportunity to participate in those information and participation procedures’.

<sup>368</sup> NEMA principles particularly related to the Environmental Impact Assessment process include Section 2(4)(f) ‘the participation of all interested and affected parties in environmental governance must be promoted ...’ and Section 2(4)(k) ‘decisions must be taken in an open and transparent manner, and access to information must be provided in accordance with the law’.

The EIA Regulations, 2010, provide for the public to be involved in the compilation of and, to provide comments on, the basic assessment reports (BAR) and environmental impact reports (EIR) as well as specialist reports, and for comments to be submitted on the draft, final and amended reports.<sup>369</sup> This requirement would provide opportunity for interested and affected parties (I&APs) to comment on the need for a biodiversity offset investigation, the biodiversity offset proposals and its implications.

R54(6) further requires that amended reports, which contain new information, must go through a public participation process,<sup>370</sup> which requires notices to all potential interested and affected parties (I&APs) through site notices, written notifications and newspaper adverts. This requirement, that notice is given to all potential interested and affect parties would allow for the scope of I&APs to be extended to areas that could be affected by any proposed offset sites.

The above, in general, provides for the public to be involved in the offset investigation and design. Involvement with the implementation of the biodiversity offset or the implementation of the activity is not explicitly provided for in the EIA Regulations, 2010. It is possible, however, that conditions of authorisation could require a management forum to be established, allowing for community representatives to be involved in the implementation phase and the operation of the biodiversity offset. Further, amendments to the EIA Regulations to expressly provide for biodiversity offsets may facilitate this involvement beyond the Environmental Authorisation.

#### **4.8 SUMMARY**

Based on the above, it is concluded that, although no legislation explicitly mentions biodiversity offsets, it is possible, within the constraints of administrative law, to utilise the EIA Regulation process to manage and implement such biodiversity offsets.

However, further to this, it is noted that there are constraints to the efficient long term management of biodiversity offsets, in most part due to lack of mechanisms to legally secure offsets that do not fulfill the criteria for a nature reserve, and the questionable

---

<sup>369</sup> R56(1), R56(2), R56(3) of the EIA Regulations, 2010.

<sup>370</sup> As contemplated in R21 and R31

ability for environmental authorisations to enforce long-term ongoing management of sites.

## **CHAPTER 5**

### **FAIRBREEZE MINE ENVIRONMENTAL AUTHORISATION**

In this chapter, the environmental authorisation issued for the Fairbreeze Mining project in July 2012<sup>371</sup> is utilised as a case study to assess how biodiversity offsets are being implemented through the EA process, and whether this implementation highlights any gaps or weaknesses in South Africa's laws.<sup>372</sup>

The structure for undertaking the review of the EA, is based on the requisite components for a functional biodiversity offset, as identified in Chapter 2,<sup>373</sup> the legislative controls and tools provided for in South African law, as discussed in Chapter 4, and the NEMA Chapter 5 IEM objectives, which includes, amongst others, sustainability of the project, protection of biodiversity, the public trust and intergeneration equity, participation of the public in the process, and administrative justice.

A brief introduction into the Fairbreeze Mining case, including the roleplayers, the background to the project and the biodiversity offset, and the conditions of authorisation as related to the biodiversity offset, is first set out below to provide context for the case study review.

#### **5.1 INTRODUCTION TO THE FAIRBREEZE MINING PROJECT**

##### **5.1.1 Background**

Tronox KZN Sands (Pty) Ltd (Tronox) previously known as Exxaro Sands (Pty) Ltd was granted environmental authorisation<sup>374</sup> in 2012 for a number of listed activities that allowed for the mining of the mineralised sand dunes<sup>375</sup> at a location along the northern coast of KwaZulu-Natal, immediately south of the Mtunzini Town.

---

<sup>371</sup> KZN DAEA Fairbreeze, op cit note 25.

<sup>372</sup> Several environmental authorisations have been issued in South Africa which include biodiversity offsets, although at this stage none of these offsets have been finalised, including the Fairbreeze Mining project.

<sup>373</sup> In this review of the EA it is noted that the veracity of this functionality has not been fully tested, as broad principles, however, these components have been accepted both internationally and by the environment sector. The determination of what a functional biodiversity offsets is, is previously discussed in Section 2.4 and Section 3.5, but will include issues such as implementation of the mitigation hierarchy, no net loss of biodiversity and limits to offsetting, additionally, transparency of process, duration of and security for the offset, as well as the enforcement of the offsets.

<sup>374</sup> KZN DAEA Fairbreeze, op cit note 25.

<sup>375</sup> Referred to as the Fairbreeze deposit.



**Figure 1: Fairbreeze mining area and associated infrastructure**

The EA was issued for the mining<sup>376</sup> of three ore bodies (FBA, FBB & FBC),<sup>377</sup> the establishment of two residue storage facility,<sup>378</sup> a return water dam, a Primary Wet Plant (PWP) and associated infrastructure including offices, roads, powerlines, pipelines, pumping stations and storage dams.<sup>379</sup> Refer to Figure 1 for the spatial location of these various features.<sup>380</sup>

The mining site was largely located on Eucalypt plantations and sugarcane, but did also contain riparian and wetland areas. It was determined that the mining operation would result in the loss of wetland, Mimusops Albizia Riparian Forest,<sup>381</sup> and Syzygium/

<sup>376</sup> The mineralised sand dunes are to be mined by hydraulic mining which involves the use of high-pressure water hoses to turn the in-situ sand into slurry. The slurry then flows to a pump station from where it is pumped to the Primary Wet Plant (PWP). At the PWP the heavy mineral is separated from the sand, silt and clay fraction. The heavy mineral concentrate is removed off the site to be processed, and the fine discard material is pumped to one of the residue storage facility (slimes dam) and the coarse discard is pumped back to the mining area to backfill the mining void. - Exigent Engineering Consultants on behalf of Exxaro Sands (Pty) Ltd *Amended final Basic Assessment Report for the Construction of the Fairbreeze Mine and related activities*, February 2012 (2012), 3.

<sup>377</sup> The mining of orebody Extension C (FBCX) had already been authorised on 19 July 2006 (EIA 4187), and the orebody FBD was excluded from the authorisation.

<sup>378</sup> Storage facilities for the fine discard material (in effect a slimes dam), which are 166ha and 373ha respectively in extent.– KZN DAEA Fairbreeze, op cit note 25, at 5.

<sup>379</sup> KZN DAEA Fairbreeze, op cit note 25, at 5.

<sup>380</sup> Exigent (February), op cit note 376, at 4.

<sup>381</sup> A threatened vegetation type which had high species diversity, high ecological function and contained protected tree species - Exigent (February), op cit note 376, at 80.

Cassipourea Swamp Forest,<sup>382</sup> through the development of the two residue storage facilities, a return water dam and pipelines.<sup>383, 384</sup> Such a loss was determined to be a residual impact of the project that would require a biodiversity offset, and conditions to this effect were contained in the EA.

### 5.1.2 Roleplayers in the EIA application process

In addition to the competent authority (namely, KZN Department of Agriculture and Environmental Affairs (KZN DAEA), hereafter referred to as the competent authority or CA)<sup>385</sup> and the applicant (Exxaro Sands (Pty) Ltd, which was bought out by Tronox KZN Sands (Pty) Ltd in June 2012), the role players in the EIA application included the following:

- (i) Several organs of state which administered legislation related to the activities that required environmental authorisation, particularly the KZN Regional Department of Mineral Resources (DMR),<sup>386</sup> the Department of Water Affairs (DWA),<sup>387</sup> the Department of Agriculture, Forestry and Fisheries (DAFF)<sup>388</sup> and the KZN Conservation Authority, Ezemvelo KZN Wildlife (Ezemvelo).<sup>389</sup>
- (ii) Interested and affected parties (I&APs) to the EIA application, including the Wildlife and Environmental Society of South Africa (WESSA),<sup>390</sup> the Mtunzini Conservancy, Wildlands Trust, the Mtunzini Residence Association, traditional authorities within the area and surrounding community members.

---

<sup>382</sup> A threatened vegetation type which had a moderate species diversity and high ecological function - Exigent (February), op cit note 376, at 80.

<sup>383</sup> The storage dams would be permanent structures and would remain after the closure of the mine, while the return water dam and pipelines would remain for the life of the mine, which was noted in the EIA as being between 11-14 years, Exigent (February), op cit note 376, at 51.

<sup>384</sup> KZN DAEA Fairbreeze, op cit note 25, at 19; Exigent (February), op cit note 376, at 419.

<sup>385</sup> At the time of the application the competent authority was called the KZN Department of Agriculture and Environmental Affairs (KZN DAEA), this CA is now referred to as the KZN Department of Economic, Development, Tourism and Environmental Affairs (KZN DEDTEA).

<sup>386</sup> A mining license was granted in 1988 for the Fairbreeze site, and updated in 2009 and 2010. An amended to the Environmental Management Programme was been applied for at the time of the EIA application.

<sup>387</sup> A water use license was granted in 2007 for the Fairbreeze mining site, changes to the mining project required a new water use license which had been applied for at the time of the EIA application and which was issued on 9 September 2013.

<sup>388</sup> The mining and associated infrastructure required the destruction of natural forest and the destruction of protected tree species, for which a permit had to be applied for from DAFF.

<sup>389</sup> Under S23(e) of the KZN Conservation Management Act 9 of 1997, Ezemvelo is required to comment on all land use change applications outside of protected areas, where such changes could detrimentally affect ecological processes and biodiversity within KZN. Further to this, was the fact that the uMlalazi Nature Reserve, which is a designated protected area managed by Ezemvelo, was located immediately to the east of the mine site.

<sup>390</sup> WESSA as both a NGO and the operator of Twinstreams Environmental Education Centre which is located in close proximity to the mining site.

(iii) The Mkhwanazi Traditional Authority, under Inkosi Mkhwanazi, and the Mkhwanazi Community were both I&APs and the holders of the land, under the Ngonyama Trust, for the offset site referred to as ‘Portion 2 of Farm Kraal Hill No. 15871’ in the EA. Certain community members were also involved in a land claim submitted to the Land Claims Commission for the mine area, the offset area referred to as ‘Fairbreeze C ext’ in the EA and other surrounding areas. Although at the time of the EIA decision the submitted land claim had only been mapped and not as yet published in in the *Gazette*.<sup>391</sup>

### 5.1.3 Basic Assessment Report documentation

The draft BAR, dated March 2011<sup>392</sup> which was submitted to the public for comment, included a biodiversity offset proposal. This biodiversity offset was developed on the initiative of the EAP and the applicant, prior to CA input in this regard. The CA in October 2011 rejected the report<sup>393</sup> and required several amendments to the BAR, including the requirement for the provision of an acceptable biodiversity offset proposal and associated report. Several versions of the biodiversity offset proposal were subsequently compiled, with the CA utilising the February 2012 Amended Final BAR version<sup>394</sup> for decision making. This version included details on what biodiversity would be lost (set out as hectares of vegetation types), the size of the required biodiversity offset (again set out as hectares of vegetation types), and a partial offset proposal. The offset proposal as provided did not cover the full required extent of wetland offset and did not provide details on the extent of, and timeframes for, rehabilitation of the proposed two offset sites.

---

<sup>391</sup> The status of the land claim was set out in a 7 June 2011 letter from the Department of Rural Development and Land Reform under the Land Claims Commission. S11 of the Restitution of Land Rights Act 22 of 1994 requires that a land claim is *Gazetted* only once the Commission has determined that the claim has been lodged correctly, that the claimants are entitled to restitution (as set in S2 of this Act), and that the claim is not frivolous or vexatious.

<sup>392</sup> Exigent Engineering Consultants on behalf of Exxaro Sands (Pty) Ltd *Draft Basic Assessment Report for the Construction of the Fairbreeze Mine and related activities*, March 2011 (2011).

<sup>393</sup> KZN DAEA, Rejection of the final basic assessment report for the proposed construction of the Fairbreeze Mine and related activities within Umlalazi Local Municipality under Uthungulu District Municipality, KZN, issued on 5 October 2011, 3.

<sup>394</sup> Exigent (February), op cit note 376.

#### **5.1.4 Environmental authorisation**

Five conditions were included in the 2012 EA which were directly related to the implementation and management of the biodiversity offset, and these are set out below.<sup>395</sup>

##### *Condition 3.20*

The following biodiversity offsets must be set in place as part of the mitigation required for the establishment of the Fairbreeze mine and related infrastructure within 12 months from the date of authorisation and prior to commencement of mining

- (a) Portion 2 of Farm Kraal Hill No. 15871 or equivalent as negotiated with Ezemvelo KZN Wildlife and such land must be secured in favour of biodiversity conservation.
- (b) Area referred to as Fairbreeze C ext consisting of portion 3 of Umlalazi Lot 91 and Remainder of Umlalazi Lot 91 or equivalent and such land must be secured in favour of biodiversity conservation.
- (c) Financial offset as proposed in the application to be held in trust to be formed for the use to secure additional offset areas as approved by an offset committee (as contemplated herein below) to be formed to secure the balance of offset required for Wetlands areas.
- (d) Financial offset as proposed in the application inflated by CPIX to be contributed on an annual basis to the offset trust to be formed for the specific use for rehabilitation and management of the parcels of land contemplated in sub-conditions (a), (b) and any further land secured as contemplated in sub-condition (c) hereinabove. The contribution should be reviewed annually and adjusted to assure sufficient funds are available to support the implementation of the approved Offset Management Plan. The review of contributions will be approved by the offset committee (as contemplated herein below).
- (e) Financial offset will be contributed annually to the trust to be formed for the specific use of rehabilitation and management. These funds will be contributed in order to provide for management for a period of 33 years post mine operation. The funds contribution will be made annually such as to make available at the end of mine operation required funds as proposed in the application which will be inflated by CPIX annually. The offset committee will annually recalculate the required funds for the 33 year maintenance period post mine operation and the contributions will be adjusted accordingly.

---

<sup>395</sup> KZN DAEA Fairbreeze, op cit note 25, at 12-13.

*Condition 3.21*

An offset steering committee must be set in place consisting of a minimum of representatives of the Department of Water Affairs, Department of Agricultural Forestry and Fisheries, KZN Agriculture and Environmental Affairs and Ezemvelo KZN Wildlife, and a representative of Exxaro KZN Sands (Pty) Ltd. The responsibility of this offset steering committee shall be to direct the use of the financial offset contemplated in condition 3.20 hereinabove.

*Condition 3.22*

The terms of reference, operation and duration of the offset steering committee must be determined by the committee and such terms of reference must be directed to the efficient and effective fulfilment of the biodiversity management plan.

*Condition 3.23*

Exxaro KZN Sands (Pty) Ltd shall ensure the steering committee is established and remains operation and will be responsible for any reasonable costs thereto. Such steering committee must be established within three months of the authorisation being issued.

*Condition 3.24*

An Offset Management Plan must be drawn up by Exxaro KZN Sands (Pty) Ltd for areas contemplated in 3.20 within six months from the date of authorisation and such plans, which must include all relevant aspects relating to the environment and the impacts thereon, must be adopted by the offset steering committee and be used to guide rehabilitation and maintenance areas.

*Condition 3.25*

The offset management plan must be reviewed and updated if required. The updated plans need to be approved by the offset steering committee.

### **5.1.5 Appeals and appeal decision**

Four appeals were submitted to the MEC of the KZN Department of Agriculture and Environmental Affairs, in accordance with Section 43 of the National Environmental Management Act, 1998, which, included appeal arguments around the viability of the

biodiversity offsets and the associated conditions in the EA.<sup>396</sup> In all four appeals, the decision to grant authorisation for the project was upheld by the MEC,<sup>397</sup> although in two of the appeal decisions the MEC required the amendment of the Offset Steering Committee conditions.

The amendment required the replacement of the Offset Steering Committee by an Offset Advisory Committee which is to advise the Department; that the Department is to take over the responsibilities set out for the previous Offset Steering Committee; and that the applicant may only be an observer on this Offset Advisory Committee and not a member.<sup>398</sup>

## **5.2 REVIEW OF THE FAIRBREEZE MINE ENVIRONMENTAL AUTHORISATION**

### **5.2.1 Mitigation hierarchy**

The mitigation hierarchy is an important component of both the functionality of a biodiversity offsets as well as the NEMA principles and implementation of sustainable development.<sup>399</sup> As discussed previously, the mitigation hierarchy requires that impacts are, in order of preference: avoided, minimised and/or remediated, with the last option being a biodiversity offset.

The Fairbreeze Mine project was determined to have the potential to impact on biodiversity through impacts on: water quality and quantity;<sup>400</sup> the uMlalazi Nature Reserve; riparian vegetation and associated species,<sup>401</sup> wetlands and associated species, and the Siyaya estuary.<sup>402</sup> The EIA process<sup>403</sup> included the investigation of how to mitigate these impacts and the resultant significance of the impacts after mitigation.<sup>404</sup>

---

<sup>396</sup> Wildlife and Environment Society of South Africa, KwaZulu-Natal Branch (WESSA KZN) dated 28 August 2012; Mtunzini Conservancy dated 31 August 2012; as well as the Twinsteams Blue People Advocacy Group and the Wildlands Conservation Trust.

<sup>397</sup> Appeal decisions for appellant Twinsteams Blue People Advocacy Group, Wildlands Conservation Trust, WESSA, and Mtunzini Conservancy – op cit note 26.

<sup>398</sup> Twinsteams Blue People Advocacy Group Appeal Decision, op cit note 26, at 21 -22; Mtunzini Conservancy Appeal Decision, op cit note 26, at 21 -22.

<sup>399</sup> See previous discussion in this regard in Sections 2.4, 3.1 and 4.1.3.

<sup>400</sup> Water quantity impacted through the alteration of catchments, loss of wetland functionality, and actual mining of sand dunes. Water quality impacted through the pollution and sedimentation of wetlands, riparian areas and estuary - Exigent (February), op cit note 376, at 260-262 and 265-266.

<sup>401</sup> Through degradation, loss or fragmentation of riparian habitat - Exigent (February), op cit note 376, at 260-262.

<sup>402</sup> Exigent (February), op cit note 376, at 260-262 and 265-266.

<sup>403</sup> As required through the EIA Regulations, 2010 and S24 of NEMA.

<sup>404</sup> Exigent (February), op cit note 376, at 269 – 336.

Interested and affected parties (I&APs) questioned the completeness and acceptability of this mitigation hierarchy process during the EIA and appeal phase.<sup>405</sup> An example being the residue storage facilities, which if not in place or reduced in size would avoid significant habitat loss. The EIA report stated that there were no other technically feasible options available for this project<sup>406</sup> and that alternatives were not investigated in the EIA due to limited potential of their application.<sup>407</sup> In this regard, it is noted that the EIA report contained no specialist reports to support this assertion. Subsequent investigations for the offset have also determined that further avoidance can be put in place with regards to the return water dam, and that the required realignment of the ESKOM powerlines will not result in the loss of riparian habitat.<sup>408</sup> It thus could be questioned whether the competent authority had all the available facts before it when it made the determination that no further avoidance, minimisation or remediation could be implemented and that the offset was the only option available. The full determination of this question, however, falls outside the scope of this analysis.

### **5.2.1.1 Assessment of the Onsite Mitigation Measures**

The mitigation measures for biodiversity, dealing with avoidance, minimisation or remediation (i.e. not biodiversity offsets), are essentially provided for through four conditions in the EA, namely: the approval of the Environmental Management Programme (EMPr) included in the final EIA report,<sup>409</sup> the implementation of cumulative<sup>410</sup> and decommissioning<sup>411</sup> mitigation measures, and the 60m buffer on riparian vegetation.<sup>412</sup> Whether these measures are adequate to provide for the ongoing management of impacts is briefly examined below.

---

<sup>405</sup> For example the Mtunzini Conservancy Appeal - Mtunzini Conservancy, op cit note, 396 at 18

<sup>406</sup> Exigent (February), op cit note 376, at 162-163.

<sup>407</sup> Exigent (February), op cit note 376, at 161.

<sup>408</sup> Macfarlane, D *Strategic Offset Management Plan: Fairbreeze Mine and associated activities*, draft version 0.2, dated 29 January 2013, 13.

<sup>409</sup> Which reads: 'The Environmental Management Programme (EMPr) dated February 2012 for the construction and operational phases of this project as submitted for the environment authorisation of this project complies with Section 24N of NEMA and Regulation 33 of the EIA regulations. 2010. This EMPr is hereby approved and must be implemented' (my emphasis) - Condition 3.5 in KZN DAEA Fairbreeze, op cit note 25, at 10.

<sup>410</sup> Which reads: 'The cumulative impacts mitigation measures as specified on page 337 -341 of the AFBAR (see appendix C of this environmental authorisation) must be strictly implemented' - Condition 3.17 in KZN DAEA Fairbreeze, op cit note 25, at 12.

<sup>411</sup> Which reads: 'The decommissioning impacts mitigation measures as specified on page 334 -335 of the AFBAR (see appendix D of this environmental authorisation) must be strictly adhered to' - Condition 3.18 in KZN DAEA Fairbreeze, op cit note 25, at 12.

<sup>412</sup> Which reads: 'A 60m buffer must be physically delineated and enforced as set out in the EMPr' - Condition 3.31 in KZN DAEA Fairbreeze, op cit note 25, at 14.

An EMPr is intended as the means to guide the implementation of the mitigation measures identified in the environmental impact assessments.<sup>413</sup> To facilitate this, the EMPr needs to be a stand-alone site document capable of operating and being utilised independently of the numerous documents submitted during the application process. The EMPr approved in Condition 3.5, however, refers back to sections in the BAR for mitigation actions, thus requiring that site managers and workers must have access to numerous documents to allow them to implement and follow the requirements of the EMPr, and making it difficult to use for monitoring and implementation. The approval of this EMPr is likely to result in contractors and managers misunderstanding or even disregarding the constraints of the EMPr, which could place biodiversity and other components related to the mining operation at unnecessary risk.

It also has to be questioned whether the approved EMPr contains all the mitigation measures to be implemented on site, as Condition 3.17<sup>414</sup> refers to cumulative mitigation measures that must be implemented, which would appear to imply that such were not adequately dealt with in the EMPr.

Further to this, the EMPr approval appears, contrary to the requirements of S24N of NEMA and R33 of the EIA Regulations 2010, to only require the implementation of the construction and operation sections of the EMPr and not the decommissioning and closure phase. This assertion is based on the wording in Condition 3.5, which explicitly refers to the construction and operation phases as providing the required compliance with NEMA and the EIA Regulations, 2010.<sup>415</sup> The closure phase thus appears to have been omitted, as the EMPr is only to be implemented for the construction and operation phases. This is further supported by Condition 3.18,<sup>416</sup> which separately requires compliance with the decommission mitigation measures.

The approval of the limited EMPr and the two additional cumulative and decommissioning conditions could again result in confusion around implementation. The reliance on the additional two conditions also does not facilitate the effective implementation of the mitigation measures, as this does not provide for clearly set out

---

<sup>413</sup> S24N(2) of NEMA.

<sup>414</sup> See note 410.

<sup>415</sup> See note 409.

<sup>416</sup> See note 411.

actions to achieve the required mitigation measures, as would have been provided for in the EMPr.

The Condition 3.31<sup>417</sup> with regards to the 60m buffer could be seen as an emphasis of an important biodiversity mitigation measure, as the intention of the 60m buffer was to protect the wetlands and watercourse from sedimentation and any water pollution arising from the mining activities, as well as to protect the integrity of the habitat and provide movement corridors.<sup>418</sup> It could however also be read that the condition was intended to require that all buffers must be 60m, including those referred to in the EIA and EMPr as requiring only a 30m buffer.<sup>419</sup> This could lead to confusion regarding the intention of the condition and how it should be implemented.

In light of the issues noted above, it is questioned whether the conditions with regards to implementation of mitigation measures are adequately addressed in the EA and whether such can be considered as making adequate provision for the ongoing management of the impacts as required by S24E of NEMA.

### **5.2.2 No net loss of biodiversity**

The no net loss of biodiversity is fundamental to the functionality of a biodiversity offset, but also to the determination of the sustainability of a project and whether the requirements for intergeneration equity and the public trust have been upheld.

The no net loss being referred to here is that as set out by the environment sector, which requires that there is no net loss to the biodiversity targets and the biodiversity network.<sup>420</sup> For such no net loss to have been achieved there must have been a clear determination of what was going to be lost, what was required to offset this loss, how the offset is to be achieved and whether the offsets proposed were feasible and implementable.

---

<sup>417</sup> See note 412.

<sup>418</sup> See note 402.

<sup>419</sup> The EMPr refers to two sets of buffers 30m and 60m which was determined based on the sensitivity of the feature - Exigent (February), op cit note 376, at 370-372.

<sup>420</sup> Refer to the discussion in Section 3.1 in this regard.

### 5.2.2.1 KZN draft offsets document

The approach described in the KZN draft offsets document (which was used as the guideline for this project)<sup>421</sup> was that the information, required to determine no net loss, had to be set out in a biodiversity offset report and that such information had to be finalised prior to a decision being undertaken.<sup>422</sup> Subsequent discussions for the national biodiversity offset framework have suggested that, at a minimum, before a decision is undertaken an offset report must clearly identify feasible and viable site(s) for the offset, but that the report need not identify the exact offset site that is to be purchased.<sup>423</sup>

The decision in the EA was, however, that the project would be authorised without the offset investigations being finalised, as at the time of the issuing of the EA, investigations on whether a significant portion of the required wetland offset could actually be offset and the extent and timeframes for rehabilitation of the two proposed sites, were outstanding. The decision to issue the EA at that stage was thus not in line with the KZN draft guideline. Whether there should have been compliance to the KZN Guideline was broached in the MEC's appeal decisions, where the MEC stated that it was inappropriate to utilise a draft document as a guideline on how the offset should be undertaken,<sup>424</sup> and that, in the absence of a formalised policy, the NEMA principles should instead be utilised.<sup>425</sup> Although there is a legal requirement to utilise available guidelines to support decision making,<sup>426</sup> this would not apply to a draft guideline document. It is however put forward that the use of the KZN draft guideline had been established during the EIA process, and the KZN draft guideline as well as the Western Cape draft guideline had been in the public domain for several years. On the basis of this, it could have been expected that the MEC would, at a minimum, have unpacked the requirements of the draft guideline and given reasons why such would not be considered applicable in this case. The exclusion of the guideline document was

---

<sup>421</sup> During the offset investigations the draft national framework had not been initiated and the draft KZN and Western Cape offset guidelines were the only available South African guidelines.

<sup>422</sup> Ezemvelo KZN Wildlife, op cit note 20, at 95-96.

<sup>423</sup> This was put forward as developers had noted that information in the public domain could result in unreasonable increases in land prices.

<sup>424</sup> Mtunzini Conservancy Appeal Response, op cit note 26, at 19; Twinstreams Blue People Advocacy Group, op cit note 26, at 19.

<sup>425</sup> WESSA Appeal Response op cit note 26,397 at 10.

<sup>426</sup> *BP Southern Africa (Pty) Ltd v MEC for Agriculture, Conservation, Environment and Land Affairs* supra note 273, at [155 B]; *MEC for Agriculture, Conservation, Environment and Land Affairs, Gauteng v Sasol Oil and Another*, supra note 237, at para [19].

however a judgement call by the MEC and the decision to revert to the NEMA principles in the absence of a formalised policy, cannot be faulted.

### **5.2.2.2 Level of information for informed decision making**

Further to the draft guideline was, however, the fact that at the stage of the decision it was unknown whether the loss of the wetlands could be offset in such a way that would provide a no net loss of function and biodiversity within the same catchment.<sup>427</sup> The question of whether the offset should be ‘like for like’ or ‘trading up’, or in fact even if this lack would trigger the requirement for limits of biodiversity offsetting, was therefore still to be determined. The decision to authorise the project was thus undertaken without sufficient information and without a clear understanding of whether the offset could be implemented and whether the project would result in irretrievable loss of sensitive wetland habitat. In this regard, the EA decision could thus be said to have inadequately taken into account the NEMA principles of sustainability, protection of sensitive environments, and the consideration of the required public trust.<sup>428</sup> Further, the decision could not adequately have determined the ability of the applicant to implement mitigation measures and conditions associated with the biodiversity offsets.<sup>429</sup> The accuracy of the assertion in the EA that the objectives of Chapter 5 of NEMA will be met in the issuing of the EA is thus questionable. Further to this is the question of whether such a decision, in the absence of vital information, would fulfill the requirements for just administrative action.<sup>430</sup>

### **5.2.2.3 Enforceability of the conditions**

In looking at the enforceability of the conditions set out in terms of establishing the biodiversity offsets, a number of observations can be made. Firstly, Condition 3.20<sup>431</sup> does not describe what needs to be offset or refer to a document which sets this out. On the face of it, the offset metrics determined during the EIA process are thus not enforceable through the EA. The competent authority could potentially argue that the EA was based on the EIA documents, which contained this information, and that the intention of the EA was to instruct the implementation of this information and proposal.

---

<sup>427</sup> The project site was located in the coastal zone, and there were therefore limited areas to offset within the catchment in such a way that would still provide this functionality.

<sup>428</sup> S2(4)(a), S2(4)(o) and S2(4)(r) of NEMA.

<sup>429</sup> S24O(b)(ii) of NEMA.

<sup>430</sup> Just administrative action is discussed in Section 5.2.6 below.

<sup>431</sup> See Section 5.1.3 for details on this condition.

This lack could however potentially lead to the condition being unenforceable and the CA having to re-negotiate with the applicant when finalising the offsets.

To achieve no net loss of habitat and ecosystem functioning would require that the offset is secured and, where required, rehabilitation undertaken to re-establish habitat in the offset site(s) prior to any destruction of the habitats within the mine site. A further observation regarding the conditions of the EA is that, whilst Condition 3.20 recognises that the destruction of natural habitat may not occur prior to the commencement of mining activities, the EA is silent on the issue of the installation of associated infrastructure. Such associated infrastructure would include the installation of pipelines and roads and construction of residue storage facilities (slimes dams) and return water dams, which due to their proposed location could have a significant impact on large areas of highly sensitive wetland and swamp forest. Allowing the installation of such associated infrastructure prior to the securing of the offset could impose a significant and unwarranted risk to the environment. This is regarded as a risk due to several factors, namely:

- (i) The foreseeable probability that such an offset would require time to be finalised,<sup>432</sup> thereby lengthening the potential period between installation of infrastructure and securing of the offsets. In this regard, it is noted that no offset site had been as yet determined for a significant portion of the wetlands to be offset. Further, the offset site specified in Condition 3.20(a) was located on areas identified as communal land and at the time of the EA there was no finalised written agreement with the Tribal Authority or the Ingonyama Trust Board.
- (ii) The financial burden experienced by the applicant for the installation and maintenance of the infrastructure could be prohibitive in the circumstances where the applicant is prevented from commencement of the mining due to lengthy negotiations for the biodiversity offset. In these circumstances it is possible that the applicant will apply for an amendment to this EA, to proceed with the mining operation without all or part of the offsets being set in place.
- (iii) The EA places no obligation on the applicant to set in place the biodiversity offsets should the mining operation not commence once the infrastructure has been constructed. The establishment of the infrastructure (residue sediment

---

<sup>432</sup> To be noted that there is in fact a delay in securing the offsets, and that 12 months after the appeal decisions no offsets have been finalised or secured.

facility, return water dam and pipelines) is one of the key reasons why the offsets are required and as such is a failing. It is thus argued that the competent authority erred in not conferring the obligation on the applicant to ensure that mitigation, in terms of the offsets, is effected irrespective of mining.

Further to the risk resulting from the installation of infrastructure, is the fact that rehabilitation work required on these offsets sites for wetlands and swamp forest would require additional authorisations under both the EIA Regulations and the National Water Act. These authorisations will take time to obtain and thus, even after securing the sites, it could not be said that no net loss will occur. Further to this, the rehabilitation could take several years to adequately replace wetlands and many more years for the rehabilitation suggested for the FBCX swamp forest to meet the purpose of the offset. The need for the offset to be finalised and able to provide for an adequate on the ground replacement of habitat, species and ecosystem services is not explicitly set out in the conditions, with Condition 3.20<sup>433</sup> requiring simply that ‘biodiversity offsets must be set in place’. This wording is vague, and doesn’t provide for a clear argument that obliges the applicant to have the required rehabilitation in place prior to commencement of mining.

Conditions 3.20(a) and (b)<sup>434</sup> both allow for an equivalent offset area (*viz.* an alternative to that contemplated in the EA) to be put forward by the applicant. In the first condition, Ezemvelo KZN Wildlife is the organ of state that is required to consider and authorise any such alternative,<sup>435</sup> whilst the second condition is silent on the organ of state. It could be argued that the lack of stated authority in Condition 3.20(b), gives the applicant the sole discretion on the ‘equivalent offset. This wording places the implementation of the offset at risk as an applicant does not have the public trust mandate and has own priorities which may conflict with the no net loss requirement of the offset.

---

<sup>433</sup> See Section 5.1.3.

<sup>434</sup> See Section 5.1.3.

<sup>435</sup> In light of Ezemvelo KZN Wildlife’s mandate to conserve biodiversity within KZN, it is accepted that the organisation should be involved in the decision. However, KZN DAEA was the delegated competent authority and responsibility to approve the offset should thus lie with this competent authority. It is submitted that the condition erred in placing the sole approval mandate on Ezemvelo KZN Wildlife.

The intention of Condition 3.20 (c)<sup>436</sup> was to provide for the outstanding offset which had not been identified prior to the EA being issued. The wording of the condition does not provide for when the outstanding offset must be provided, just for when the financial offset must be put in place. Thus, there is no obligation on the applicant to secure the physical offset prior to the establishment of the mine and associated infrastructure. Further, the condition is silent on what is to happen if no suitable offset is found. The issue of the responsibility of the competent authority to approve the offset, with regards to this condition, was resolved through the appeal decision, which transferred all the powers of the offset committee to the CA.

Based on the discussion above, it is put forward that there is insufficient security for the biodiversity offsets and that the conditions of the EA do not sufficiently deliver on the no net loss of biodiversity required for a functional biodiversity offset.

### **5.2.3 Securing the biodiversity offset sites**

As noted in Chapter 4,<sup>437</sup> the EA conditions do not in themselves provide for protection of the offset from other legislative process such as mining applications or land restitution cases. The EA conditions are also not legally required to be placed on the title deeds of the land. The long-term securing of the offset site(s), which in the case of this project should be in perpetuity, as the residue sediment facilities will remain after the mine has closed, thus requires further legal mechanisms to secure the land for biodiversity. There are a number of mechanisms that can be utilised which provide varying degrees of protection.<sup>438</sup> However, as argued above, the designation of the offset site as a nature reserve would provide the most effective long term protection.

In the case of the Fairbreeze Mine EA, the conditions required that the offsets set out in Condition 3.20 (a) and (b) must be ‘secured in favour of biodiversity conservation’, and was silent on the manner in which the outstanding wetland offset (c) should be secured. The dictionary definition of the term ‘secure’ is to protect against threats and to make safe.<sup>439</sup> The conditions do thus provide an obligation for the applicant to protect the biodiversity on the site. There is however no guidance on the manner of this protection

---

<sup>436</sup> See Section 5.1.3.

<sup>437</sup> See Section 4.5 on the securing of biodiversity offsets.

<sup>438</sup> See Section 4.5 on the securing of biodiversity offsets.

<sup>439</sup> Oxford Dictionary, available at <http://www.oxforddictionaries.com/definition/english/> (accessed June 2014).

or level/extent thereof, and the EA appears to leave this to the discretion of the applicant. If this condition is taken on face value, the applicant could arguably be considered as being compliant by just providing for the management of the offset site through the financial contributions and the offset management plan. The long term security of these offsets is thus not guaranteed through the EA conditions, which in turn places biodiversity (which is held in trust for the public) at risk.

#### **5.2.4 Management of the biodiversity offset sites**

To ensure the continued level of biodiversity for which the site was selected as an offset, it is required that the land is actively managed.<sup>440</sup> Such management requires a work plan, resources (including financial resources, labour and specialists), internal monitoring to allow for management and updating of the plan, and external compliance monitoring to ensure that the site is being managed effectively. In terms of the biodiversity offset process, such resources are to be provided by the applicant on the basis of required internalisation of all externalities and the polluter pays principle.<sup>441</sup>

For the EA conditions to effectively implement the above, such conditions should require the development and updating of a plan, resources, and compliance monitoring. In the Fairbreeze Mine EA, the requirements for such are provided for in Conditions 3.20 (d) and (e),<sup>442</sup> which provides for financial inputs, and Conditions 3.24 and 3.25,<sup>443</sup> which provide for management planning and updating of the plan. The requirement for compliance monitoring is not as explicitly set out and this will be discussed below after the finance requirements.

##### **5.2.4.1 Financial**

The financial requirement is that an annual contribution is paid into a trust fund for the management of the offsets sites, as set out in the management plan. The trust fund is required to provide the financial resources to manage the offsets for 33 years post mine operations.<sup>444</sup>

---

<sup>440</sup> Such management could include clearing of alien plants; bush encroachment control; annual fire breaks; a burn program for grasslands and wetlands; control of poaching; management of utilisation of the land, which could include resource harvesting, access to the site, unauthorised uses such as sand mining or quad bikes/dirt bikes; and maintenance of fencing, where required.

<sup>441</sup> See note 267.

<sup>442</sup> See Section 5.1.3 for these conditions.

<sup>443</sup> See Section 5.1.3 for these conditions.

<sup>444</sup> Conditions 3.20 (d) and (e), see Section 5.1.3 for details of these conditions.

The financial obligation of the applicant is thus stated as being 33 years post mine operation. There are several concerns related to this. Firstly, there is no definition of what is considered ‘post mine operation’, which is problematic as this term could apply to when the physical mining operations cease or when mine closure has been obtained in terms of S43 of the MPRDA. These two definitions provide for a significantly different commencement date of the 33 years. The completion of mine physical operations is planned to occur within 14 years, but could also occur whenever the applicant decides to cease operating, based on financial or other reasons.<sup>445</sup> Closure of the mine, however, is generally accepted to be when a closure certificate is issued by the Department of Mineral Resources, with concurrence of the Department of Water Affairs<sup>446</sup> and the landowner. This closure can take a number of years post the cessation of the operation phase, as the process requires that rehabilitation is finalised, structures are removed or are made safe, and water management must be at such a level where there is limited environmental risk.

Perhaps the assumption could be made that ‘post mine operation’ was meant to refer to mine closure. This assumption is made based on the norms set out by the MPRDA (which requires that the applicant is responsible for any environmental liability<sup>447</sup> prior to the closure of the mine), as well as the EMPr provisions<sup>448</sup> (in terms of which the applicant is responsible for implementing the offset management plan during planning, construction, operation and decommissioning phases<sup>449</sup>). However, this argument on the EMPr is weakened by the fact that the EMPr appears to only be approved for the construction and operation phase.<sup>450</sup> Thus, there is uncertainty on the intention of the EA and this could result in government having to inherit this financial burden of managing the offset significantly sooner than perhaps was planned for.

This condition further provides for the applicant to make annual instalments, which obviously would not be sufficient to manage these areas should the applicant not fulfil its intention to mine for the full period. Under this scenario, the payments during the

---

<sup>445</sup> Based on financial cost and benefits of continuation of mining and worth of extracted heavy minerals.

<sup>446</sup> S43 of the MPRDA.

<sup>447</sup> Section 43(1) of the MPRDA.

<sup>448</sup> Which must be complied with as per Condition 3.6, which states that the EMPr provisions are an extension of the EA - KZN DAEA Fairbreeze, op cit note 25, at 10.

<sup>449</sup> Exigent (February), op cit note 376, at 352 -355.

<sup>450</sup> Condition 3.5, KZN DAEA Fairbreeze, op cit note 25, at 10; as see Section 5.2.1.

closure period would also forfeit. Thus, this condition inadvertently places the State at an additional financial risk.

Secondly, the condition is silent on how the management and rehabilitation of the offset sites are to occur prior to the trust being initiated. Again, an assumption could be made that this is the applicant's separate responsibility (based on the EMPr provisions). The explicit setting out of this requirement, however, would have removed any uncertainty in this regard in the enforcement of this EA.

Further to this, is that the offset conditions do not set out who will take on the financial burden of managing the offset sites after the 33 years. A conjecture could be made that this would revert to government, which is what is assumed above. However, equally it could be assumed that after 33 years no further management is required. Government could decline to take on this burden, particularly if the site is not designated as a protected area with an appointed management authority. Again, the lack of explicit conditions places the continued long-term security of the biodiversity offset at risk.

#### **5.2.4.2 Compliance monitoring**

The Fairbreeze Mine EA includes no explicit requirement for the ongoing compliance monitoring of the offset sites. Requirements for monitoring are set out in the EMPr, which in one section indicates that the success of the offsets will be measured as per the conditions and monitoring requirements of the offset management plan.<sup>451</sup> However, the condition for the offset management plan specifies that such must be used to guide rehabilitation and maintenance,<sup>452</sup> and no mention is made of monitoring reports.

Thus, there appears to be no requirement that compliance monitoring be undertaken. It is possible that the Department could argue that such was implicit and should be part of the management plan. Indeed, the draft KZN Offset guideline document clearly sets out that the management plan must include auditing and reporting requirements.<sup>453</sup> This argument is however significantly weakened by the MEC appeal response, which

---

<sup>451</sup> Exigent (February), op cit note 376, at 353.

<sup>452</sup> Condition 3.24, KZN DAEA Fairbreeze, op cit note 25, at 13; See Section 5.1.3.

<sup>453</sup> Ezemvelo KZN Wildlife, op cit note 20, at 97.

indicated that the guideline (being a draft) should not be relied on in making decisions around the EA.<sup>454</sup>

Further to this, Condition 3.13 requires that monitoring reports must be submitted to the Department only for the construction and operational phases,<sup>455</sup> thus leaving out the requirement for reporting on the offsets post operations.

In view of these observations, there appear to be significant gaps in the EA conditions, which could result in the offset being inadequately implemented and managed, thus putting at risk both the viability of the offset and biodiversity.

It is however further noted that even if long term compliance monitoring had been an explicit requirement of the EA, it is possible that over time, once government officials working on the project have moved on and once the mine has closed and compliance monitoring of the mine has ceased, that the land could by attrition revert to being utilised for other land uses. This attrition is possible as the EA controls, through the construction phase or operational phase of a mine, is acknowledged and is the norm.<sup>456</sup> Without accepted norms with regard to long-term management of offsets there is no continuity in place for EA compliance to occur years after closure of the operation.

### **5.2.5 Transparency of the biodiversity offset process**

The requirement for transparency and the involvement of the public in the biodiversity offset process is a clear requirement of the BBOP process. In South Africa, this requirement for public participation during the EIA process is set out in common law, the Constitution, PAJA, NEMA and its principles,<sup>457</sup> as well as Chapter 6 of the EIA Regulations, 2010.

---

<sup>454</sup> Mtunzini Conservancy Appeal Response, op cit note 26, at 19; Twinstreams Blue People Advocacy Group, op cit note 26, at 19.

<sup>455</sup> KZN DAEA Fairbreeze, op cit note 25, at 11.

<sup>456</sup> This is supported by a common condition which is also contained within this EA, Condition 3.9, which requires that an Environmental Control Officer is appointed to ensure that the mitigation measures, EA and EMPr requirements are implemented for the construction, operation and decommissioning phases (my emphasis).

<sup>457</sup> Refer to Section 4.7 above, as well as note 364 to 368 for details on these requirements.

With regards to NEMA and the EIA Regulations, it must be noted that the public participation process contemplated ends with the issuing of a decision.<sup>458</sup> This in itself is not problematic in terms of the public's rights to administrative justice and access to information, as it would be expected that the EIA decision would be undertaken based on a detailed report which provides the public and the competent authority with a clear picture of the impacts, the mitigation measures and how such mitigation could be implemented. The public is further provided with an opportunity to give input on any reports submitted, right up to the final report that the competent authority utilises in the decision.

In the case of the Fairbreeze Mine EA the decision was undertaken prior to the offset being finalised in terms of offset types, potential sites and management of said sites. These issues, according to the EA, are to be resolved post environmental authorisation, and involve the submission of new information on the biodiversity offsets. Case law is clear that the public must be allowed to participate in all stages of environment decisions,<sup>459</sup> as is the requirement for a fair administrative process.<sup>460</sup> The question is thus: Did the EA and its conditions exclude the public from rightfully making representations on decisions regarding the biodiversity offset process, their finalisation and whether the offset achieves what it ought to achieve?

It is argued that decisions around the biodiversity offset would affect the public's right to have the environment protected for the benefit of present and future generations and the requirement that development which meets present needs will take place without compromising the ability of future generations to meet their own needs.<sup>461</sup> The public thus could be expected to have a legitimate interest in providing representation on the proposed design and means for implementation of the entire biodiversity offset<sup>462</sup>.

It is argued that the design and implementation measures of the biodiversity offset would be a significant determiner of whether the project could be considered

---

<sup>458</sup> Murombo T, 'Beyond public participation: the disjuncture between South Africa's Environmental Impact Assessment (EIA) law and sustainable development'(2008) 3 *Potchefstroom Electronic Law Journal* 1-31, 11.

<sup>459</sup> *Earthlife Africa (Cape Town) v Director-General: Department of Environmental Affairs and Tourism and Another* 2005 (3) SA 156 (C), para 113; *Petro Props (Pty) Ltd v Barlow and Another* 2006 (5) SA 160 (W), paras 73.2 and 73.3; *Save the Vaal*, op cit note 364, at para 19.

<sup>460</sup> S3 of PAJA.

<sup>461</sup> S24 of the Constitution.

<sup>462</sup> S23(2)(d) of NEMA requires that the public is given adequate and appropriate opportunity for public participation in decisions that may affect the environment.

sustainable, and whether the CA decision would uphold the public trust and the public's right to have the environment protected for the benefit of present and future generations.<sup>463</sup> The biodiversity offset design and implementation measures thus must be considered as part of the application documentation, and that decision on this information as administrative decisions for the environmental authorisation process. In this regard the EIA Regulations clearly set out that the public must be given an opportunity to comment and to bring to the attention of the competent authority any issues which that party believes may be of significance to the consideration of the application.<sup>464</sup>

On the basis of above it is thus argued that the CA decision to require the submission of new biodiversity offset information, post authorisation, on the outstanding wetland offset, excluded the public from rightfully making representations on administrative decisions around the biodiversity offset process.

It is also noted that the EA in providing for alternative offsets, for the other offset components, through the use of the term or 'equivalent' offset in Condition 3.20(a) and (b) opens the argument on whether the public would have also been excluded from making representation on these equivalent offset reports. Such argument could potentially be made as equivalent has not been defined in terms of whether this is size, location, or type of offset and thus potentially an equivalent site could significantly differ from the current proposals.

With regards to the submission of new information post authorisation, it is noted that Justice Griesel in the *Earthlife Africa* judgment states that the introduction of new matters without allowing the public the right to respond is to be considered administratively unfair; and further, that procedural unfairness affecting a decision renders such a decision susceptible to review.<sup>465</sup>

---

<sup>463</sup> These issues are part of what the CA has to consider when determining whether an environmental authorisation should be granted, as set out in S24(4)(a)(ii) of NEMA.

<sup>464</sup> R56(1) of the EIA Regulations, 2010.

<sup>465</sup> *Earthlife Africa v Director-General: DEAT*, supra note 459, at Para 57, 91, 95 and 101.

## 5.2.6 Administrative justice

As noted in the discussion on South Africa law in Chapter 4, just administrative action requires that administrative decisions are fair, lawful and reasonable.<sup>466</sup> In this regard, the discussion in Section 5.2.5 appears to indicate that there is a case to be made that the decision undertaken to issue the EA prior to conclusion of the biodiversity offset was procedurally unfair.

The competent authority, in undertaking a decision on whether to authorise activities, is required to ensure that such is an informed decision, based on the clear setting out of the environmental consequences of an activity, which integrates the NEMA principles in the decision process.

At the time that the decision was taken to authorise the project, the competent authority did not, however, have all the facts at hand and, it could thus be argued, could not wholly ascertain that the biodiversity offsets would adequately ensure the protection of biodiversity. Following this argument, it could be further argued that, at the time of the decision the competent authority could not have been able to make a judgement on whether the mining proposal could be considered as sustainable. As the application documentation had not, as yet, provided evidence that the activities would not exceed beyond the level which the integrity of the ecosystems would be jeopardised, or that the degradation and disturbance of ecosystems and loss of biodiversity could be remedied, and thus that these negative impacts on the environment and people's environmental rights could be adequately remedied.<sup>467,468</sup>

It is thus put forward, that the CA erred in accepting the EIA report,<sup>469</sup> as the content of the report could not support an informed decision. It is further submitted that the CA erred in putting conditions in the EA that provided for the submission of new information, without providing for a public participation process. Further, that the competent authority erred in that the conditions in the EA did not adequately provide

---

<sup>466</sup> See discussion in Section 4.3 and note 293.

<sup>467</sup> S2(4)(a)(i), (ii), (vi) and (viii) of NEMA.

<sup>468</sup> It could on this basis, be further argued that the CA, in undertaking this decision failed to uphold its duty to adequately protect the environment which is held in trust for the people of South Africa

<sup>469</sup> Accepted in terms of R34 of the EIA Regulations, 2010.

for the implementation, monitoring and required long-term duration of the biodiversity offsets, as required in S24E of NEMA.<sup>470</sup>

Based on the above it is put forward that the decision to issue the EA, on the face of it, could be argued as being unlawful as it did not fully consider all relevant issues and did not comply with a mandatory condition prescribed by an empowering provision,<sup>471</sup> and could be argued as being procedurally unfair.<sup>472</sup>

### **5.2.7 Conclusion**

It is concluded that the Fairbreeze Mine EA as it stands does not provide for a functional biodiversity offset, and that the implementation and ongoing management of the biodiversity offsets would be reliant on the applicant's goodwill and not the enforceability of the EA conditions.

It is, however, further concluded that many of the problems identified are due to the offset report not being finalised prior to a decision, and the fact that the EA conditions did not provide sufficient detail and enforceability regarding the required implementation, the required protection levels for the offset, and long term management and monitoring. These issues could thus potentially be avoided in other EAs requiring biodiversity offsets.

The application commenced in October 2010 and a decision was issued in July 2012.<sup>473</sup>

It is put forward that the pressure on the competent authority to finish processing the application is likely to have caused many of the errors found in the EA. This is not as easy to solve, as the EIA process as set up can only determine that an offset should be investigated after a full BAR/EIA process is undertaken. Further, any project which

---

<sup>470</sup> The minimum conditions for an EA require that adequate provision is made for the ongoing management and monitoring of the impacts of the activity on the environment throughout the lifecycle of the activity.

<sup>471</sup> S6(2)(b) of PAJA. It is noted that the NEMA provision refers to the lifecycle of the project and that post mine closure it could be argued that the lifecycle would be complete. In the case of this application it is however argued that the impacts of the mine would last beyond the mine closure and that the long term management of the biodiversity offset would be part of this lifecycle. See note 312 and Section 4.4 for further discussion around the concept of the lifecycle of a project and how this relates to biodiversity offsets.

<sup>472</sup> S6(2)(c) and S6(2)(e)(iii) of PAJA.

<sup>473</sup> The following occurred in between these dates: The submission of the BAR to the CA in July 2011; Amendments and further investigation on the biodiversity offset was request by the CA in October 2011 (the EAP had, prior to a decision by the CA, investigated biodiversity offsets as an option); The amended report was submitted in February 2012; and an addendum offset report was circulated in May 2012.

required an offset would be on a site which had high biodiversity value, and thus would likely have required a number of specialist studies to investigate the impacts, which would also have taken time. An offset process significantly lengthens this time and it is likely that the applicant would, as a matter of course, apply pressure for the competent authority to provide shortcuts.

There is currently no alternative process provided which would facilitate a quicker decision when an offset must be investigated. However, the time spent on investigating and determining offsets would be reduced by a clear guideline, which would allow all the roleplayers to understand how the process should be undertaken, the time periods involved, and where their input would be required. Further, such a guideline would allow the CA to review and make a decision on the project within a shorter timeframe.

Further to these issues is the lack of current mechanisms to provide for the central registration of biodiversity offsets and for the long-term compliance monitoring required for a biodiversity offset. Thus, unless the offset is designated as a nature reserve or protected environment, there is a high possibility that the EA, under the current EIA Regulation process, would be filed away post construction or operation and the biodiversity offset site would cease to function as an offset over time.

## **CHAPTER 6**

### **DISCUSSION AND CONCLUSION**

South Africa, in striving to achieve sustainable development, has prioritised five national strategic priorities, including the protection of ecosystems and the efficient use of natural resources.<sup>474</sup> In line with this strategic priority, and international trends, South Africa has started investigating and utilising biodiversity offsets as a tool to implement sustainable development by providing for the protection of ecosystems whilst facilitating economic development. Biodiversity offsets have, in particular, been considered and utilised through NEMA and the EIA Regulations.

The biodiversity offset process is relatively new in South Africa and at this time there is little literature available on South Africa's regulatory and enabling legislation for biodiversity offsets. South Africa's legislation, in particular the legislation governing the EIA process, was therefore assessed in this dissertation to answer the question of whether such laws currently provide an adequate framework for the implementation of biodiversity offsets.

From this assessment, it could be concluded that it is possible, within the constraints of administrative law, to utilise the process provided for by the EIA Regulations to manage and implement biodiversity offsets. However, there are several aspects which are not provided for, which, it is put forward, hinders the effectiveness of biodiversity offsets in South Africa. These aspects are, broadly, the lack of: approved guidelines; a system to register and keep track of offsets; mechanisms to ensure that the land-use remains conservation for the required duration of the offset; and mechanisms to ensure that the land is adequately management for the required duration of the offset.

With regards to these aspects, it is noted that it appears to be the norm, in foreign countries, that biodiversity offsets, being a relatively new tool, are implemented using

---

<sup>474</sup> The 2011-2014 National Strategy for Sustainable Development and Action Plan (NSSD1) sets out five national strategic priorities, of which Priority 2 is 'sustaining our ecosystems and using natural resources efficiently'- Department of Environmental Affairs and Tourism 'National Strategy for Sustainable Development and Action Plan (NSSD 1) 2011-2014', (23 November 2011), 19. The NSSD is the implementation document for the 2008 National Framework for Sustainable Development, which was developed to provide a coherent and overarching national strategy for sustainable development - Department of Environmental Affairs and Tourism 'A National Framework for Sustainable Development in South Africa' (2008), 6.

existing EIA or similar legislation in conjunction with biodiversity offset policies and guidelines, and not with legislation specifically written for biodiversity offsets.<sup>475</sup> South Africa's current approach of utilising EIA legislation and guidelines to implement offsets is thus in line with this thinking. However, it is put forward that although using EIA legislation is a feasible option, South Africa's current EIA laws are not adequately tailored to effectively secure and manage biodiversity offsets, and that amendments to legislation are required to facilitate the implementation of biodiversity offsets.

## **6.1 GUIDELINES**

South Africa's current draft guidelines follow the approach and thinking of the BBOP's standards and guidelines on what constitutes a biodiversity offset and how such an offset should be implemented. Although it is noted that offsets are a relatively new process and that the BBOP approach requires further rigorous testing and further scientific input, this approach has however had input from a range of professionals and is currently the best international guidance available. South Africa aligning with the BBOP's guidelines has thus followed current best practice.

Currently, despite the legislation providing for guidelines for the EIA Regulations and for wider application, South Africa has no overarching framework for biodiversity offsets. It also appears that the delay in the completion of this national framework has had a subsequent effect of delaying the finalisation of the provincial guidelines. Biodiversity offsets are therefore currently being implemented without any standardisation, no certainty for developers and no guidance to EAPs, I&APs and the competent authorities. In stating this, it is noted that the draft provincial guidelines are being utilised, however, being in draft format such is open to challenge from all participants.

It is put forward that this lack of framework and guidelines significantly impacts on the efficiency of the biodiversity offset process and could lead to poorly thought out decisions and unviable biodiversity offsets.

---

<sup>475</sup> For example this can be seen in the Canadian, Australian and US approach, where Canada utilised the Canadian Fisheries Act and the habitat policy; Australia the Environmental Protection and Biodiversity Conservation Act and the associated biodiversity offset policy; and US the Clean Water Act and the Endangered Species Act and associated guidelines – see Section 2.1 for more details in this regard.

## **6.2 CENTRAL REGISTER OF BIODIVERSITY OFFSETS**

The provision for a central registration of biodiversity offsets would allow for details to be recorded on how the offset is to be implemented and the responsible parties for its implementation. An associated maintenance of a GIS layer would also allow for the location of the offsets to be spatially available. A register and spatial layer would allow other organs of state and sectors (national, provincial and local) to have this information when undertaking spatial planning or making application decisions, and would thus facilitate the protection of such sites. It would further ensure that existing offset areas are not used for other offsets (i.e. that there is no ‘double’ use of areas). A central register would also facilitate the required long term management of offsets, as the sites would not rely on the EA as the sole record of the biodiversity offset.

As with NEMPA,<sup>476</sup> it is argued, that this requirement should be written into legislation to ensure that such is undertaken and that there is a responsible party for its maintenance and distribution to other organs of state and sectors.

## **6.3 LEGALLY SECURING THE LAND USE OF BIODIVERSITY OFFSETS**

Legally securing biodiversity offsets should preferably be undertaken through the nature reserve category in NEMPA, as such provides the greatest protection for the biodiversity. However, not all biodiversity sites would fit this NR criterion, especially wetlands which could be a number of small areas to make up the complete offset. In these cases, conservation servitudes are generally the next viable option. The legislation that provides for such servitudes is, however, not effective for long term management of biodiversity offsets, as protection only stays in place for the lifetime of the person to whom the servitude is in favour. Although this problem can be mitigated to a certain extent through the use of a juristic person, it is put forward that it would be more user friendly if it was legally required that all biodiversity offset agreements be recorded in a notarial deed and registered against the property’s title deeds, through the Deeds Registries Act. This would require the amendment of NEMA or the EIA Regulations or the development of separate biodiversity offset legislation.

This does not however prevent other legislation, such as MPRDA, from impacting on the biodiversity offset. There is still therefore a need for a mechanism to secure the site solely for the implementation of the biodiversity offset, as provided for the NR option.

---

<sup>476</sup> S10 of NEMPA.

For the biodiversity offset to be agreed to, there must be certainty that the offset will remain available for the required timeframe and in the required condition. It is therefore argued that such security is required, as mining on these sites would mean a gap where the site does not function as a biodiversity offset. Mining on these sites would also generally negate its biodiversity value as restoration after mining, to its required biodiversity level, is unlikely to be financial possible and/ or successful within acceptable ecological timeframes.

To facilitate such, there is the option that biodiversity offsets could be written into the NEMPA, as a type of protected area under Section 9 of NEMPA. This is put forward as the objectives of this Act include, *inter alia*:

to effect a national system of protected areas in South Africa as part of a strategy to manage and conserve its biodiversity;

to provide for a representative network of protected areas on state land, private land and communal land.<sup>477</sup>

Although biodiversity offsets are not initiated for these reasons, it could be argued that such would be the end result of biodiversity offsets sites. The advantage of this would be that NEMPA already has provisions for a register and for the management of protected areas. Further, if the NEMPA's mining exclusion was extended to these offset sites, such would provide security on par with a NR.

#### **6.4 LONG TERM MANAGEMENT OF BIODIVERSITY OFFSETS**

For biodiversity offset sites to be viable for the long term, expert management of the site is required and compliance monitoring must be in place for the entire duration of the biodiversity offset.

With regards to management, the polluter pays principle<sup>478</sup> places the responsibility on the developers for any degradation resulting from their activities. Developers' expertise is, however, not in conservation. Thus it could be questioned whether the physical management of the land by developers would be practical. In general, provincial and national conservation departments are already overstretched, both personnel wise and

---

<sup>477</sup> S2(c) and (d) of NEMPAA.

<sup>478</sup> See note 267.

financially, and thus the additional unfunded burden of biodiversity offsets would also appear to not be desirable, and would not be in line with the polluter pays principle.<sup>479</sup>

It is put forward that a solution could be that developers have financial and physical responsibility for the setting up of the site and financial responsibility for the long term management of the site, with the conservation departments or another appropriate third party having access to the management fund to provide for staff and equipment. For government to ensure that developers contribute to the long term management of the biodiversity offset sites thus relies significantly on a method of ensuring the long term management of a fund which can cover the expenses of managing such sites.

Such a fund could be centrally located and an organ of state mandated to implement biodiversity offsets, thus allowing for a direct charge against the national Revenue Fund. However, such would require the mandated organ of state to be listed in Schedule 5 of the PFMA, and legislation that provides for such a withdrawal to be approved by Parliament. Currently, Schedule 5 includes remuneration for the president, ministers and parliament, judges and magistrates, and thus it is questioned whether remuneration for offset management falls within these boundaries.

It appears that the use of trust funds managed individually or jointly by a non-profit organisation is the most appropriate option available, and could make funding available to provinces that have conservation entities, or (in other provinces that do not have conservation entities) to approved third parties, for the physical management of the site. The route to undertake needs to be clearly set out for the various competent authorities, as, as noted above, long term management requires that this funding be secured.

Further to the financial provisions is the risk to long term management of the land as a result of difficulties with compliance and enforcement through the EA. EAs are currently viewed as a tool to manage impacts from construction through to decommissioning, as can be seen with regards to the EMPr requirements which control the implementation of mitigation measures.<sup>480</sup> Due to this, and the existing capacity

---

<sup>479</sup> See note 267.

<sup>480</sup> As noted in Section 5.2.4.2, EA controls, through the construction phase or operational phase of a mine, is acknowledged and is the norm. This is supported by (i) the EMPr required phases of planning, construction, operation and decommissioning and (ii) a standard EA condition which requires that an Environmental Control Officer is appointed to ensure that the mitigation measures, EA and EMPr

constraint experienced by compliance units, there is a high possibility that biodiversity offsets would falter after the normal EA compliance route has been finalised. As noted above, the registration of biodiversity offsets could abate this risk, as would the inclusion of biodiversity offsets in NEMPA, which would allow the biodiversity offset site, once fully operational, to be managed and audited under NEMPA. This option would reduce the burden on the Department of Environment's EIA unit, which is already experiencing capacity constraints handling compliance on discrete projects.

If this risk is, however, to be managed through the EIA Regulations, it is put forward that there must be specific provision for the offset stage in the regulations. In this regard, clarification must be provided that the lifecycle of a project includes biodiversity offsets (where these are undertaken), and that the EMPr should include the implementation, management and monitoring of this mitigation measure.

## **6.5 AMENDMENT OF THE EIA REGULATIONS**

It is put forward that the inclusion of biodiversity offsets in the EIA Regulations, supported by the guidelines and national framework, would provide for an approach that is legally defensible and which can provide the guidance required to all role players.

Despite the above, it is noted that conservation areas are already managed through NEMPA, and thus it was not the intention for EIA Regulations to duplicate this function. In this regard it is put forward that, as a minimum, biodiversity offsets should be incorporated into NEMPA. However, provision for the decision making around biodiversity offsets<sup>481</sup> and the implementation of the offset sites should be made through amendments to the EIA Regulations. Amended provisions should ideally describe at what stage the decision to consider offsets can be undertaken and on what basis the CA can consider an offset and should also set out the minimum information requirements of an offset report.

---

requirements are implemented for the construction, operation and decommissioning phases. Without accepted norms with regard to long-term management of offsets there is no continuity in place for EA compliance to occur years after closure of the operation or, in the case of construction impacts, years after the construction activity has been finalised.

<sup>481</sup> Which would need to include, at a minimum, (i) the extension of the lifecycle of the project to include biodiversity offsets; (ii) that biodiversity offsets were part of the mitigation hierarchy; (iii) that biodiversity offsets are legitimate tools that can provide mitigation for listed activities, even out of kind and those located away from the development sites.

Biodiversity offsets are a new process and South Africa is still determining how this should be undertaken. Although the process could continue under national and provincial guidelines, it is submitted that the process of implementing offsets and the long term management of offset sites would be significantly improved by the amendments to the legislation and process suggested above.

## **6.6 VIABILITY OF BIODIVERSITY OFFSETS IN THE SOUTH AFRICAN CONTEXT**

Despite international and foreign countries, thinking and input into biodiversity offset approaches, there is still a significant question of whether the ability to accurately assess and offset the impact on the full scale of biodiversity is currently available.<sup>482</sup> South Africa notwithstanding its advances in systematic conservation assessments and spatial planning also faces this challenge.

Although the above indicates that biodiversity offsets could be secured and managed there is still thus the fundamental issue of whether offsets are an approach South Africa should be taking. South Africa has no working example of an implemented and successful long term biodiversity offset, and neither does BBOP, thus perhaps at this stage judgement should be suspended. It is however put forward that South Africa must be ready in the next ten years to undertake this assessment and judgement of whether biodiversity offsets sufficiently uphold the environmental public trust, and is a tool that South Africa should be using to ensure that the development, which meets present needs, takes place without compromising the ability of future generations to meet their own needs.<sup>483</sup>

---

<sup>482</sup> See discussion in Section 2.5.

<sup>483</sup> Brundtland report, op cit note, 5; and also see discussion in Section 1.1.

## BIBLIOGRAPHY

### Books

- Kidd M *Environmental Law* 2ed Cape Town: Juta (2011).
- ten Kate, K, Bishop, J, and Bayon, R *Biodiversity offsets: Views, experience, and the business case.*, Gland & Cambridge: IUCN & Insight Investment. (2004).
- Sands, P, & Peel, J *Principles of International Environmental Law* 3rd Cambridge: Cambridge University Press (2012).

### Chapters

- Brand, D 'Introduction to socio-economic rights in the South African Constitution' in Brand, D and Heyns, C (eds) *Socio-Economic Human Rights in South Africa* (2005).
- Mead, DL 'History and Theory: The Origin and Evolution of Conservation Banking' in Carroll, N, Fox, J, Bayon, R (eds) *Conservation & Biodiversity Banking* (2008), 9-31.
- Gowdy J, Howarth RB and Tisdell C 'Discounting, ethics and options for maintaining biodiversity and ecosystem integrity' in TEEB *The Economics of Ecosystems and Biodiversity: Ecological and Economic Foundations* (2009) available at <http://evolution.binghamton.edu/evos/wp-content/uploads/2010/01/Gowdy-2009.aspx.pdf> (accessed December 2013).
- Turpie J 'Environmental and Resource Economics' in *Fuggle & Rabies' Environmental Management in South Africa*, Strydom HA & King ND (eds) 2 ed, Juta Cape Town (2009).
- White, W 'The Advantages and Opportunities' in Carroll, N, Fox, J, Bayon, R (eds) *Conservation & Biodiversity Banking* (2008), 33-41.

### Articles

- Bekessy, S A, Wintle, B A, Lindenmayer, D B, Mccarthy, M A, Colyvan, M, Burgman, M A & Possingham, H P 'The biodiversity bank cannot be a lending bank' (2010) 3. *Conservation Letters* 151–158.
- Blackmore, A 'The relationship between the NEMA and the Public Trust: The importance of NEMA principles in safeguarding South Africa's biodiversity' – in prep, 2014

- Brooks, T M, Mittermeier, R A, da Fonseca, G A B, Gerlach, J, Hoffmann, M, Lamoreux, J F, Mittermeier, C G, Pilgrim, J D & Rodrigues, A S L 'Global biodiversity conservation priorities' (2006) 313 *Science* 58–61.
- Brownlie, S and Botha, M 'Biodiversity offsets: adding to the conservation estate, or 'no net loss'?' (2009) 27 *Impact Assessment and Project Appraisal* 227–231.
- Bull, JW, Suttle, BK, Gordon, A, Singh, NJ, & Milner-Gulland, EJ 'Biodiversity Offsets in Theory and Practice' (2013) 47(3), *Fauna & Flora International, Oryx*, 369-380.
- Burgin, S 'BioBanking: An environmental scientist's view of the role of biodiversity banking offsets in conservation' (2008)17. *Biodiversity and Conservation* 807–816.
- Couzen, E & Dent, M ' Finding NEMA: The National Environmental Management Act, The De Hoop Dam, Conflict Resolution And Alternative Dispute Resolution In Environmental Disputes' (2006) 9(3) *Potchefstroom Electronic Law Journal*, 1-118.
- Du Plessis, A 'Adding Flames To The Fuel: Why Further Constitutional Adjudication Is Required For South Africa's Constitutional Right To Catch Alight' (2008) 15 *SAJELP*, 57-84.
- Feris, LA 'The role of good environmental governance in the sustainable development of South Africa' (2010) 13(1) *Potchefstroom Electronic Law Journal* 73-99.
- Field, T L ' Sustainable developent versus environmentalism : competing paradigms for the South African EIA regime' (2006) 123 *South African Law Journal* 409 - 436.
- Gardner, R C 'Rehabilitating nature: a comparative review of legal mechanisms that encourage wetland restoration efforts' (2003) 52 *Catholic University Law Review* (2003) 573 -620.
- Gardner, R C, Zedler, J, Redmond, A, Turner, R E, Johnston, C A, Alvarez, V A, Simenstad, C A, Prestegard, K L, & Mitsch, W J 'Compensating for Wetland Losses Under the Clean Water Act (Redux): Evaluating the Federal Compensatory Mitigation Regulation' (2009) 38(2) *Stetson Law Review*, 213 – 249.
- Gibbons, P., and Lindenmayer, D. B. 'Offsets for land clearing: No net loss or the tail wagging the dog?' (2007) 8 *Ecological Management & Restoration* 26–31.
- Kiesecker, JM, Copeland, H, Pocewicz, A, Nibbelink, N, Mckenney, B, Dahlke, J, Holloran, M & Stroud, D 'A Framework For Implementing Biodiversity Offsets: Selecting Sites And Determining Scale' (2009) 59 (1) *BioScience*, 77–84.
- Kotze, L J 'Improving unsustainable environmental governance in South Africa: The case for holistic governance' (2006) 1 *Potchefstroom Electronic Law Journal* 75 - 118.

- Kotzé LJ 'The judiciary, the environmental right and the quest for sustainability in South Africa: A critical reflection' (2007) 16(3) *RECIEL*, 298 -311.
- Margule, CR & Pressey, RL 'Systematic conservation planning' (2000) 405 *Nature* 243 -253.
- Maron, M, Hobbs RJ, Moilanen A, Matthews, W, Christie, K, Gardner, TA, Keith, DA, Lindenmayer, DB & McAlpine CA 'Faustian bargains? Restoration realities in the context of biodiversity offset policies' (2012) 155 *Biological Conservation* 141–148.
- Matthews JW & Endress AG, 'Performance criteria, compliance success, and vegetation development in compensatory mitigation wetlands' (2008) 41 *Environmental Management* 130 – 141.
- McGillivray, D 'Compensating Biodiversity Loss: The EU Commission's approach to compensation under Article 6 of the Habitats Directive' (2012) 24(3) *Journal of Environmental Law*, 417-450.
- McKenney, BA, Kiesecker, JM 'Policy development for biodiversity offsets: A review of offset frameworks' (2010) 45 *Environmental Management* 165–176.
- Murombo T, 'Beyond public participation: the disjuncture between South Africa's Environmental Impact Assessment (EIA) law and sustainable development' (2008) 3 *Potchefstroom Electronic Law Journal* 1-31.
- Norton DA, 'Biodiversity Offsets: Two New Zealand Case Studies and an Assessment Framework' (2009) 43 *Environmental Management*, 698- 706.
- Patterson, A 'Fuelling the Sustainable Development Debate in South Africa' (2006) 123(1) *South African Law Journal*, 53-62.
- Ridl, J. & Couzens, E 'Misplacing NEMA? A Consideration of Some Problematic Aspects of South Africa's New EIA Regulations' (2010) 13(5) *Potchefstroom Electronic Law Journal*, 80 -120.
- Rundcrantz, K & Skärbäck, E 'Environmental compensation in planning: A review of five different countries with major emphasis on the German system. (2003) 13 *European Environment*, 204-226.
- Sax, J 'The public trust doctrine in natural resource law: Effective judicial intervention' (1970) 68(3) *Michigan Law Review*, 471 – 566.
- Quetier, F & Lavorel, S 'Assessing ecological equivalence in biodiversity offset schemes: key issues and solutions' (2011) 144 *Biological Conservation*, 2991–2999.
- Verschuuren, J 'Sustainable development and the nature of environmental legal principles' (2006) 9(1) *Potchefstroom Electronic Law Journal*, 209 – 261.

Walker S, Brower, AL, Stephens, RTT & Lee, WG, 'Why bartering biodiversity fails' (2009) 2 *Conservation Letters*, 149 -157.

Womble, P & Doyle, M 'The geography of trading ecosystem services: a case study of wetland and stream compensatory mitigation markets' (2012) 36 *Harvard Environmental Law Review*, 229–296.

### **Unpublished papers/reports**

Exigent Engineering Consultants on behalf of Exxaro Sands (Pty) Ltd *Amended final Basic Assessment Report for the Construction of the Fairbreeze Mine and related activities*, February 2012 (2012).

Exigent Engineering Consultants on behalf of Exxaro Sands (Pty) Ltd *Draft Basic Assessment Report for the Construction of the Fairbreeze Mine and related activities*, March 2011 (2011).

KZN Department of Agriculture and Environmental Affairs, Rejection of the final basic assessment report for the proposed construction of the Fairbreeze Mine and related activities within Umlalazi Local Municipality under Uthungulu District Municipality, KZN, issued on 5 October 2011

KZN Department of Agriculture and Environmental Affairs, Environmental Authorisation for the Construction of the Fairbreeze Mine and Related Activities, issued on 12 July 2012.

KZN Department of Agriculture and Environmental Affairs 'Appeal decision relating to the environmental authorisation issued on 12 July 2012 for the construction of the Fairbreeze Mine and related activities for the appellant Twinstreams Blue People Advocacy Group, 11 June 2013

KZN Department of Agriculture and Environmental Affairs 'Appeal decision relating to the environmental authorisation issued on 12 July 2012 for the construction of the Fairbreeze Mine and related activities for the appellant Wildlands Conservation Trust', 11 June 2013

KZN Department of Agriculture and Environmental Affairs 'Appeal decision relating to the environmental authorisation issued on 12 July 2012 for the construction of the Fairbreeze Mine and related activities for the appellant WESSA, 11 June 2013

KZN Department of Agriculture and Environmental Affairs 'Appeal decision relating to the environmental authorisation issued on 12 July 2012 for the construction of the Fairbreeze Mine and related activities for the appellant Mtunzini Conservancy, 11 June 2013.

Macfarlane, D *Strategic offset management plan: Fairbreeze Mine and associated activities*, draft version 0.2, dated 29 January 2013.

Smith Ndlovu Summers Environmental Law Specialists ‘Memorandum of Advice: The implementation of financial biodiversity offsets in the context of South Africa’s environmental law and laws applicable to the regulation of public finances’ prepared for SANBI, 31 January 2012.

### **Electronic sources**

Business and Biodiversity Offsets Programme (BBOP) website <http://bbop.forest-trends.org/>.

Business and Biodiversity Offsets Programme (BBOP), *Biodiversity Offset Design Handbook-Updated* Washington DC: Business and Biodiversity Offsets Programme (2012) available at <http://bbop.forest-trends.org/> (accessed September 2013).

Business and Biodiversity Offsets Programme (BBOP) *Glossary* 2<sup>nd</sup> ed. BBOP, Washington, D.C, (2012), available at [http://www.forest-trends.org/documents/files/doc\\_3100.pdf](http://www.forest-trends.org/documents/files/doc_3100.pdf) (accessed October 2013).

Business and Biodiversity Offsets Programme (BBOP) *Resource Paper: Limits to What Can Be Offset*. (2012) BBOP, Washington, D.C, available at [http://www.forest-trends.org/documents/files/doc\\_3128.pdf](http://www.forest-trends.org/documents/files/doc_3128.pdf) (accessed October 2013).

Business and Biodiversity Offsets Programme (BBOP) *Resource Paper: No Net Loss and Loss-Gain Calculations in Biodiversity Offsets* (2012) BBOP, Washington, D.C, available at [http://www.forest-trends.org/documents/files/doc\\_3103.pdf](http://www.forest-trends.org/documents/files/doc_3103.pdf) (accessed October 2013).

Business and Biodiversity Offsets Programme (BBOP) *Standard on Biodiversity Offsets* (2012) Washington DC: Business and Biodiversity Offsets Programme, available at <http://bbop.forest-trends.org/> (accessed September 2013).

Business and Biodiversity Offsets Programme (BBOP) *To No Net Loss and Beyond: An Overview of the Business and Biodiversity Offsets Programme* (2013) Washington DC: Business and Biodiversity Offsets Programme, available at [www.forest-trends.org/documents/files/doc\\_3319.pdf](http://www.forest-trends.org/documents/files/doc_3319.pdf) (accessed October 2013).

Convention on Biological Diversity ‘State Of Financing For Biodiversity: Draft Global Monitoring Report 2012 On The Strategy For Resource Mobilization Under The Convention’ UNEP/CBD/COP/11/INF16, for COP11, available at <http://www.cbd.int/doc/meetings/cop-cop-11/information/cop-11-inf-16-en.pdf> (accessed October 2013).

Convention on Biological Diversity '2006 Report of the Eighth Meeting Of The Parties to The Convention On Biological Diversity' UNEP/CBD/COP/8/31 *Decision VIII/17*, available at <http://www.cbd.int/doc/meetings/cop/cop-08/official/cop-08-31-en.pdf> (accessed October 2013).

Convention on Biological Diversity 'Decisions Adopted by the Conference Of the Parties to the Convention On Biological Diversity at its Ninth Meeting' UNEP/CBD/COP/9/29, Decision IX/11 *Review of the implementations of Articles 20 & 21*, available at <http://www.cbd.int/doc/decisions/cop-09/full/cop-09-dec-en.pdf> (accessed October 2013).

Convention on Biological Diversity 'Decisions Adopted by the Conference Of the Parties to The Convention On Biological Diversity at its Tenth Meeting' UNEP/CBD/COP/10/27, Decision X/2, 'The Strategic Plan for Biodiversity 2011-2020 and the Aichi Biodiversity Targets' Available at <http://www.cbd.int/doc/decisions/cop-10/full/cop-10-dec-en.pdf> (Accessed October 2013).

Convention on Biological Diversity 'Strategic Plan for Biodiversity 2011–2020 and the Aichi Targets' available at <http://www.cbd.int/doc/strategic-plan/2011-2020/Aichi-Targets-EN.pdf> (Accessed October 2013).

Darbi, M, Ohlenburg, H, Herberg, A, Wende, W, Skambracks, D & Herbert, M *International approaches to compensation for impacts on biological diversity* Final report (2009), available at [http://www.slu.se/Documents/externwebben/ltj-fak-dok/Landskapsarkitektur,%20planering%20och%20f%C3%B6rvaltning/Personal/CV/Jesper%20Persson/Projekt/Litteraturtips/Darbi\\_International%20approaches%20to%20Compensation.pdf](http://www.slu.se/Documents/externwebben/ltj-fak-dok/Landskapsarkitektur,%20planering%20och%20f%C3%B6rvaltning/Personal/CV/Jesper%20Persson/Projekt/Litteraturtips/Darbi_International%20approaches%20to%20Compensation.pdf) (accessed September 2013).

Driver M, Cowling RM & Maze K, 'Planning for Living Landscapes; Perspectives and Lessons from South Africa' Center for Applied Science at Conservation International Cape Town (2003), available at <http://www.cepf.net/documents/living.landscapes.pdf> (accessed September 2013).

Doswald, N, Barcellos Harris, M, Jones, M, Pilla, E, & Mulder, I. *Biodiversity offsets: voluntary and compliance regimes. A review of existing schemes, initiatives and guidance for financial institutions.* (2012) UNEP-WCMC, Cambridge, UK. UNEP FI, Geneva, Switzerland, available at [http://www.unepfi.org/fileadmin/documents/Biodiversity\\_Offsets-Voluntary\\_and\\_Compliance\\_Regimes.pdf](http://www.unepfi.org/fileadmin/documents/Biodiversity_Offsets-Voluntary_and_Compliance_Regimes.pdf) (accessed October 2013).

Evans, R 'Decision Making in the Environmental Impact Assessment Process', available at <http://dukespace.lib.duke.edu/dspace/bitstream/handle/10161/8416/>

- [R.%20Evans%20-%20Decision%20Making%20in%20the%20EIA%20Process FINAL.pdf? sequence=1](#) (accessed July 2014).
- Gillespie, A 'A Missing Piece of the Conservation Puzzle: Biodiversity Offsets' prepared for New Zealand's Department of Conservation, 29 March 2012. available at <http://www.doc.govt.nz/Documents/conservation/missing-piece-of-the-conservation-puzzle.pdf> (accessed September 2013).
- ICMM & IUCN (International Council on Mining & Metals and International Union for Conservation of Nature) *Independent report on biodiversity offset*, prepared by The Biodiversity Consultancy (2012), available at [www.icmm.com/biodiversity-offsets](http://www.icmm.com/biodiversity-offsets) (accessed July 2013).
- International Financial Corporation, 'World Bank Group IFC Performance Standards on Environmental and Social Sustainability 1 January 2012', Available at [http://www.ifc.org/wps/wcm/connect/c8f524004a73daeca09afdf998895a12/IFC\\_Performance\\_Standards.pdf?MOD=AJPERES](http://www.ifc.org/wps/wcm/connect/c8f524004a73daeca09afdf998895a12/IFC_Performance_Standards.pdf?MOD=AJPERES) (accessed October 2013).
- International Institute for Sustainable Development (IISD) 'Sustainable Development: From Brundtland to Rio 2012' Background Paper prepared for consideration by the High Level Panel on Global Sustainability at its first meeting, 19 September 2010, available at [http://www.un.org/wcm/webdav/site/climatechange/shared/gsp/docs/GSP1-6\\_Background\\_%20on%20Sustainable%20Devt.pdf](http://www.un.org/wcm/webdav/site/climatechange/shared/gsp/docs/GSP1-6_Background_%20on%20Sustainable%20Devt.pdf) (accessed August 2013).
- International Law Association 'New Delhi Declaration of Principles of International Law Relating to Sustainable Development, 2 April 2002' *International Environmental Agreements: Politics, Law and Economics* (2002) 2: 211–216, available at <http://cisdl.org/tribunals/pdf/NewDelhiDeclaration.pdf> (accessed July 2014).
- IUCN 'Resolutions and Recommendations.' WCC-2012-Res-110-EN 'Biodiversity offsets and related compensatory approaches' (2012). Gland, Switzerland: IUCN, available at [www.iucn.org/dbtw-wpd/edocs/WCC-5th-005.pdf](http://www.iucn.org/dbtw-wpd/edocs/WCC-5th-005.pdf) (accessed October 2013).
- IUCN *IUCN Red List Categories and Criteria: Version 3.1*. 2<sup>nd</sup> ed Gland, Switzerland and Cambridge, UK: IUCN (2012), available at [http://jr.iucnredlist.org/documents/redlist\\_cats\\_crit\\_en.pdf](http://jr.iucnredlist.org/documents/redlist_cats_crit_en.pdf) (accessed March 2014).
- Kiss, A. *Making Biodiversity Conservation A Land Use Priority*, Columbia University Press (2002), available at <http://www2.gsu.edu/~wwwceec/special/AgiBookChapter2002.pdf> (accessed September 2013).

- Madsen, B, Carroll, N & Moore, B K *State of biodiversity markets report: Offset and compensation programs worldwide*. Ecosystem Marketplace, Washington, D.C., USA (2010), available at [http://www.forest-trends.org/documents/files/doc\\_2388.pdf](http://www.forest-trends.org/documents/files/doc_2388.pdf) (accessed September 2013).
- Madsen, B, Carroll, N, Kandy, D & Bennett, G *State of biodiversity markets Report: offset and compensation programs worldwide* Forest Trends, Washington, DC, USA. (2011) available at [http://www.forest-trends.org/documents/files/doc\\_2848.pdf](http://www.forest-trends.org/documents/files/doc_2848.pdf) (accessed September 2013).
- Manuel, J ‘Overview of the South African framework for Biodiversity Offsets’ Presentation to the BBOP Community of Practice, 22 May 2013, available at <http://bbop.forest-trends.org/documents/files/jmanuelppt.pdf> (accessed December 2013).
- McKenney, B (2005) ‘Environmental offset policies, principles, and methods: a review of selected legislative frameworks’ Biodiversity Neutral Initiative, available at: [http://www.forest-trends.org/documents/files/doc\\_541.pdf](http://www.forest-trends.org/documents/files/doc_541.pdf) (accessed December 2013).
- Millennium Ecosystem Assessment *Ecosystems and Human Well-being: Synthesis*, available at <http://www.millenniumassessment.org/documents/document.356.aspx.pdf> (accessed September 2013).
- Nellemann, C & Corcoran, E (eds). *Dead Planet, Living Planet – Biodiversity and Ecosystem Restoration for Sustainable Development. A Rapid Response Assessment*. United Nations Environment Programme, available at <http://www.grida.no/publications/rr/dead-planet/> (accessed October 2013).
- Oxford Dictionary, available at <http://www.oxforddictionaries.com> (accessed January 2014).
- Peterson A L, Hill, C, & Gallagher, L A ‘Balancing Biodiversity’: A Global Instrument for Meeting the 2010 Biodiversity Target, MSC Thesis 2008 the Nicholas School of the Environment and Earth Sciences of Duke University Durham, North Carolina. available at [http://dukespace.lib.duke.edu/dspace/bitstream/handle/10161/551/MP\\_alp16\\_a\\_200805.pdf?sequence=1](http://dukespace.lib.duke.edu/dspace/bitstream/handle/10161/551/MP_alp16_a_200805.pdf?sequence=1) (accessed September 2013).
- Ramsar, ‘Resolutions of the 10th Meeting of the Conference of the Contracting Parties’ Resolution X.12 ‘Principles for partnerships between the Ramsar Convention and the business sector’, available at [http://www.ramsar.org/pdf/res/key\\_res\\_x\\_12\\_e.pdf](http://www.ramsar.org/pdf/res/key_res_x_12_e.pdf) (accessed October 2013).

Roni P, Hanson, K, Beechie, T, Pess, G, Pollock, M & Bartley, DM *Habitat rehabilitation for inland fisheries. Global review of effectiveness and guidance for rehabilitation of freshwater ecosystems.* (2005) FAO Fisheries Technical Paper. No. 484. Rome, FAO, available at <ftp://ftp.fao.org/docrep/fao/008/a0039e/a0039e00.pdf> (accessed October 2013).

The Biodiversity Consultancy (2012) Biodiversity offsets: appropriate limits and thresholds. Unpublished report to the New Zealand Department of Conservation. The Biodiversity Consultancy Ltd.: Cambridge, UK, available at <http://www.doc.govt.nz/Documents/conservation/offsetability-of-impacts.pdf> (accessed January 2014).

The Biodiversity Consultancy (TBC) ‘Government policies on biodiversity offsets’ available at <http://www.thebiodiversityconsultancy.com/wp-content/uploads/2013/07/Government-policies-on-biodiversity-offsets1.pdf> (accessed July 2013).

United Nations ‘Report of the World Commission on Environment and Development: Our Common Future’ 1987 General Assembly Annex to document A/42/427 - Development and International Cooperation: Environment, available at [http://conspect.nl/pdf/Our\\_Common\\_Future-Brundtland\\_Report\\_1987.pdf](http://conspect.nl/pdf/Our_Common_Future-Brundtland_Report_1987.pdf) (accessed March 2014).

United Nations, *Agenda 21* United Nations Conference on Environment and Development, Rio de Janeiro, Brazil, (1992) available at <http://sustainabledevelopment.un.org/content/documents/Agenda21.pdfv> (accessed September 2014).

United Nations, ‘Rio Declaration of Environment and Development’ Report of the 1992 United Nations Conference on Environment and Development, Rio de Janeiro, Brazil, A/CONF.151/26 (Vol. I) (1992), available at <http://www.unep.org/Documents.Multilingual/Default.asp?DocumentID=78&ArticleID=1163> (accessed July 2014).

UNEP *EIA Training Manual* 2 ed (2002), United Nations Environmental Programme, available at <http://www.unep.ch/etb/publications/EIAman/SecETopic7.pdf> (accessed October 2013).

World Bank Group ‘IFC Performance Standards on Environmental and Social Sustainability 1 January 2012’, available at [http://www.ifc.org/wps/wcm/connect/c8f524004a73daeca09afdf998895a12/IFC\\_Performance\\_Standards.pdf?MOD=AJPERES](http://www.ifc.org/wps/wcm/connect/c8f524004a73daeca09afdf998895a12/IFC_Performance_Standards.pdf?MOD=AJPERES) (accessed October 2013).

## **South African Government documents, policies and guidelines**

Department of Agriculture, Forestry and Fisheries ‘Guidance on Off-Sets: Approach of DAFF Regarding Off-Sets as Condition for the Licensing Of Destruction of Protected Trees and Natural Forests’ (August 2012).

Department of Agriculture, Forestry and Fisheries *Policy Principles and Guidelines for Control of Development Affecting Natural Forests* <http://www.nda.agric.za/doaDev/sideMenu/ForestryWeb/webapp/Documents/PolicyGuideNaturalForestsDev.pdf> (accessed December 2013).

Department of Environmental Affairs, *Glossary of terms used in Integrated Environmental Management*, Integrated Environmental Management Guideline Series No 6 (1992).

Department of Environmental Affairs ‘Norms and Standards for Biodiversity Management Plans for Ecosystems’ in Government Notice 83 in Government Gazette 37302 of 17 February 2014.

Department of Environmental Affairs (DEA), Department of Mineral Resources, Chamber of Mines, South African Mining and Biodiversity Forum and South African National Biodiversity Institute *Mining and Biodiversity Guideline: Mainstreaming Biodiversity into the Mining Sector*, Pretoria (2013).

Department of Environmental Affairs and Tourism ‘A National Framework for Sustainable Development in South Africa’ (2008).

Department of Environmental Affairs and Tourism (DEAT) ‘Guideline regarding the determination of bioregions and the preparation of and publication of bioregional plans’ published in Government Notice No 291 in Government Gazette No. 32006 of 16 March 2009.

Department of Environmental Affairs and Tourism ‘National Strategy for Sustainable Development and Action Plan (NSSD 1) 2011–2014’, (23 November 2011).

Department of Environmental Affairs and Tourism (DEAT), *South Africa’s National Biodiversity Strategy Action Plan* (NBSAP) Department of Environmental Affairs and Tourism, South Africa (2005).

Department of Environmental Affairs and Tourism (DEAT) ‘South Africa’s National Biodiversity Framework’ in Government Notice No. 813 in Government Gazette No. 32474 of 3 August 2009.

Department of Environmental Affairs and Tourism (DEAT) *Overview of Integrated Environmental Management* Integrated Environmental Management Information Series 0, Department of Environmental Affairs and Tourism, Pretoria (2004).

Department of Water Affairs and South African National Biodiversity Institute (DWA & SANBI) *Wetlands offsets: a best practice guideline for South Africa (draft)*, Pretoria (2013).

Ezemvelo KZN Wildlife *Norms and Standards for Biodiversity Offsets (draft)* Ezemvelo KZN Wildlife Pietermaritzburg (2010).

Gauteng Department of Agriculture and Rural Development *Detailed Guideline on biodiversity Offsets for Gauteng Province (unpublished draft)*, (December 2012).

Western Cape Department of Environmental Affairs and Development Planning *Provincial Guideline on Biodiversity Offsets (draft)* Provincial Government of the Western Cape, Department of Environmental Affairs & Development Planning, Cape Town (2007).

### **International and Foreign Government Documents & Policies**

Canadian Department of Fisheries and Oceans (DFO) *Policy for the Management of Fish Habitat* (1986), Department of Fisheries and Oceans Ottawa, Ontario, available at <http://www.dfo-mpo.gc.ca/Library/23654.pdf> (accessed October 2013).

China, Forest Vegetation Restoration Fee Policy, available at [http://www.speciesbanking.com/program/forest\\_vegetation\\_restoration\\_fee](http://www.speciesbanking.com/program/forest_vegetation_restoration_fee) (accessed March 2014).

Commonwealth of Australia *Environment Protection and Biodiversity Conservation Act 1999 Environmental Offsets Policy* (October 2012), available at <http://www.environment.gov.au/epbc/publications/pubs/offsets-policy.pdf> (accessed August 2013).

European Commission ‘Guidance document on Article 6(4) of the ‘Habitats Directive’ 92/43/EEC: Clarification of the Concepts of: Alternative Solutions, Imperative Reasons of Overriding Public Interest, Compensatory Measures, Overall Coherence, Opinion of the Commission’ (2007), available at [http://ec.europa.eu/environment/nature/natura2000/management/docs/art6/guidance\\_art6\\_4\\_en.pdf](http://ec.europa.eu/environment/nature/natura2000/management/docs/art6/guidance_art6_4_en.pdf) (accessed October 2013).

European Commission, Habitats Directive (Council Directive 92/43/EEC of 21 May 1992, available at [http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CONSLEG:1992\\_L0043:200701\\_01:EN:PDF](http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CONSLEG:1992_L0043:200701_01:EN:PDF) (accessed March 2014).

European Commission ‘Managing Natura 2000 Sites: The provisions of Article 6 of the ‘Habitats’ Directive 92/43/EEC’ (2000), available at [http://ec.europa.eu/environment/nature/natura2000/management/docs/art6/provision\\_of\\_art6\\_en.pdf](http://ec.europa.eu/environment/nature/natura2000/management/docs/art6/provision_of_art6_en.pdf) (accessed October 2013).

Fisheries and Oceans Canada *Practitioners Guide to Habitat Compensation for DFO Habitat Management* Staff Version 1.1, available at [http://www.dsao.net/Resources/DFO%20fact%20sheets/Compensation\\_Guide\\_e.pdf](http://www.dsao.net/Resources/DFO%20fact%20sheets/Compensation_Guide_e.pdf) (accessed October 2013).

New South Wales, Australia, Department of Environment & Climate Change (DECC), *Biobanking: Biodiversity Banking and Offset Scheme- Scheme Overview* (2007), Department of Environment & Climate Change: Sydney, available at [www.legislation.nsw.gov.au](http://www.legislation.nsw.gov.au) (accessed September 2013).

Quigley, JT, Harper, DJ, and Galbraith, RV 'Fish habitat compensation to achieve no net loss: review of past practices and proposed future directions' (2006). Canadian Technical Report Fisheries & Aquatic Sciences 2632, available at <http://www.dfo-mpo.gc.ca/Library/321421.pdf> (Accessed October 2013).

U.S. Department of Defense, U.S. Environmental Protection Agency, U.S. Department of Agriculture, U.S. Department of the Interior, and U.S. Department of Commerce 'Federal Guidance for the Establishment, Use and Operation of Mitigation Banks' 60 Fed. Reg. 58605-58614. November 28, 1995, (1995), available at [www.fws.gov/habitatconservation/Corps%20banking%20guide.pdf](http://www.fws.gov/habitatconservation/Corps%20banking%20guide.pdf) (accessed October 2013).

U.S. Department of the Interior (US DOI) 'Guidance for the establishment, use and operation of Conservation Banks' (2003), available at [http://www.fws.gov/endangered/esa-library/pdf/Conservation\\_Banking\\_Guidance.pdf](http://www.fws.gov/endangered/esa-library/pdf/Conservation_Banking_Guidance.pdf) (accessed October 2013).

U.S. Environmental Protection Agency and U.S. Department of the Army 'Memorandum of Agreement Between the Environmental Protection Agency and the Department of the Army Concerning the Determination of Mitigation Under the Clean Water Act Section 404(b)(1) Guidelines. February 8, 1990.' (1990), available at <http://water.epa.gov/lawsregs/guidance/wetlands/mitigate.cfm> (accessed October 2013).

Victoria State of Australia 'Native Vegetation Management – A Framework For Action'(2002), available at [https://www.google.co.za/url?q=http://www.pyrenees.vic.gov.au/files/bf448a16-d6ea-4959-a098-9e4e010b80f4/VictoriasNativeVegetationManagementAFrameworkForAction.pdf&sa=U&ei=JY8IU-2mNdSshQeA\\_4H4Aw&ved=0CCMQFjAB&usg=AFQjCNFMpuAWMGwmzfo7yh6d36gf5Va06w](https://www.google.co.za/url?q=http://www.pyrenees.vic.gov.au/files/bf448a16-d6ea-4959-a098-9e4e010b80f4/VictoriasNativeVegetationManagementAFrameworkForAction.pdf&sa=U&ei=JY8IU-2mNdSshQeA_4H4Aw&ved=0CCMQFjAB&usg=AFQjCNFMpuAWMGwmzfo7yh6d36gf5Va06w) (accessed March 2014).

## **Cases**

*Affordable Medicines Trust and Others v Minister of Health and Others* 2006 (3) SA 247 (CC).

*Bato Star Fishing (Pty) Ltd v Minister of Environmental Affairs* 2004 (4) SA 490 (CC).

*BP Southern Africa (Pty) Ltd v MEC for Agriculture, Conservation, Environment and Land Affairs* 2004 (5) SA 124 (W).

*Director: Mineral Development, Gauteng Region and Sasol Mining (pty) Ltd v Save the Vaal Environment and Others* 1999 (2) SA 709 (SCA).

*Earthlife Africa (Cape Town) v Director-General: Department of Environmental Affairs and Tourism and Another* 2005 (3) SA 156 (C).

*Fedsure Life Assurance Ltd v Greater Johannesburg Transitional Metropolitan Council* 1999 (1) SA 374 (CC).

*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).

*GabCikovo-Nagymaros Project (Hungary/Slovakia)*, Judgment, 1. C. J. Reports 1997, available at <http://www.icj-cij.org/docket/files/92/7375.pdf> (accessed July 2014).

*Government of the Republic of South Africa v Grootboom* 2001 (1) SA 46 (CC).

*MEC for Agriculture, Conservation, Environment and Land Affairs, Gauteng v Sasol Oil and Another* (2006) All SA 17 SCA.

*MEC, Department Of Agriculture, Conservation and Environment and Another v HTF Developers (Pty) Ltd* 2008 (2) SA 319 (CC).

*Petro Props (Pty) Ltd v Barlow and Another* 2006 (5) SA 160 (W).

*Pharmaceutical Manufacturers Association of SA; In re: Ex parte Application of President of the RSA* 2000 2 SA 674 (CC).

*SLC Property Group (Pty) Ltd and Another v Minister of Environmental Affairs and Economic Development (Western Cape) and Another* 2008 1 All SA 627 (C).

## **South African Statutes and Regulations**

Constitution of South Africa, 1996.

Deeds Registries Act 47 of 1937.

Environmental Impact Assessment Regulations in Government Notice R.543 in Government Gazette 33306 of 18 June 2010 (as amended).

KwaZulu-Natal Conservation Management Act 9 of 1997.

Minerals and Petroleum Resources Development Act 28 of 2002.

National Environmental Management Act 107 of 1998.

National Environmental Management Act, Listing Notice 1: List of Activities and Competent Authorities Identified In Terms of Sections 24(2) and 24D in Government Notice R544 of Government Gazette No. 33306 of 18 June 2010.

National Environmental Management Act, Listing Notice 2: List of Activities and Competent Authorities Identified In Terms of Sections 24(2) and 24D in Government Notice R545 of Government Gazette No. 33306 of 18 June 2010.

National Environmental Management Act, Listing Notice 3: List of Activities and Competent Authorities Identified In Terms of Sections 24(2) and 24D in Government Notice R546 of Government Gazette No. 33306 of 18 June 2010.

National Environmental Management: Biodiversity Act 10 of 2004.

National Environmental Management: Protected Areas Act 57 of 2003.

National Water Act 36 of 1998.

National Forest Act 84 of 1998.

Promotion of Access to Information Act 2 of 2000

Promotion of Administrative Justice Act 3 of 2000.

Public Finance Management Act 1 of 1999.

Restitution of Land Rights Act 22 of 1994.

Treasury Regulations for departments, trading entities, constitutional institutions and public entities in Government Notice R255 in Government Gazette 27388 dated 15 March 2005, as amended.

Trust Property Control Act 57 of 1988.

### **Foreign Statutes**

Australian, Environment Protection and Biodiversity Conservation Act 91 of 1999, available at [http://www.austlii.edu.au/cgi-bin/sinodisp/au/legis/cth/consol\\_act/epabca1999588/notes.html?stem=0&synonyms=0&query=Environment%20Protection%20and%20Biodiversity%20Conservation%20Act%201999%20\(Act%20No%2091%20of%201999\)](http://www.austlii.edu.au/cgi-bin/sinodisp/au/legis/cth/consol_act/epabca1999588/notes.html?stem=0&synonyms=0&query=Environment%20Protection%20and%20Biodiversity%20Conservation%20Act%201999%20(Act%20No%2091%20of%201999)) (accessed March 2014).

Brazil, The Protected Areas Law (Law no. 9985/2000).

Brazil, The Forest Code (Law 4771/1965).

Canadian Fisheries Act (RCS 1985, c. F-14), available at <http://laws-lois.justice.gc.ca/eng/acts/f-14/FullText.html> (accessed March 2014).

Columbian, National legislation Decreto 1753 of 1994.

German Federal Nature Conservation Act of 1976.

Mexico, General Law of Ecological Equilibrium and Protection of the Environment Act of 1988.

New South Wales State of Australia, Native Vegetation Act 103 of 2003, available at [http://www.austlii.edu.au/au/legis/nsw/consol\\_act/nva2003194/](http://www.austlii.edu.au/au/legis/nsw/consol_act/nva2003194/) (accessed March 2014).

New South Wales State of Australia, Threatened Species Conservation Act 101 of 1995, available at [http://www.austlii.edu.au/au/legis/nsw/consol\\_act/tsca1995323/](http://www.austlii.edu.au/au/legis/nsw/consol_act/tsca1995323/) (accessed March 2014).

Switzerland, Federal Law for the Protection of Nature and Landscape, 1966.

United States of America, Clean Water Act of 1972, 33 U.S.C. §1251 et seq. (2002), available at <http://www.gpo.gov/fdsys/pkg/USCODE-2002-title33/pdf/USCODE-2002-title33-chap26.pdf> (accessed March 2014).

United States of America, Endangered Species Act of 1973, 16 U.S.C § 1531 et seq, available at <http://www.gpo.gov/fdsys/pkg/USCODE-2002-title16/pdf/USCODE-2002-title16-chap35.pdf> (accessed March 2014).

Victoria State of Australia, Planning and Environment Act 45 of 1987, available at [http://www.austlii.edu.au/au/legis/vic/consol\\_act/paea1987254/](http://www.austlii.edu.au/au/legis/vic/consol_act/paea1987254/) (accessed March 2014).

Western Australian State of Australia, Environmental Protection Act 87 of 1986, available at [http://www.austlii.edu.au/au/legis/wa/consol\\_act/epa1986295/](http://www.austlii.edu.au/au/legis/wa/consol_act/epa1986295/) (accessed March 2014).

## **Conventions**

Convention on Biological Diversity.

Convention on Wetlands of International Importance (Ramsar Convention)



UNIVERSITY OF  
KWAZULU-NATAL  
INYUVESI  
YAKWAZULU-NATALI

11 March 2014

F Elliott (902478500)  
School of Law  
Howard College Campus

Dear Mr/s Elliott,

Protocol Reference Number: HSS/1447/013EX

Project Title: A critical assessment of specific aspects of South Africa's laws relating to biodiversity offsets and suggestions for improvements

**Full Approval – No Risk**

In response to your application dated October 2013, the Humanities & Social Sciences Research Ethics Committee has considered the abovementioned application and the protocol have been granted **FULL APPROVAL**.

Any alteration/s to the approved research protocol i.e. Questionnaire/Interview Schedule, Informed Consent Form, Title of the Project, Location of the Study, Research Approach and Methods must be reviewed and approved through the amendment /modification prior to its implementation. In case you have further queries, please quote the above reference number.

**PLEASE NOTE:** Research data should be securely stored in the discipline/department for a period of 5 years.

The ethical clearance certificate is only valid for a period of 3 years from the date of issue. Thereafter Recertification must be applied for on an annual basis.

I take this opportunity of wishing you everything of the best with your study.

Yours faithfully

Dr Shenuka Singh (Chair)

/ms

cc Supervisor: Ms M Lewis  
cc Academic Leader Research: Mrs Shannon Bosch  
cc School Administrator: Mr Pradeep Ramsewak

Humanities & Social Sciences Research Ethics Committee

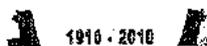
Dr Shenuka Singh (Chair)

Westville Campus, Govan Mbeki Building

Postal Address: Private Bag X54001, Durban 4000

Telephone: +27 (0) 31 260 3587/8350/4557 Facsimile: +27 (0) 31 260 4609 Email: [ximbao@ukzn.ac.za](mailto:ximbao@ukzn.ac.za) / [snymant@ukzn.ac.za](mailto:snymant@ukzn.ac.za) / [mohupp@ukzn.ac.za](mailto:mohupp@ukzn.ac.za)

Website: [www.ukzn.ac.za](http://www.ukzn.ac.za)



100 YEARS OF ACADEMIC EXCELLENCE

Founding Campuses: Edgewood Howard College Medical School Pietermaritzburg Westville