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# **Strategic Framework and Overarching Implementation Plan for Ecosystem-Based Adaptation (EbA) in South Africa**

**2016 – 2021**

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## Table of Contents

<b>1. Introduction .....</b>	<b>7</b>
<b>2. Literature summary.....</b>	<b>10</b>
2.1 Climate change in South Africa .....	10
2.2 Climate change and ecosystem services .....	11
2.3 Responding to climate change .....	12
2.3.1 Climate change mitigation .....	12
2.3.2 Climate change adaptation.....	13
2.4 Ecosystem-based Adaptation.....	13
2.5 Implementing Ecosystem-based Adaptation .....	15
2.5.1 Lessons and gaps from implementation of Ecosystem-based Adaptation .....	17
<b>3. Policy Context and Alignment.....</b>	<b>17</b>
3.1 International policy context.....	18
3.1.1 Sustainable Development Goals (SDGs) .....	18
3.1.2 Convention on Biological Diversity (CBD) .....	18
3.1.3 United Nations Framework Convention on Climate Change .....	20
3.1.4 United Nations Convention to Combat Desertification (UNCCD) .....	21
3.1.5 Ramsar Convention .....	22
3.1.6 United Nations Office for Disaster Risk Reduction (UNISDR) .....	22
3.2 National, provincial and municipal policy context .....	23
3.2.1 Overarching national policy context.....	23
3.2.2 National environmental policy context .....	25
3.2.3 Policy context in other sectors and spheres of government .....	28
<b>4. Institutional Context .....</b>	<b>29</b>
4.1 National institutions and programmes of work relating to EbA .....	29
4.2 International institutions, programmes and networks .....	32
<b>5. Strategic Framework &amp; Overarching Implementation Plan .....</b>	<b>34</b>
5.1 Overview of the EbA Strategy .....	34
5.2 Resourcing the EbA Strategy .....	35
5.3 Structure of the EbA Strategy.....	36
5.4 Strategic Framework and Overarching Implementation Plan .....	37
5.4.1 Outcome 1: Effective coordination, learning and communication mobilises capacity and resources for EbA .....	37
5.4.2 Outcome 2: Research, monitoring and evaluation provides evidence for EbA's contribution to a climate-resilient economy and society .....	40
5.4.3 Outcome 3: Integration of EbA into policies, plans and decision-making supports an overall climate change adaptation strategy .....	42
5.4.4 Outcome 4: Implementation projects demonstrate the ability of EbA to deliver a wide range of co-benefits .....	45

<b>6. Institutional Arrangements for Implementation .....</b>	<b>47</b>
<b>7. References .....</b>	<b>48</b>

## List of Figures

Figure 1. South Africa's Strategic Framework for Ecosystem-based Adaptation (EbA) .....	8
Figure 2. Change to South African biomes predicted under climate change. a. Current biomes, b. Low risk scenario, c. Medium risk scenario and d. High risk scenario. (Driver <i>et al</i> , 2012).....	11
Figure 3. Ecosystem-based Adaptation integrates biodiversity and ecosystem conservation, climate change adaptation and socio-economic benefits. CBA = Community based Adaptation, CLICS = Climate change integrated conservation strategies, CBNRM = Community based natural resource management. From Midgley <i>et al</i> . (2012).....	14
Figure 4. An Overview of the EbA Strategy.....	34
Figure 5. The EbA Strategy consists of a Strategic Framework and Overarching Implementation Plan .....	36

## List of Tables

Table 1. Summary of key climate change related threats to biomes in South Africa. From <i>Climate change adaptation plans for South African biomes</i> (DEA, 2015). .....	10
Table 2. Countries implementing Ecosystem-based Adaptation projects, as per the UNFCCC database ( <a href="http://unfccc.int/adaptation/nairobi_work_programme/knowledge_resources_and_publications/items/6227.php">http://unfccc.int/adaptation/nairobi_work_programme/knowledge_resources_and_publications/items/6227.php</a> ).....	15

## List of Boxes

Box 1. Ecosystem-based Disaster Risk Reduction (Eco-DRR) .....	16
Box 2. EbA in the Sustainable Development Goals (SDGs).....	18
Box 3. Key points on EbA, directly extracted from the report of the Ad Hoc Technical Expert Group on Biodiversity and Climate Change (CBD 2009:41-43).....	19
Box 4. Alignment of EbA with the CBD's Strategic Plan for Biodiversity .....	20

## List of Acronyms

Acronym	Description
<b>ARC</b>	Agricultural Research Council
<b>BPF</b>	Biodiversity Planning Forum
<b>CBA</b>	Community-Based Adaptation
<b>CBD</b>	Convention on Biological Diversity
<b>CBNRM</b>	Community-based Natural Resource Management
<b>CCA</b>	Climate Change Adaptation
<b>CLICS</b>	Climate Change-Integrated Conservation Strategies
<b>CO<sub>2</sub></b>	Carbon dioxide
<b>CoGTA</b>	Cooperative Governance and Traditional Affairs
<b>CoP</b>	Community of Practice
<b>CSC</b>	Coordinating Steering Committee
<b>CSIR</b>	Council for Scientific and Industrial Research
<b>DAFF</b>	Department of Agriculture, Forestry and Fisheries
<b>DEA</b>	Department of Environmental Affairs
<b>DHS</b>	Department of Human Settlements
<b>DLDD</b>	Desertification, land degradation and drought
<b>DoH</b>	Department of Health
<b>DRDLR</b>	Department of Rural Development and Land Reform
<b>DST</b>	Department of Science and Technology
<b>DWS</b>	Department of Water and Sanitation
<b>EbA</b>	Ecosystem-based Adaptation
<b>EbA Strategy</b>	Strategic Framework and Overarching Implementation Plan for EbA
<b>EbM</b>	Ecosystem-based Mitigation
<b>Eco-DRR</b>	Ecosystem-based Disaster Risk Reduction
<b>EPWP</b>	Expanded Public Works Programme
<b>GCF</b>	Green Climate Fund
<b>GHG</b>	Greenhouse gases
<b>IIED</b>	International Institute for Environment and Development
<b>IDPs</b>	Integrated Development Plans
<b>IGCCC</b>	Intergovernmental Committee on Climate Change
<b>IPCC</b>	Intergovernmental Panel on Climate Change
<b>IUCN</b>	International Union for Conservation of Nature
<b>KPA</b>	Key Performance Area
<b>LTAS</b>	Long Term Adaptation Scenarios
<b>M&amp;E</b>	Monitoring and Evaluation
<b>MINMEC</b>	Ministers and Members of Executive Councils
<b>MINTECH</b>	Ministerial Technical Committee
<b>MTEF</b>	Medium Term Expenditure Framework
<b>NAP</b>	National Adaptation Plan
<b>NAPA</b>	National Adaptation Programmes of Action

<b>NBSAP</b>	National Biodiversity Strategy and Action Plan
<b>NCCC</b>	National Committee on Climate Change
<b>NCCR</b>	National Climate Change Response
<b>NDC</b>	Nationally Determined Contribution
<b>NDMC</b>	National Disaster Management Plan
<b>NDP</b>	National Development Plan
<b>NGO</b>	Non-governmental organisation
<b>NIE</b>	National Implementing Entity
<b>NPAES</b>	National Protected Area Expansion Strategy
<b>NRF</b>	National Research Foundation
<b>NRM</b>	Natural Resource Management
<b>NSSD</b>	National Strategy for Sustainable Development
<b>NWP</b>	Nairobi Work Program
<b>PCCAS</b>	Provincial Climate Change Adaptation Strategies
<b>SALGA</b>	South African Local Government Association
<b>SANBI</b>	South African National Biodiversity Institute
<b>SAWS</b>	South African Weather Service
<b>SBSTA</b>	Subsidiary Body for Scientific and Technological Advice
<b>SDF</b>	Spatial Development Frameworks
<b>SDGs</b>	Sustainable Development Goals
<b>TOR</b>	Terms of Reference
<b>UNCCD</b>	United Nation Convention to Combat Desertification
<b>UNEP</b>	United Nations Environment Programme
<b>UNISDR</b>	United Nations Office for Disaster Risk Reduction
<b>UNFCCC</b>	United Nations Framework Convention on Climate Change
<b>WRC</b>	Water Research Commission
<b>WWF</b>	World-Wide Fund for Nature

## Glossary of important terms

- Climate change adaptation:** “is the process of adjustment to actual or expected climate and its effects. In human systems, adaptation seeks to moderate or avoid harm or exploit beneficial opportunities. In some natural systems, human intervention may facilitate adjustment to expected climate and its effects” (IPCC, 2014).
- Climate change mitigation:** refers to “human intervention to reduce the sources or enhance the sinks of greenhouse gases” (IPCC, 2014). Primary interventions to mitigate climate change include technological and behavioural changes that reduce reliance on fossil fuels and the emission of CO<sub>2</sub>.
- Climate change-integrated conservation strategies:** are conservation responses to climate change that are anticipatory and systematic in nature. They involve spatial and related types of conservation planning products that inform planning for ecosystem service corridors and protected areas that are resilient to climate change (Hannah *et al.* 2002).
- Climate resilience:** refers to the capacity of social, economic and environmental systems to cope with hazardous events, trends or disturbances associated with climate change, “responding or reorganizing in ways that maintain their essential function, identity and structure, while also maintaining the capacity for adaptation, learning and transformation” (IPCC 2014).
- Community based adaptation:** to climate change is a community-led process, based on communities’ priorities, needs, knowledge, and capacities, which should empower people to plan for and cope with the impacts of climate change (IIED 2009).
- Community based natural resource management:** is the management of natural resources by all concerned stakeholders. Communities managing the resources have the legal rights, the local institutions, and the economic incentives to take substantial responsibility for sustained use of these resources (Midgley *et al.* 2012).
- Ecological infrastructure:** are naturally functioning ecosystems that generate or deliver valuable services to people. It is the nature-based equivalent of built infrastructure, and is just as important for providing services and underpinning economic development.
- Ecosystem-based adaptation:** is the use of biodiversity and ecosystem services as part of an overall adaptation strategy to help people to adapt to the adverse effects of climate change. Ecosystem-based adaptation uses the range of opportunities for the sustainable management, conservation, and restoration of ecosystems to provide services that enable people to adapt to the impacts of climate change. It aims to maintain and increase the resilience and reduce the vulnerability of ecosystems and people in the face of the adverse effects of climate change. Ecosystem-based adaptation is most effective when appropriately integrated into broader adaptation and development strategies (CBD 2009).
- Ecosystem-based disaster risk reduction (Eco-DRR):** aims to manage the environment (through sustainable management, conservation and restoration of ecosystems) in such a way that risk to communities is reduced (Estrella and Saalismaa 2013). Eco-DRR “advocates for sustainable ecosystems management as a strategy to reduce exposure and vulnerability, through hazard mitigation or regulation (when feasible) as well as enhancement of livelihood capacities and resilience. Ecosystem-based disaster risk reduction builds on ecosystem management principles, strategies and tools in order to maximise ecosystem services for risk reduction” (Estrella & Saalismaa 2010).
- Ecosystem-based mitigation:** or ecosystem-based approaches to mitigation use ecosystems for their carbon storage and sequestration service to aid climate change mitigation. Emissions reductions are achieved through creation, restoration and management of ecosystems (e.g. forest restoration, peat conservation) (Doswald and Osti 2011).
- Green Infrastructure:** is a set of natural and man-made ecological systems that provide services to society, such as flood attenuation, water and air filtration, and microclimate regulation, which can be used as an alternative, or partner to traditional infrastructure (Bobbins and Culwick 2015).

## 1. Introduction

South Africa is facing increasing socio-economic pressures as a result of the impacts of climate change. This is recognised in South Africa's National Development Plan which regards climate change as a major factor influencing the country's development pathway. The impacts of changes in rainfall and temperature on major economic sectors as well as the need to transition to a low carbon economy are some of the development choices facing the country. The National Climate Change Response (NCCR) White Paper (2011) sets out South Africa's response to these challenges, highlighting the importance of well-functioning ecosystems in helping society to adapt to climate change as well as supporting opportunities for adaptation to contribute towards broader development goals.

Ecosystem-based adaptation (EbA) uses biodiversity and ecosystem services to help people adapt and build resilience to the adverse effects of climate change (CBD, 2009). EbA aims to maintain and increase the resilience and reduce the vulnerability of ecosystems and people in the face of the adverse effects of climate change and is most appropriately integrated into broader adaptation and development strategies (CBD, 2009). Drawing on the linkages between ecosystem services, climate change and biodiversity, EbA is recognised for its potential to support poor and rural communities who are more directly dependent on natural resources and ecosystem services in adapting to climate change. EbA interventions also have the potential to be relatively cost-effective and adaptive in the long-term when compared to other adaptation solutions that rely on engineering and hard infrastructure. The co-benefits of EbA contribute towards a broader set of socio-economic and development goals, including job creation, poverty reduction and rural/peri-urban development. In a developing country context where limited resources need to be used efficiently, providing for multiple outcomes is particularly important.

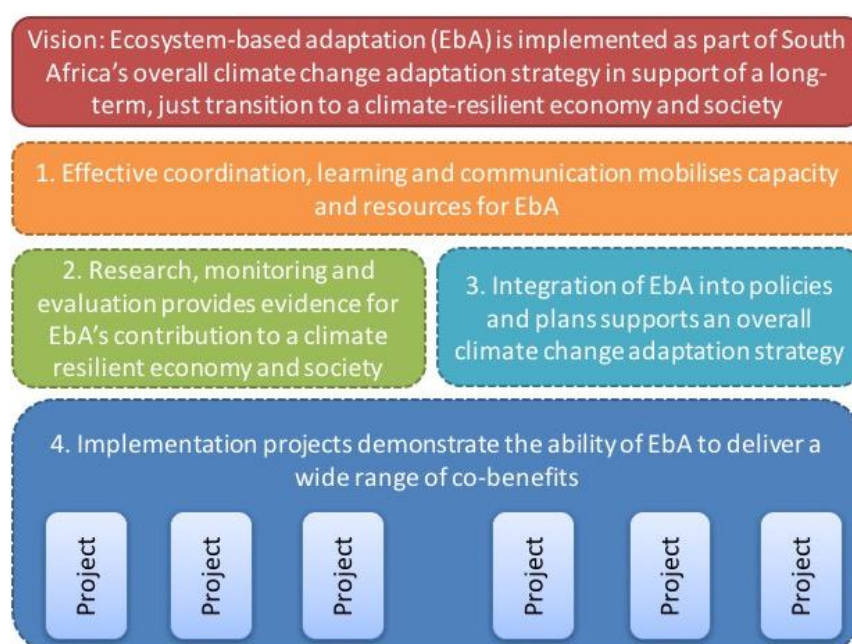
Recognising the opportunities for a wide range of co-benefits from EbA, South Africa's biodiversity and climate change policy provides clear support for the development of a coordinated programme of work on EbA, as part of an overall adaptation strategy envisaged in the NCCR White Paper. In response to the NCCR White Paper, the 2013 Long Term Adaptation Scenarios (LTAS) Flagship Research Programme highlights the "potential for ecological infrastructure to provide adaptation benefits and assist in achieving development aspirations across sectors [through] mainstreaming into policy planning and implementation...[thus] building the resilience of South Africa's natural systems, working landscapes and open spaces to support economic sectors and local livelihoods under future climate conditions" (DEA, 2013:17). The LTAS was followed by the 2014 Biodiversity Sector Climate Change Response Strategy, which identified opportunities for climate change responses, including EbA, to support sustainable livelihoods.

The Climate Change Adaptation Plan for South African Biomes (2015) subsequently highlights EbA as one of four categories of actions that could reduce climate threats to biodiversity and

goes on to identify EbA actions for each biome alongside other adaptation options. Most recently, the revised National Biodiversity Strategy and Action Plan<sup>1</sup> (2015) seeks that “Ecosystem-based Adaptation (EbA) is shown to achieve multiple benefits in the context of sustainable development”.

The development of a Strategic Framework and Overarching Implementation Plan for Ecosystem-based Adaptation is seen as a core component of South Africa’s overall approach to climate change adaptation to enable a long-term, just transition to a climate-resilient society and economy.

Developed under the leadership of the Department of Environmental Affairs (DEA) and the South African National Biodiversity Institute (SANBI) and in consultation with biodiversity and climate change stakeholders, the Strategic Framework and Overarching Implementation Plan for EbA (hereafter referred to as the EbA Strategy) aims to take forward EbA as a central component of South Africa’s programme of work on biodiversity and climate change. The EbA Strategy sets out a vision for EbA, and identifies four priorities or outcomes required to achieve that vision (see Figure 1).



**Figure 1.** South Africa's Strategic Framework for Ecosystem-based Adaptation (EbA)

The EbA Strategy begins with an overview of relevant literature as well as the policy and institutional context for EbA. The literature summary in Section 2 provides an overview of EbA in the context of South Africa’s overall response to climate change, and explains the

<sup>1</sup> In South Africa, NBSAPs are taken a step further with the requirement under the Biodiversity Act to publish a National Biodiversity Framework (NBF). The first NBF, gazetted in 2009, provides a framework to coordinate and align efforts of many organisations and individuals involved in biodiversity management and conservation.

relationship and relative benefit of EbA to other types of adaptation and other related concepts. Thereafter, the policy review in Section 3 details the international, national, provincial and local policy contexts and alignment for EbA. A review of the institutional context for EbA in South Africa follows in Section 4, noting relevant international and national programmes of work and structures. The Strategic Framework and Overarching Implementation Plan in Section 5 is followed by a description of the institutional arrangements for implementation in Section 6.

The EbA Strategy and its implementation seeks to align and collaborate with existing initiatives, many of which involve projects implemented by NGOs. Not taking this approach would result in numerous lost opportunities. South Africa has also invested significantly in programmes of work that contribute towards poverty reduction and job creation and improve the health and resilience of ecosystems, including the Natural Resource Management Programmes under the Department of Environmental Affairs. These programmes offer a body of practice and expertise that could support climate change adaptation through EbA. Opportunities exist to align this current experience, strengthened where necessary with new activities, to deliver the range of co-benefits that EbA offers. Opportunities for alignment are particularly important given the current economic climate in which resources for implementation are limited and activities in support of this are included in the Strategy. While the EbA Strategy can be implemented to some degree through alignment of existing resources and enabled through a low-level of coordination, additional resources would strengthen the practice of EbA by unlocking capacity needed for faster scale up of pilot projects, improved coordination, and communication, learning and research activities.

## 2. Literature summary

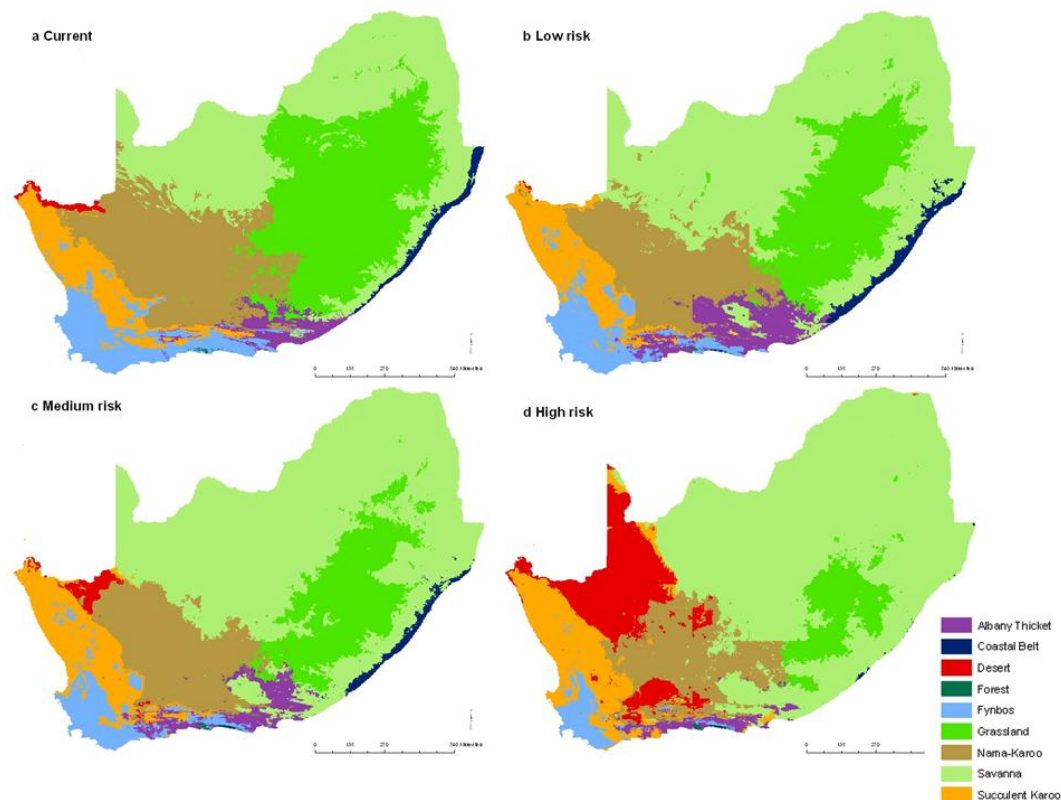
### 2.1 Climate change in South Africa

South Africa recognises the findings of the Intergovernmental Panel on Climate Change (IPCC) that climate change is a current reality with anthropogenic causes (Government of South Africa, 2011). South Africa has already observed a changing climate between 1960 and 2010. There have been higher mean annual temperatures, higher minimum and maximum daily temperatures, more frequent hot extremes and fewer cold extremes, as well as more variable rainfall with a tendency towards more intense rainfall events and longer dry spells (DEA, 2013). Modelled future predictions display a level of uncertainty, but even the most conservative models predict a 1 – 3 degree Celsius (°C) rise in temperatures by 2050 (Government of South Africa, 2011). Significant warming of as much as 5 – 8°C may be expected for the interior parts of South Africa by mid-century, with concurrent drier conditions in the western and southern parts of the country, and wetter conditions in the east (DEA, 2013).

Climate change has already had, and is predicted to have, a range of important impacts on biodiversity and ecosystems. The best observed natural responses to climate change are changes to the geographic ranges, seasonal activities, migration patterns and abundances of species across the terrestrial, freshwater and marine environments (IPCC, 2014). Species with narrow ranges and limited dispersal abilities, including locally endemic species, are likely to be most severely impacted by climate change (CBD, 2009). All of these changes will result in changes to the structure and function of ecosystems, as individual species responses alter the abundance and composition of ecological communities (CBD, 2009). In South Africa, research has shown that the effects of climate change on biodiversity are likely to have variable impacts on the different biomes in South Africa (Table 1; DEA, 2015). Biomes are ecological units of wide extent with distinctive plant and animal communities that are often determined mainly by bioclimatic ranges of temperature and rainfall values. Under climate change, the climatic area that is suited to each biome might change, resulting in changes to the size, composition or location of the biomes (Figure 2; Driver *et al.*, 2012).

**Table 1.** Summary of key climate change related threats to biomes in South Africa. From *Climate change adaptation plans for South African biomes* (DEA, 2015).

	Savanna	Grassland	Nama Karoo	Succulent Karoo	Desert	Fynbos	Albany Thicket	Indian Ocean Coastal Belt	Forest
Rising temperature		X				X		X	X
Temperature extremes	X		X	X	X		X		
Decrease or increase in rain amount	X	X	X					X	X
More intense rain		X					X		
Extreme storms								X	X
Rising CO <sub>2</sub>	X	X				X		X	
Changes in fire		X				X			X
Rising sea level								X	
Non-climate related land-use change	X	X	X	X	X	X	X	X	



**Figure 2.** Change to South African biomes predicted under climate change. a. Current biomes, b. Low risk scenario, c. Medium risk scenario and d. High risk scenario. (Driver *et al*, 2012).

## 2.2 Climate change and ecosystem services

Climate change, biodiversity and human well-being are all interconnected. For this reason, the impact of climate change on biodiversity, such as changes to biomes shown above, will also affect the ecosystem services that humans receive from functioning ecosystems. The ecosystem services that people receive from ecosystems can be categorised into four functional groupings (Millennium Ecosystem Assessment, 2003):

1. **Provisioning services** are the products obtained from ecosystems, such as food, water, fibre, fuel, medicines and genetic resources.
2. **Regulating services** are the benefits obtained from the regulation of ecosystem process, such as the maintenance of air quality, water regulation, climate regulation, pollination and erosion control.
3. **Cultural services** include non-material benefits people obtain from ecosystems such as cultural diversity, spiritual and religious values, knowledge and education, inspiration, a sense of place, recreation and ecotourism.
4. **Supporting services** are necessary for the production of the above ecosystem services categories, they are long time-scale processes soil formation, oxygen production and nutrient cycling.

In South Africa, ecosystems that are important to the delivery of a suite of important services to humans are termed 'ecological infrastructure'<sup>2</sup>. Ecological infrastructure can be considered as the natural asset from which ecosystem services flow (SANBI, 2016). Ecological infrastructure is the nature-based equivalent for built infrastructure that provides valuable services to people. It can be particularly important for the provision of fresh water, climate regulation, soil formation and disaster risk reduction. Ecological infrastructure includes, for instance, healthy mountain catchments, rivers, wetlands, coastal dunes, and nodes and corridors of functioning ecosystems, which together form a network of interconnected structural elements in the landscape (SANBI, 2013).

Climate change can affect the functioning of ecological infrastructure and disrupt the ecosystem services it provides, with resulting implications for the well-being of human communities that rely on these services. This will disproportionately affect rural and poor communities (IPCC, 2014; CBD, 2009), who rely most directly on ecosystem services for water and food security, but are also excluded from modern technology and innovations that would help them adapt (CBD, 2009). As a result, climate change could affect resource-dependent livelihoods and increase human conflicts (IPCC, 2014).

### ***2.3 Responding to climate change***

Human populations are faced with two ways to reduce the effects of climate change on biodiversity and ecosystem services: mitigate the causes of climate change or adapt to the effects of climate change (IPCC, 2014). These are both necessary and are generally used together as part of an overall response strategy, since single actions are unlikely to limit the impacts of climate change (IPCC, 2014).

#### **2.3.1 Climate change mitigation**

Climate change mitigation refers to "human intervention to reduce the sources or enhance the sinks of greenhouse gases" (IPCC, 2014). Primary interventions to mitigate climate change include technological and behavioural changes that reduce reliance on fossil fuels and the emission of carbon dioxide (CO<sub>2</sub>). Through ratification of the Paris Agreement, South Africa has committed to certain actions that will help to ensure temperature increases are kept well below 2°C above pre-industrial levels (Government of South Africa, 2015).

Changes to land cover, especially deforestation, are a significant contributor to climate change through direct greenhouse gas emissions (24% of total anthropogenic CO<sub>2</sub> emissions), decreased carbon sinks and the albedo effect (IPCC, 2014). Since land-use changes can be a significant source of greenhouse gases, and can reduce the ability of ecosystems to act as carbon sinks, conserving and restoring ecosystems can also play a part in climate change mitigation. The use of ecosystems for their carbon storage and sequestration service to aid

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<sup>2</sup> Ecological infrastructure is similar, but not equivalent to, green infrastructure. Ecological infrastructure refers only to natural ecosystems, while green infrastructure also includes infrastructure built to mimic natural ecosystems (such as artificial wetlands), as well as rangelands and other agro-ecological systems that retain some natural functioning. (SANBI, 2016).

climate change mitigation is called Ecosystem-based Mitigation (EbM) (Doswald and Osti, 2011).

### **2.3.2 Climate change adaptation**

Climate change adaptation “is the process of adjustment to actual or expected climate and its effects. In human systems, adaptation seeks to moderate or avoid harm or exploit beneficial opportunities. In some natural systems, human intervention may facilitate adjustment to expected climate and its effects” (IPCC, 2014). The IPCC lists a number of approaches for climate change adaptation, including (modified from IPCC, 2014):

- Structural or physical options, including innovative technologies and engineered solutions
- Ecosystem-based options, such as conservation, ecosystem management, ecosystem restoration and ecological corridors
- Institutional options, such as laws, policies and programmes that help people adapt
- Social options, such as education and behavioural change

Climate change adaptation seeks to increase the resilience of both natural and human systems to climate change. Resilience is defined as “the capacity of social, economic and environmental systems to cope with a hazardous event or trend or disturbance, responding or reorganizing in ways that maintain their essential function, identity and structure, while also maintaining the capacity for adaptation, learning and transformation” (IPCC, 2014). Resilience may be considered as the ability to cope with climate change, and occurs at the opposite end of a spectrum in which ‘vulnerability’ implies the inability to cope (OECD, 2006).

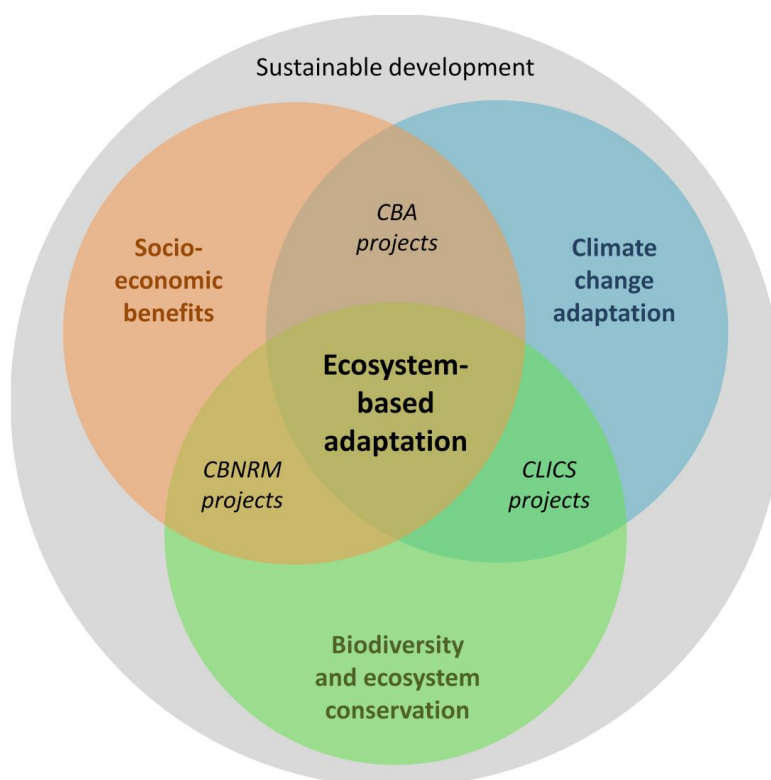
The linkages between biodiversity and ecosystem services mean that actions taken to improve natural resilience to climate change are also likely to improve social resilience to climate change. “Intact, well-functioning ecosystems, with natural levels of biodiversity, are usually more able to continue to provide ecosystem services and resist and recover more readily from extreme weather events than degraded, impoverished ecosystems” (CBD, 2009). Increasing the resilience of natural ecosystems to climate change may include expanding protected areas in areas where ecosystems are expected to show stability under climate change, and focussing on corridors in regions where climate change is expected to create ecosystem level changes (Driver *et al*, 2012). An important element of enhancing natural resilience to climate change is to reduce non-climatic stressors, such as land degradation, that may compound climate change effects (CBD, 2009).

### **2.4 Ecosystem-based Adaptation**

According to the CBD, Ecosystem-based Adaptation (EbA) is defined as “the use of biodiversity and ecosystem services as part of an overall adaptation strategy to help people to adapt to the adverse effects of climate change. Ecosystem-based Adaptation uses the range of opportunities for the sustainable management, conservation, and restoration of ecosystems to provide services that enable people to adapt to the impacts of climate change. It aims to maintain and increase the resilience and reduce the vulnerability of ecosystems and people in

the face of the adverse effects of climate change. Ecosystem-based adaptation is most appropriately integrated into broader adaptation and development strategies” (CBD, 2009).

Drawing on the linkages between ecosystem services, climate change and biodiversity, EbA is an approach to sustainable development that contributes to three outcomes simultaneously: socio-economic benefits, climate change adaptation and biodiversity conservation (Figure 3; Driver *et al.*, 2012; Midgley *et al.*, 2012). The intersection of these three spheres is what makes EbA different to other approaches, such as Community-based Adaptation (CBA), Climate change integrated land use strategies (CLICS) or Community-based Natural Resource Management (CBNRM), which focus only on integrating any two of the three spheres. The position of EbA at the intersection of these three spheres means that it is likely to have a wide range of co-benefits in addition to climate change adaptation, including conservation of threatened species, livelihood benefits, sustainable utilisation of natural resources and the maintenance of essential ecosystem services such as water and food security (CBD, 2009).



**Figure 3.** Ecosystem-based Adaptation integrates biodiversity and ecosystem conservation, climate change adaptation and socio-economic benefits. CBA = Community based Adaptation, CLICS = Climate change integrated conservation strategies, CBNRM = Community based natural resource management. From Midgley *et al.* (2012).

EbA can enhance the effectiveness of climate change adaptation strategies in the important role it plays in protecting infrastructure and improving human security (CBD, 2009). EbA may also be more cost-effective than other options for climate change adaptation, since it requires less technological innovation or infrastructure development (CBD, 2009). The potential range of co-benefits that may be achieved contribute to this cost effectiveness by 1) allowing integrated funding with other projects and 2) achieving a wider range of outcomes, thus improving the

cost-benefit ratio. This also means that EbA is a more accessible strategy to the rural poor, who are most vulnerable to climate change and may be unable to institute technological adaptation approaches (IPCC, 2014; CBD, 2009).

## 2.5 Implementing Ecosystem-based Adaptation

There are a growing number of EbA projects around the world. The UNFCCC maintains a database that lists EbA projects in more than 50 countries on six continents (Table 2).

**Table 2.** Countries implementing Ecosystem-based Adaptation projects, as per the UNFCCC database [http://unfccc.int/adaptation/nairobi\\_work\\_programme/knowledge\\_resources\\_and\\_publications/items/6227.php](http://unfccc.int/adaptation/nairobi_work_programme/knowledge_resources_and_publications/items/6227.php).

Armenia	Costa Rica	Hungary	Mongolia	Romania	Sudan
Australia	Czech Republic	India	Mozambique	Russian Federation	Sweden
Belize	Ecuador	Indonesia	Netherlands	Rwanda	Switzerland
Bolivia	El Salvador	Japan	New Zealand	Samoa	Tanzania
Brazil	Fiji	Jordan	Nicaragua	Senegal	Thailand
Cambodia	Gambia	Kenya	Panama	Serbia	Ukraine
Canada	Grenada	Madagascar	Papua New Guinea	Slovak Republic	United Kingdom
Cape Verde	Guatemala	Malaysia	Peru	Solomon Islands	United States
China	Guinea Bissau	Mauritania	Philippines	South Africa	Zimbabwe
Colombia	Honduras	Mexico	Poland	Sri Lanka	

In South Africa, EbA projects are being implemented in many provinces. The National Climate Change Response Database, hosted by the Department of Environmental Affairs, lists 190 climate change adaptation projects, many of which are EbA projects (<http://nccrd.environment.gov.za/Login.aspx>). The Adaptation Network also maintains information about South African EbA projects. Although a number of case studies are well documented, an updated database of EbA projects would help to better understand all the EbA activities that are being undertaken.

EbA projects are **reducing climate change impacts on food security** in Zambia by assisting small-scale farmers (Midgley *et al.*, 2012). Farmers are offered economic incentives for improved land management and are assisted in accessing high-end organic food markets. This EbA project is simultaneously maintaining ecosystem services essential for agriculture, reducing pressure on natural systems and supporting diverse rural livelihood strategies. Climate change is expected to undermine food security globally through impacts on agricultural productivity (IPCC, 2014). This is compounded by other poor land management practices. EbA seeks to address climate change impacts on food security by maintaining ecosystems that will continue to provide the ecosystem services essential for agriculture, such as pollination, soil conservation and nurseries for fisheries.

**EbA projects in urban environments** are helping to improve the health and well-being of urban residents by improving quality of life, tourism and business opportunities and even supporting food production. In eThekweni Metropolitan Municipality, EbA strategies have highlighted the importance of maintaining urban open spaces, which have significant potential for EbA. However, EbA projects in eThekweni have also emphasised the complexities of

planning EbA projects in an urban context (Roberts *et al.*, 2012). Gauteng has been exploring green infrastructure<sup>3</sup> strategies that will address the expected climate change impacts of urban heat island effects, air quality problems and extreme weather events (Bobbins and Culwick, 2015). Some of these interventions will meet the principles of EbA. Following green infrastructure successes in London and Denmark, the proposed opportunities for green infrastructure in the region include flood alleviation, improved quality of life, tourism and business opportunities, urban agriculture, recreation options and urban refuges for wildlife, amongst others.

EbA is helping to **reduce the risk of disasters** such as floods, fires and coastal storm surges in Eden District Municipality where a pilot study was initiated in collaboration with the insurance industry to understand the current and future risks from flooding, storm surges and other disasters (Nel *et al.*, 2014). The study recommended a management plan that would restore and protect key ecosystems such as wetlands and dunes to pro-actively manage disaster risk. Natural disasters are a threat to both natural and human systems under climate change as the frequency of extreme weather events is expected to increase (IPCC, 2014). Functioning ecosystems already provide a suite of services that regulate and alleviate the effects of natural disasters such as floods, storm surges, drought and wildfires. Therefore, there are many opportunities for EbA to be considered as part of disaster risk reduction strategies and there are many commonalities between EbA projects and Ecosystem-based Disaster Risk Reduction activities (Eco-DRR) (Box 1).

#### Box 1: Ecosystem-based Disaster Risk Reduction (Eco-DRR)

**Ecosystem-based Disaster Risk Reduction (Eco-DRR)** “aims to manage the environment (through sustainable management, conservation and restoration of ecosystems) in such a way that risk to communities is reduced” (Doswald & Estella, 2015). There are many commonalities between Eco-DRR and EbA, including an ecosystem-based approach, assessment of vulnerability and involvement of local communities. However, EbA does not address geophysical disasters that are unrelated to climate change (e.g. earthquakes), nor does it cover other aspects of DRR such as preparedness and response planning (CBD, 2015).

An EbA project in eThekweni Metropolitan Municipality is also **providing climate change mitigation co-benefits** by restoring forest and wetland ecosystems that are important to water security and carbon sequestration (Midgley *et al.*, 2012, UNFCCC, 2011). Sapling trees are grown by local “trepreneurs” which the city then buys to use in forest restoration at degraded sites. The restored forests provide a number of benefits including a noise and visual buffer, carbon sequestration, biodiversity refuges, flood attenuation and water quality and flow regulation. Similarly, restoration of the Rietvlei wetland in Gauteng maintains a suite of water-

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<sup>3</sup> ‘Green infrastructure’ is a broader term than ecological infrastructure. Green infrastructure includes built infrastructure and infrastructure built to mimic ecological infrastructure (e.g. artificial wetlands) (SANBI 2016).

related ecosystem services that are likely to be impacted by climate change, but also ensures that carbon-rich peat remains stored within the wetland (Grundling, 2004). Restoration of ecosystems that absorb CO<sub>2</sub>, such as woodlands and forests, is one of the main ways in which EbA projects can contribute to climate change *mitigation*. The other way is by preventing land use changes that would increase emissions of CO<sub>2</sub>, such as the destruction of peat wetlands.

### **2.5.1 Lessons and gaps from implementation of Ecosystem-based Adaptation**

Through the implementation of EbA projects globally and locally, important lessons have been learned about what is successful. Importantly, it has become clear that there are limits to what EbA should be expected to achieve. Whilst EbA is a powerful mechanism to address a number of climate change, biodiversity and socio-economic issues, it needs to be integrated with other approaches to address the complexities of natural and human systems. In particular, there are crucial thresholds to ecosystem resilience that need to be considered, beyond which adaptation is unlikely to be successful (CBD, 2009; Roberts *et al.*, 2012). Ecosystems can only provide a certain suite of ecosystem services and their ability to do so is diminished as they become degraded and fragmented.

Research has highlighted knowledge gaps that if addressed would improve the likelihood of successful implementation of future EbA projects. Amongst these gaps are a lack of effective monitoring mechanisms that could assess the effectiveness and cost-efficiency of EbA projects in comparison to other adaptation approaches (Doswald *et al.*, 2014; Roberts *et al.*, 2012). Also required is a better understanding of how EbA projects can contribute to sustainable development under a range of different social, political and financial contexts (Ziervogel *et al.*, 2014). In South Africa, additional vulnerability assessments are needed to direct EbA towards those areas that are most at risk (Midgley *et al.*, 2012). Finally, EbA projects would benefit from improved communication to encourage peer learning, capacity building and improved policy relevance.

Individual small-scale projects have been pioneering the implementation of EbA in the South African context. These have been undertaken by a variety of stakeholders, including government, NGOs and the private sector. These are not always referred to as EbA projects and also lack the broader co-ordination and strategic planning necessary to contribute towards the broader outcomes of EbA. By acknowledging the lessons that have been learnt, and making provision to fill the identified knowledge gaps, there are likely to be a number of opportunities to replicate these projects and take these projects to scale.

## **3. Policy Context and Alignment**

The concept of EbA started emerging in international policy in 2008 and has subsequently seen a rapid uptake in policy, practice and published literature. As a policy and practice focus area, EbA offers significant opportunities to ensure that interventions respond to the imperatives of climate change, socio-economic development and biodiversity management and

conservation. It is a unique practice area for offering opportunities to align these development objectives.

### **3.1 International policy context**

EbA is defined and strongly promoted in the international policy arena. It is recognized under a number of multilateral environmental agreements (MEAs) for its ability to offer co-benefits in helping society adapt to the impacts of climate change. Specific policy direction for EbA in terms of these Agreements is referred to here.

#### **3.1.1 Sustainable Development Goals (SDGs)**

On 25 September 2015, the United Nations Heads of States at its seventieth anniversary of the General Assembly formally adopted the 2030 Agenda for Sustainable Development along with a set of new Sustainable Development Goals (SDGs). In this regard, paragraph 33 of the declaration of the 2030 Agenda for Sustainable Development focuses on the linkage between sustainable management of natural resources and social and economic development as well as on strengthening “co-operation on desertification, dust storms, land degradation and drought and promote resilience and disaster risk reduction”.

EbA is firmly located in and contributes to the **Sustainable Development Goals (SDGs)**. As an approach that delivers co-benefits, EbA is able to contribute across the SDGs, but has specific alignment with Goal 13 and its targets.

#### **Box 2. EbA in the Sustainable Development Goals (SDGs)**

##### **SDG Goal 13: Take urgent action to combat climate change and its impacts.**

##### **Relevant Targets**

- Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries
- Integrate climate change measures into national policies, strategies and planning
- Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning

#### **3.1.2 Convention on Biological Diversity (CBD)**

The CBD, to which South Africa is a Party since 1995, has provided further specific direction on EbA through decisions at its Conference of Parties (COPs). The CBD’s 2009 Report of the Ad Hoc Technical Expert Group on Biodiversity and Climate Change expanded the scientific information and certainty regarding the relationship between biodiversity and climate change in order to support the **United Nations Framework Convention on Climate Change (UNFCCC)** process on the integration of biodiversity management into climate change mitigation and adaptation activities (CBD, 2009). This report explores in detail the interactions between biodiversity and climate change adaptation and mitigation; and highlights several important points in relation to EbA, summarised in Box 3.

**Box 3.** Key points on EbA, directly extracted from the report of the Ad Hoc Technical Expert Group on Biodiversity and Climate Change (CBD 2009:41-43)

**Ecosystem-based adaptation, which integrates the sustainable use of biodiversity and ecosystem services into an overall adaptation strategy can be cost-effective and generate social, economic and cultural co-benefits and contribute to the conservation of biodiversity.**

1. Ecosystem-based adaptation is the use of biodiversity and ecosystem services as part of an overall adaptation strategy to help people to adapt to the adverse effects of climate change. Ecosystem-based adaptation uses the range of opportunities for the sustainable management, conservation, and restoration of ecosystems to provide services that enable people to adapt to the impacts of climate change.
2. Ecosystem-based adaptation can be applied at regional, national and local level, at both project and programmatic levels, and over short or long time scales.
3. Intact, well-functioning ecosystems, with natural levels of biodiversity, are usually more able to continue to provide ecosystem services and resist and recover more readily from extreme weather events than degraded, impoverished ecosystems.
4. Ecosystems play an important role in protecting infrastructure and enhancing human security.
5. The value of ecosystems in ameliorating the negative impacts of some extreme events has been demonstrated.
6. Despite the relatively high costs as compared to conservation of existing intact ecosystems, restoration of ecosystems can still be part of a cost-effective adaptation strategy.
7. Ecosystem-based adaptation options are often more accessible to the rural poor than adaptation interventions based on infrastructure and engineering.
8. There can be multiple social, economic and environmental co-benefits for local communities from the use of ecosystem-based adaptation.
9. Ecosystem-based adaptation can contribute to climate-change mitigation, by conserving carbon stocks, reducing emissions from ecosystem degradation and loss, and enhancing carbon sequestration.
10. Ecosystem-based adaptation, if designed and implemented appropriately, contributes to biodiversity conservation and sustainable use of such biodiversity and natural resources.
11. In order to ensure that ecosystem-based adaptation activities deliver multiple social, economic, cultural, and biodiversity benefits, it is important that these co-benefits be specifically considered in the planning, design, implementation, monitoring and evaluation of these activities.
12. Systems to monitor and evaluate co-benefits from ecosystem-based adaptation measures should be established to ensure the equitable distribution of benefits among stakeholders.
13. Like all adaptation activities, ecosystem-based adaptation is not without complexity, uncertainty, and risk.

Building on from the findings of the Ad Hoc Technical Expert Group on Biodiversity and Climate Change, CBD COP 10 in Nagoya, Japan in 2010, invited member countries to recognise that ecosystems can be managed to limit climate change impacts on biodiversity and help people adapt to the adverse impacts of climate change (Decision X/33). COP 11 in Hyderabad, India,

urged Parties and other Governments organizations to “take note of extreme weather events, to support the implementation of ecosystem restoration for the mitigation and management of the impact of extreme weather events and for ecosystem-based adaptation to climate change” (Decision XI/16). At the same COP, the CBD went further to encourage Parties and other Governments to “consider reviewing land-use planning with a view to enhancing ecosystem-based adaptation to climate change (Decision XI/18). COP 12 in Pyeongchang, Republic of Korea, encouraged Parties and other Governments to “promote and implement ecosystem-based approaches to climate change adaptation-related activities and disaster risk reduction” (Decision XII/20). Furthermore, COP 13 in Cancun, Mexico, through Decision XIII/4, encouraged Parties, other Governments and relevant organizations to integrate ecosystem-based approaches to climate change adaptation and mitigation, and DRR, into their strategic planning across sectors. This decision also encouraged awareness-raising, particularly among decision makers in relevant sectors and at different levels of government, about ecosystem-based approaches to climate change adaptation, mitigation and DRR. In addition, Decision XIII/4 encouraged Parties, other Governments and relevant organizations to consider potential multiple benefits and trade-offs during the development and implementation of ecosystem-based approaches to climate change adaptation, mitigation, and DRR.

The CBD’s **Strategic Plan for Biodiversity (2011-2020)** and the Aichi Targets offer further support for EbA under Strategic Goal D and Target 15.

The CBD provides clear policy direction that parties need to take into national implementation, and for which South Africa can demonstrate solid progress.

#### **Box 4. Alignment of EbA with the CBD's Strategic Plan for Biodiversity**

##### **Strategic Goal D: Enhance the benefits to all from biodiversity and ecosystem services**

##### **Target 15**

- By 2020, ecosystem resilience and the contribution of biodiversity to carbon stocks has been enhanced, through conservation and restoration, including restoration of at least 15 per cent of degraded ecosystems, thereby contributing to climate change mitigation and adaptation and to combating desertification

### **3.1.3 United Nations Framework Convention on Climate Change**

The **UNFCCC** similarly recognizes the role of healthy ecosystems in providing valuable services such as food, clean water, flood and erosion control, while at the same time building resilience against climate change impacts. It provides for implementing adaptation through national action plans (NAPs) and national adaptation programmes of action (NAPA) for least developed countries. Ecosystem-based adaptation is one of the approaches that may be included in adaptation plans.

The UNFCCC’s decisions and actions are supportive of promoting an action or practice-oriented approach, as reflected in the following Decision 1/CP.16 which invited “Parties to

enhance action on adaptation by building resilience of socio-ecological systems, including through economic diversification and sustainable management of natural resources”.

The **Nairobi Work Programme (NWP)** was established at UNFCCC COP 11 as a mechanism and later as a knowledge hub to enhance scientific and technical understanding of adaptation through the development and dissemination of knowledge and information in support of policies and practices. In terms of EbA and under the NWP, a compilation of information on EbA approaches to adaptation was presented at the 35<sup>th</sup> Session of the Subsidiary Body for Scientific and Technological Advice (SBSTA 35) in 2011 (FCCC/SBSTA/2011/INF.8). In support of this report, a database of EbA approaches was integrated into the NWP website.

The long-awaited global deal on climate change, known as the **Paris Agreement 2015**, raises the importance of adaptation as a response to climate change – requiring Parties to engage in adaptation planning and implementation that takes into account “vulnerable people, places and ecosystems” and builds “the resilience of socio-economic and ecological systems, including through economic diversification and sustainable management of natural resources”. It specifically establishes a global goal on adaptation of “enhancing adaptive capacity, strengthening resilience and reducing vulnerability to climate change”. The agreement also recognises that adaptation efforts of developing countries are a key part of their contribution to fighting climate change. These and other statements create opportunities for Parties to ensure that EbA is integrated into the Paris Agreement as part of the approach to climate change adaptation. South Africa’s Nationally Determined Contribution (NDC) as submitted to the UNFCCC represents what has been prioritised at a national level. EbA will contribute to the achievement of the six stated goals under the Adaptation Component of its NDC document (Government of South Africa, 2015).

#### **3.1.4 United Nations Convention to Combat Desertification (UNCCD)**

Since its inception, the UNCCD has sought to enhance the adaptive capacities of dryland populations to highly variable environmental conditions. As vulnerability varies across sectors, regions and social groups, adaptation measures range from reducing vulnerability to enhancing the long-term sustainability of the poorest and most vulnerable populations in dryland areas.

The provisions of the UNCCD reflect a strong link between the adaptation of biodiversity to climate change and desertification, land degradation and drought (DLDD): “In pursuing the objective of this Convention, the Parties shall adopt an integrated approach addressing the physical, biological and socio-economic aspects of the processes of desertification and drought” (Article 4, paragraph 2(a)). In addition, Article 8, paragraph 1, states: “The Parties shall encourage the coordination of activities carried out under this Convention and, if they are Parties to them, under other relevant international agreements, particularly the UNFCCC and the CBD, in order to derive maximum benefit from activities under each agreement while avoiding duplication of effort”. Furthermore, Article 10 provides for the formulation of National Action Programmes, which address poverty reduction and vulnerability to climate change in affected areas. These action programmes seek to identify the factors contributing to

desertification and practical measures necessary to combat desertification and mitigate the effects of drought, thereby contributing fully to sustainable land management and ecosystem-based adaptation efforts.

Climate change adaptation is also firmly integrated into the UNCCD 10-Year Strategic Plan and framework, which includes the following objectives, each showing strong alignment with EbA:

- Strategic objective 1: To improve the living conditions of affected populations
- Strategic objective 2: To improve the condition of affected ecosystems
- Strategic objective 3: To generate global benefits through effective implementation of the UNCCD

The development of National Action Programmes under the UNCCD offers countries opportunities to draw on EbA as an approach to implementing the Convention in the context of national priorities and needs. As noted below, South Africa is in the process of updating its 2004 National Action Programme to align it with the operational objectives of the UNCCD.

### **3.1.5 Ramsar Convention**

In 2015, the Ramsar Convention adopted its Fourth Strategic Plan for 2016 - 2024. While EbA contributes to many of the goals and targets of the Strategic Plan, Target 12 provides a clear link, ensuring that "Restoration is in progress in degraded wetlands, with priority to wetlands that are relevant for biodiversity conservation, disaster risk reduction, livelihoods and/or climate change mitigation and adaptation".

Further, Resolution XII.13 on Wetlands and Disaster Risk Reduction affirms the need to develop management plans that integrate the principles of ecosystem-based management against hazards including those that might be as a result of climate change. It also encourages parties to integrate wetland management considerations into their national disaster risk reduction and climate change adaptation strategies. The Ramsar COP also requested its Scientific and Technical Review Panel to compile guidance on wetland ecosystem-based adaptation concerning disaster risk reduction in order to present practical policies and guidance which can be initiated by governments, for the management and wise use of wetlands to build resilience to natural hazards (Resolution XII.13 3).

### **3.1.6 United Nations Office for Disaster Risk Reduction (UNISDR)**

In December 1999, the United Nations General Assembly adopted the International Strategy for Disaster Reduction and established the secretariat to ensure its implementation – the UNISDR. The Hyogo Framework for Action (2005-2015) and its successor, the Sendai Framework for Disaster Risk Reduction (2015) provide policy direction for countries to respond to disasters.

The **Sendai** Framework is a 15-year (2015-2030) voluntary agreement that seeks to substantially reduce disaster risk and losses. The Framework notes that ecosystem degradation amplifies disaster risk and that greater focus needs to be placed on anticipating

long-term risk scenarios. It calls for the implementation of concrete measures to prevent the creation of new risks, such as investing in strengthening the sustainable use and management of ecosystems. This is in line with the objectives of EbA.

### **3.2 National, provincial and municipal policy context**

The nature of EbA as an area of work with a wide range of co-benefits and distinct but overlapping focus areas means that the policy context is wide – within the environmental sector, but also across many other sectors and spheres of government. This section sets out the policy context for EbA as follows:

- Overarching national policy context
- National environmental policy context, including the overarching environmental policy framework, climate change specific policies and, biodiversity and conservation specific policies
- Policy context in other sectors and spheres of government

#### **3.2.1 Overarching national policy context**

At a national level, **South Africa's Constitution (Act 108 of 1996)** provides the overarching framework for all governance and policy matters. The Constitution protects the right to an environment that is not harmful to health and wellbeing (section 24) and balances the right to have the environment protected with rights to social and economic development. In addition, and critically for EbA, the Constitution allocates environmental functions to a wide range of government agencies in all spheres and requires cooperation between government agencies and spheres of government. The Constitution therefore provides a framework for the level of intergovernmental and inter-sectoral coordination required for effective implementation of EbA.

The **National Development Plan (NDP) 2030** sets out a thirty-year vision and road map to address South Africa's priorities. Its overarching aim is to eliminate poverty and reduce inequality by 2030 by ensuring, amongst other priorities, a transition to an environmentally sustainable, climate change resilient, low carbon economy and just society. **The NDP identifies climate change as a major factor that will influence the context in which South Africa operates.** As a significant risk to South Africa's development future, climate change needs to be considered in planning South Africa's development future and critically, in deciding which investments in sectors such as agriculture, energy and others to prioritise. One of the challenges highlighted by the NDP is the need to balance the security of energy supply with climate change mitigation. Climate change is also flagged as an issue affecting economic development opportunities in sectors that will be affected by changes in rainfall and temperature (e.g. agriculture, forestry, etc.). City planning particularly needs to incorporate resilience. In support of EbA, the NDP makes specific mention of the need to "actively support the development of plans that cross municipal, and even provincial boundaries that would

promote collaborative action in fields such as biodiversity protection, climate-change adaptation, tourism and transportation.<sup>4</sup>

The National Government's programme of work is guided in a particular electoral period by the **Medium Term Strategic Framework** (MTSF) which is a prioritised framework that focuses government efforts. Transitioning South Africa to the NDP vision is envisaged as a phased process over three MTSF periods. The MTSF for the current electoral period (2014-2019) recognizes the vulnerability of the economy, water, food security, health and natural resources to climate change and addresses this further under Outcome 10 ("protect and enhance our environmental assets and natural resources"). The MTSF targets the implementation of climate change responses in five critical sectors (namely, water, agriculture and commercial forestry, health, biodiversity and ecosystems and human settlements) and highlights measures including those that "enhance the resilience of communities and the economy to changing climate conditions", providing a direct alignment with EbA.

Implementation of the MTSF is given in more detail in the **12 Outcomes of the Presidential Delivery Agreement**. **Outcome 10** of the Presidential Delivery Agreement identifies five sub-outcomes to achieving the vision of the NDP, including:

- Sub-outcome 1: Ecosystems are sustained and natural resources are used efficiently
- Sub-outcome 2: An effective climate change mitigation and adaptation response
- Sub-outcome 3: An environmentally sustainable, low-carbon economy resulting from a well-managed just transition
- Sub-outcome 4: Enhanced governance systems and capacity
- Sub-outcome 5: Sustainable human communities

Opportunities and enablers for EbA are found across all five sub-outcomes of Outcome 10, with very specific linkages for EbA under sub-outcomes 1 and 2.

One of Outcome 10's seven high-level impact indicators is "reduced vulnerability and risks associated with climate change impacts". The 2019 target for this indicator is that Climate Change Responses are implemented for five sectors, noting the responsible Ministries of Water and Sanitation, Environmental Affairs, Agriculture, Forestry and Fisheries, Human Settlement, Health, and Cooperative Governance and Traditional Affairs (COGTA).

In 2015, the South African government launched a **9-Point Plan** to grow the South African economy and create jobs. EbA supports DEA's inputs into this plan under point 8 (Cross-cutting Areas to Reform, Boost and Diversify the Economy) by bringing a climate focus to the programme of work on ecological infrastructure. Similarly, EbA interventions offer opportunities to support the growth and revitalisation of economic sectors under projects linked to Operation Phakisa, particularly in terms of the forthcoming mini-Phakisa lab, which will focus on the wildlife economy.

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<sup>4</sup> Government of South Africa, 2012:286

Other cross-cutting strategic policy frameworks, including the **National Strategy for Sustainable Development and Action Plan** (2010) (NSSD), the **New Growth Path** (2010) and its **Green Economy Accord** (2011) all reinforce the priority to equip the South African economy to respond effectively to climate change through a transition to a resilient, low carbon, just economy. The five priorities of the NSSD lay firm foundations and an enabling framework for EbA to make significant contributions towards the sustainable society envisioned by the strategy. This is done through prioritizing integrated planning and implementation, sustainable use of ecosystems, a green economy and very directly in its focus on responding to climate change, which promotes ecosystem resilience and sector adaptation strategies. While the Green Economy Accord is limited in the extent to which it foregrounds opportunities in natural resource management to contribute to the 300 000 jobs envisioned through green economy investments. Subsequent studies have realized this opportunity, calculating that natural resource management (NRM) jobs offer the greatest contribution to green jobs in the long term (Maia *et al*, 2011). Well-designed EbA interventions are part of the road map to delivering on these commitments.

### 3.2.2 National environmental policy context

South Africa's environmental policy framework is well summarized in many strategies, including the revised **National Biodiversity Strategy and Action Plan (NBSAP)** of 2015, and is not repeated here. Building on from the overarching national policy context, this section will trace the specific policy framework for EbA in South Africa's environmental policy.

The **National Climate Change Response White Paper** (2011) emphasizes the importance of EbA as part of an overall adaptation strategy. It sets out South Africa's response to climate change in terms of two objectives – one focusing on improving resilience and one focusing on reducing emissions<sup>5</sup>. The White Paper makes the following reference to EbA: “Stressed ecosystems will compromise one of the key responses available to the country to adapt to climate change: using ecosystem services to help society adapt to climate change, known as ‘ecosystem-based adaptation’<sup>6</sup>. It goes on to set out priorities for both mitigation and adaptation responses. In terms of adaptation, the White Paper notes that a “key feature of adaptation responses is that they have a much stronger local context than do mitigation responses and their benefits appear much faster...” The White Paper also notes that adaptation responses hold the potential to contribute significantly to job creation and other sustainable development goals. As one type of adaptation response, EbA is particularly well-placed to support these contributions.

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<sup>5</sup> “Effectively manage inevitable climate change impacts through interventions that build and sustain South Africa's social, economic and environmental resilience and emergency response capacity; Make a fair contribution to the global effort to stabilise greenhouse gas (GHG) concentrations in the atmosphere at a level that avoids dangerous anthropogenic interference with the climate system within a timeframe that enables economic, social and environmental development to proceed in a sustainable manner.

<sup>6</sup> Government of South Africa, 2011:28

The White Paper further lists several sectoral plans into which adaptation responses will be integrated, including:

- The National Water Resource Strategy, as well as reconciliation strategies for catchments and water supply systems.
- The Strategic Plan for South African Agriculture.
- The National Biodiversity Strategy and Action Plan, as well as provincial biodiversity sector plans and local bioregional plans.
- The Department of Health Strategic Plan.
- The Comprehensive Plan for the Development of Sustainable Human Settlements.
- National Framework for Disaster Risk Management

EbA should be seen as a particularly important adaptation response for water, agriculture and forestry, biodiversity, sustainable human settlements and disaster risk management. EbA is also embedded in many of the adaptation response actions as well as the Near-Term Priority Flagship Programmes in the White Paper, including:

- The **Long Term Adaptation Scenarios Flagship Research Programme (LTAS)** developed national and subnational scenarios for South Africa under future climate conditions and development pathways. A two phase project, the first phase developed a consensus view of climate change trends, summarized key impacts and identified potential response options in key sectors defined by the White Paper and stakeholders (water, agriculture and forestry, human health, marine, fisheries, biodiversity). Phase 2 of LTAS extended to human settlements, disaster management and food security.
- The **Climate Change Response Public Works Flagship Programme** focuses on the restoration of degraded ecosystems to enhance benefits from environmental assets. Benefits include a contribution to job creation, social inclusion, the low carbon economy and a range of ecosystem services.
- The **Water Conservation and Demand Management Flagship Programme** seeks to accelerate the implementation of the National Water Conservation and Demand Management Strategy in industry, mining, power generation, agriculture and water services sectors, and the accelerated provision of rainwater harvesting tanks in rural and low-income settlements.

The **Biodiversity Sector Climate Change Response Strategy** developed in 2014 foregrounds the opportunity for climate change responses to contribute towards sustainable livelihoods by ensuring livelihoods that can cope with and recover from stress and shocks, maintain or enhance capabilities and assets and provide for next generations. Against this important and innovative stance, the strategy is framed around two strategic directions:

- Ensuring biodiversity is able to adapt to climate change, through expanding protected areas and protecting critical biodiversity areas

- Ecosystem-based adaptation, with the following priorities<sup>7</sup>:
  - Identifying and maintaining in good condition landscape features and ecosystems important for EbA
  - Improving resilience of degraded or fragmented ecosystems through restoration and effective land-use planning and enforcement
  - Climate proofing communities
  - Vulnerability assessments that inform local level planning
  - Avoiding actions that will compromise ecosystems important for EbA

The more recent **Climate Change Adaptation Plans for South African Biomes** (2015) reviews the published and grey literature on climate threats to South African biomes and lists the adaptive actions that can be taken to reduce the effects of climate change at a biome level. The report notes that EbA is one of four categories of adaptive actions to reduce climate change threat. These include:

- Spatial planning approaches which change the mix of activities which take place in given biomes
- Management approaches which adjust the way in which the land uses are executed under a changing climate
- Ecosystem-based adaptation, including restoring degraded land, protecting movement corridors, adjusting burning regimes and clearing alien vegetation
- Biodiversity stewardship programmes

This plan then goes on to define particular adaptation responses, including EbA projects, best suited to each of South Africa's biomes.

South Africa's revised **National Biodiversity Strategy and Action Plan (NBSAP)** covering the period 2015-2025 offers specific policy direction for EbA. Outcome 2.2 of the NBSAP states that "EbA is shown to achieve multiple benefits in the context of sustainable development". The indicator for this is that an "implementation plan for EbA is developed, funded and implemented" with the target that "by 2020, successful implementation [of the EbA implementation plan] results in resilience to climate change in communities linked to pilot projects".

Within the biodiversity sector, there is a range of tools, strategies, approaches and plans underpinned by a systematic approach to biodiversity planning and enabling a focus on ecosystems and processes (rather than species), which offer opportunities to implement EbA as an approach to adaptation. These include the **National Protected Area Expansion Strategy (NPAES)**, (as well as provincial versions), its implementation through state land acquisition and biodiversity stewardship, and the opportunities that spatial plans at different scales (e.g. provincial biodiversity plans, municipal bioregional or biodiversity sector plans) have to support EbA implementation by identifying biodiversity priority areas and ecosystems

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<sup>7</sup> DEA, 2015:36

which, depending on management interventions, offer climate and socio-economic outcomes. Other strategies and plans with opportunities to be supported by EbA implementation include the South African National Adaptation Strategy (to be developed by DEA's Climate Change Branch), the Draft Man and Biosphere Reserve Strategy, Biodiversity Management Plans for Ecosystems, the National Strategy for Sustainable Development, and the National Invasive Species Strategy and Action Plan / National Strategy for Biological Invasion.

While South Africa's existing **National Action Programme (NAP) to Combat Land Degradation and Alleviate Rural Poverty** (2004) developed in terms of its commitment to the UNCCD seeks to address the role of well-managed ecosystems in coping with degradation, the revision of this National Action Programme holds massive opportunities to foreground the huge potential of EbA in this regard.

### **3.2.3 Policy context in other sectors and spheres of government**

As mentioned above, the MTSF and the NCCR White Paper prioritizes five 'climate sensitive' sectors for the development of sectoral adaptation strategies/plans. Sector Plans have been developed and are under implementation in the following sectors:

- Agriculture, Forestry and Fisheries
- Water and Sanitation
- Rural Development and Land Reform
- Health and
- Biodiversity and ecosystems, in terms of adaptation to climate impacts (mentioned above)

The sector plan for Agriculture, Forestry and Fisheries forefronts EbA interventions, particularly through restoration efforts and sustainable land use management. The revised National Water Resources Strategy (NWRS2) deals with climate impacts across the breadth of the strategy but also in a specific theme focused on planning and responding to a changing climate and its impacts on the environment, water resources and quality of life.

EbA is also an important tool in planning for disaster risk reduction (DRR). The policy framework linked to disaster management in South Africa, including the **National Disaster Management Act** and the Policy Framework for Disaster Risk Management in South Africa provide numerous opportunities for the adoption of EbA as a response measure.

One of the immediate priorities of the EbA programme of work is to engage with these sectoral strategies to identify levers and opportunities that ensure EbA directly supports adaptation in key sectors. The sectoral LTAS strategies are key resources in this regard.

The NCCR White Paper notes that each province will develop a provincial climate change response strategy that evaluates provincial climate risks and impacts. A number of **Provincial Climate Change Adaptation Strategies** (PCCAS) have been developed including for Mpumalanga, Limpopo and North West, with the remainder due to be finalized in 2016.

The White Paper also provides for climate change to be integrated into local planning tools, including Integrated Development Plans (IDPs), and municipal service delivery programmes. While the White Paper notes that the mandate for local government functions are not always clear, it highlights the opportunities for specific powers at this level to address mitigation and adaptation actions, e.g. coastal management, infrastructure management and natural resource stewardship. Some municipalities have already developed climate change related strategies with some other municipalities particularly involved in a pilot programme, supported by DEA, to develop **Municipal Adaptation Plans**. These include Amathole District Municipality, Buffalo City Municipality, Nxuba Local Municipality, Emfuleni Local Municipality, and Thulamela Local Municipality, while Alfred Nzo District Municipality has developed a climate change response strategy. The “Let’s Respond” Toolkit has been developed to assist municipalities to promote the integration of climate change adaptation into municipal planning.

## 4. Institutional Context

The policy context highlights that the nature of EbA as an area of work with a wide range of co-benefits is such that it is recognized under a number of multilateral environmental agreements and has a broad national, provincial and municipal policy context. The institutional context for EbA, which includes the linkages and alignment with national and international institutions, programmes and networks, is equally wide reaching. These institutions also provide important entry points for implementation of the EbA Strategy.

### ***4.1 National institutions and programmes of work relating to EbA<sup>8</sup>***

Climate change is being addressed through projects and programmes being implemented across all spheres of government. The **Department of Environmental Affairs (DEA)** is responsible for leading the implementation of the National Climate Change Response White Paper (NCCR).

DEA is South Africa’s primary environmental custodian, mandated to protect the environment and conserve natural resources while balancing this with sustainable development and the equitable distribution of natural resource benefits. DEA fulfils its mandate through formulating, coordinating and monitoring the implementation of national environmental policies, programmes and legislation, and through undertaking appropriate research. These include policies, strategies, programmes and frameworks on addressing the impacts of climate change on biodiversity and ecosystems, including ecosystem-based approaches to increase the resilience of ecosystems and support sustainable livelihoods in the face of climate change. NCCR White Paper implementation is informed by an extensive process of consultation with all key government departments, through the **Intergovernmental Committee on Climate Change (IGCCC)**, and with other stakeholders, through the **National Committee on Climate Change (NCCC)**.

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<sup>8</sup> This section is informed by DEA’s Governance of Climate Change in South Africa (undated), South Africa’s NBSAP (2015)

The IGCCC was established in 2008 to foster information exchange, consultation, agreement and support among the spheres of government on climate change and government's response to climate change. As a high level platform it brings together representatives from the national departments of Environmental Affairs, Agriculture, Forestry and Fisheries, Energy, Health, Human Settlements, International Relations and Cooperation, Trade and Industry, Housing, Transport, National Treasury, Rural Development and Land Reform, Science and Technology, Social Development and Water Affairs, from provincial environment departments and from the **South African Local Government Association (SALGA)**, which represent municipalities).

SALGA provides an existing structure that is mandated to support, represent and advise local government action. SALGA actively participates in the intergovernmental system and ensures the integration of climate adaptation and mitigation actions into Integrated Development Plans (IDPs) and their spatial component, Spatial Development Frameworks (SDFs). It also promotes "public education, awareness, media and information programmes on climate change" (DEA, undated).

The **Department of Cooperative Governance and Traditional Affairs (COGTA)** that is represented in the IGCCC by an official from the National Disaster Management Centre, has an important role to play in prioritising local government response to climate change.

Coordination between DEA and provincial environmental departments, sector departments, provincial environmental authorities and public entities is facilitated through the political and technical **Ministerial Committees** (Ministers and Members of Executive Councils, MINMEC and Ministerial Technical Committee, MINTECH), which are forums that meet quarterly and enable high level policy and strategy coherence and should be used to guide climate change work. MINMEC comprises the national and provincial environment Ministers as well as key national and sector departments that have related functions on environmental issues. However, MINTECH comprises the Director-General of DEA, the heads of the provincial departments responsible for environmental management and biodiversity conservation, sector departments, provincial environmental authorities and public entities responsible for environmental management and biodiversity conservation (as mandated by Intergovernmental Relations Framework Act of 2005). **Working Groups (WGs)** bring together senior officials in national and provincial governments, relevant to EbA including working groups that deal with cross-cutting issues, Biodiversity and Conservation and Climate Change. These working groups feed into MINTECH and MINMEC.

**SANBI**, established in terms of the National Environment Management: Biodiversity Act (NEMBA, hence forward referred to as the 'Biodiversity Act') and reporting to the Minister of Environmental Affairs, assists in achieving the objectives of the Biodiversity Act. Its mandate includes playing a leading role in South Africa's national commitment to biodiversity management particularly in relation to the biodiversity research agenda, provision of knowledge and information, policy support and advice, monitoring and reporting on the state of biodiversity, and managing botanical gardens. In 2011 SANBI was accredited as South Africa's **National Implementing Entity (NIE) of the Adaptation Fund**. The main aim of the NIE is to

deliver tangible results through the implementation of projects that address climate change adaptation in vulnerable communities in South Africa. These projects involve ecosystem-based adaptation. National Implementing Entity projects include the uMngeni Resilience Project and the project "Taking adaptation to the ground: A Small Grants Facility for enabling local level responses to climate change in South Africa".

SANBI has been accredited as an entity of the **Green Climate Fund (GCF)** in South Africa (the other entities being the DBSA and Nedbank). The GCF was established at COP 16 of the UNFCCC as an operating entity of the Financial Mechanism of the Convention under Article 11. The GCF supports projects, programmes, policies and other activities in developing country Parties through NIEs.

DEA works closely with other public entities on research, projects and programmes relevant to EbA. For example, DEA is working closely with the **South African Weather Service (SAWS)** to develop the National Framework for Climate Services to enable better management of climate-related risks. **SAWS** was established as a public entity in 2001 in terms of the South African Weather Service Act (No. 8 of 2001), to be the custodian of reliable national meteorological and climatological data, which is important to ecosystem-based adaptation.

There are a number of national level programmes of work that do or could contribute to EbA with a better alignment of interventions to a climate change response. These include **DEA's Environmental Programmes, including Working for Water, Working for Wetlands, Working for Energy** and others, that implement restoration activities in support of the Expanded Public Works Programme (EPWP) which do/could contribute to supporting adaptation through EbA. **SANBI's Climate Change Programme Strategy** also (2011/12-2015/16) seeks to research ecosystem-based solutions to support societal responses to climate change while **SANBI's programmes of work in Ecological Infrastructure, Municipal Support, Biodiversity Mainstreaming, and others**, similarly contribute to EbA or could, with a closer alignment to responding to climate change. SANBI has also collaborated with the Water Research Commission (WRC), on ecological infrastructure-related work. The WRC supports sustainable development through research funding, knowledge creation and dissemination.

Platforms that enable consultation between government and other stakeholders include the National Committee on Climate Change (NCCC), mentioned above, and the **Adaptation Network**. The NCCC comprises representatives from a number of affected sectors, government departments, and non-governmental organizations (NGOs). The **Adaptation Network**, founded in 2009, was established as a creative platform for sharing of experiences, practical approaches and frameworks relating to climate change adaptation. Members include representatives from civil society, government, public and private entities, academia and business. It is hosted by the Environmental Monitoring Group, a civil society organisation based in Cape Town. The secretariat is guided by a Steering Committee, which is elected at the annual general meetings.

#### **4.2 International institutions, programmes and networks**

The **Global Environment Facility (GEF)**, as the global financial mechanism for a number of multilateral environmental agreements, including the CBD, UNFCCC and the UNCCD, has invested massively in addressing climate change through mitigation and adaptation responses. These investments are directed to implementing agencies through a number of GEF trust funds, including the GEF Trust Fund, the Least Developed Countries Fund and the Special Climate Change Fund. The GEF disburses investments through implementing entities including **United Nations Environment Programme (UNEP)**, the **United Nations Development Programme (UNDP)**, the World Bank and others who programme GEF funds into their own climate change initiatives.

The UNEP has more than twenty years' experience working on climate change, including helping to establish the Intergovernmental Panel on Climate Change (IPCC) and supporting the negotiations of the UNFCCC. Amongst other things, UNEP has been active in efforts to reduce the risks of, and improve society's resilience to, climate change, notably through its support to the development of National Adaptation Programmes of Action. UNEP's Climate Change Strategy provides the foundation for transforming the organization's engagement on climate change and for developing a results-oriented programme of work. The first theme of the strategy is 'Adapting by building resilience' which clearly identifies the importance of healthy ecosystems in buffering the impacts of climate change and capable of yielding "*multiple environmental, economic and social benefits*". UNEP's work in climate change adaptation is undertaken in line with the Nairobi Work Programme on Adaptation and aims to help developing countries reduce vulnerabilities and build resilience to the impacts of climate change. This includes through "promoting ecosystem based-adaptation and planning to help ensure that development efforts are protected from negative impacts of climate change (climate-proofing)". Towards this, the UNEP has developed an EbA decision-support framework. Further, Resolution 1/8 on EbA, adopted by the United Nations Environment Assembly of the UNEP in 2014 encourages countries to include and improve EbA and community-based adaptation in their national policies, including those on climate change adaptation, food security and sustainable management of forests.

The **UNDP** supports countries in incorporating nature-based solutions into their strategies for adapting to and mitigating the negative impacts of climate change. In doing so it supports a number of projects worldwide on EbA, established to manage ecosystems for continued benefits to communities and for reducing risks from changes in ecosystems to reduce climate change impacts. The UNDP hosts a website and knowledge-sharing platform on their work in climate change adaptation through which they share information on country led programmes and projects financed by the: Least Developed Country Fund, Special Climate Change, Adaptation Fund, bi-lateral donors and through decentralized cooperation supported by UNDP's Down to Earth: Territorial Approach to Climate Change project. The UNDP regularly partners with others in EbA-related programmes and projects, such as the Global Mountain EbA Programme that involved Germany, UNEP, and the **International Union for Conservation of Nature (IUCN)**.

At the IUCN's World Conservation Congress in 2012 in Jeju, Republic of Korea, the IUCN endorsed the definition of EbA provided in the 2009 report of the CBD's Second Ad Hoc Technical Expert Group on Biodiversity and Climate Change. In doing so, it recognized that an ecosystem-based approach to climate change adaptation is also relevant to the conservation and sustainable use of species. The IUCN called on its Members and other interested parties to promote EbA in their climate change adaptation work, including through conservation and sustainable management actions that protect and restore the resilience and adaptive capacities of ecosystems. The IUCN further called on donor countries and financial institutions to recognize EbA as a sustainable and potentially cost-effective adaptation option, which can complement or be a substitute for other modes of adaptation and which is readily available to the rural poor. The IUCN also has an EbA programme that hosts a range of relevant resources and news on the subject of EbA.

Other international funders of EbA projects include, but are not limited to:

- The **Green Climate Fund** (to which SANBI is applying for accreditation) is a global finance mechanism that aims to mobilise unprecedented levels of finance in support of the low carbon and climate resilient global development.
- The **Adaptation Fund** (to which SANBI is accredited as a National Implementing Entity) established under the Kyoto Protocol of the UNFCCC funds climate change adaptation and resilience activities and has invested in South Africa's EbA programme of work.
- The **International Climate Initiative (IKI)** of the **German Federal Ministry for the Environment (BMUB)** implemented by **GIZ: Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ)** is implementing several EbA initiatives with global projects on Mainstreaming EbA, such as the Strategic mainstreaming of ecosystem-based adaptation in Viet Nam), and more recently in South Africa, such as EbA projects implemented by Conservation South Africa.
- The **World-Wide Fund for Nature (WWF)**: with projects such as Operationalizing Ecosystem Based Adaptation in the Greater Mekong Sub-Region.

## 5. Strategic Framework & Overarching Implementation Plan

### 5.1 Overview of the EbA Strategy

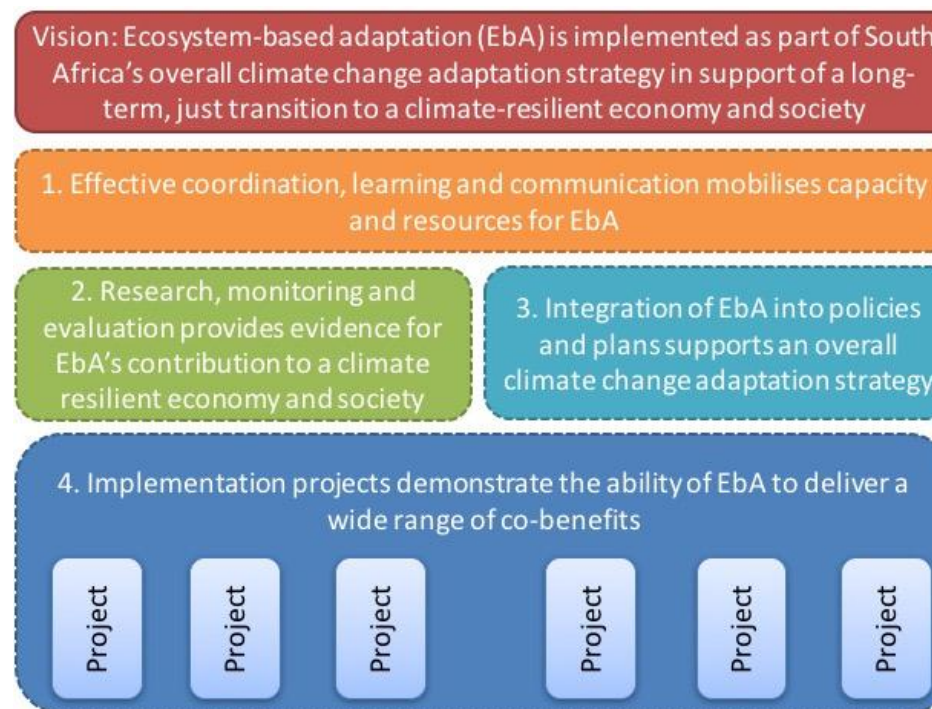


Figure 4. An Overview of the EbA Strategy

South Africa's climate change and biodiversity policy context provides clear support for a coordinated EbA programme of work. The National Climate Change Response White Paper emphasizes the importance of EbA as part of an overall adaptation strategy and the Climate Change Adaptation Plan for South African Biomes identifies EbA actions for each biome, alongside other potential adaptation options.

Drawing on this policy context, in particular the NCCR White Paper, the vision for South Africa's EbA Strategy is that *Ecosystem-based adaptation (EbA) is implemented as part of South Africa's overall climate change adaptation strategy in support of a long-term, just transition to a climate-resilient economy and society*. The Strategy identifies four areas of work that will contribute towards achieving the vision. These are structured into the following 'outcomes' (depicted in Figure 4):

1. Effective coordination, learning and communication mobilises capacity and resources for EbA.
2. Research, monitoring and evaluation provide evidence for EbA's contribution to a climate resilient economy and society.
3. Integration of EbA into policies, plans and decision-making supports an overall climate change adaptation strategy.
4. Implementation projects demonstrate the ability of EbA to deliver a wide range of co-benefits.

The rationale underpinning these outcomes and their relationship with the vision is that:

- **Coordination, learning and communication** is necessary to best mobilise resources and enhance capacity for EbA in a way that supports sustainability, replication and upscaling and demonstrates EbA as a valid and cost-effective adaptation option as part of the overall adaptation strategy. Implementing EbA is a social and institutional process that requires working together across sectors through partnerships with a clear focus on implementing interventions that deliver co-benefits in an evolving context. This requires coordination at a number of levels in order to align resources and programmes of work amongst partners towards the achievement of these benefits. This also requires a coordinated approach to monitoring, learning, reporting and communication.
- **Research, monitoring and evaluation** is needed to address knowledge gaps, ensure that implementation of the Strategy and projects contribute to the knowledge base, and support policy-relevant research. As an emerging practice and approach that needs to demonstrate a range of co-benefits to support effective implementation, replication and upscaling of EbA in the future, evidence drawn from research, monitoring and evaluation is needed on a range of priority issues. A coordinated approach is needed for an effective monitoring and evaluation plan and research strategy that will provide evidence to inform policy and practice.
- **Integrating EbA into policies, plans and decision-making** is needed to support South Africa's overall climate change adaptation strategy and in order to effect systemic changes that deliver benefits at scale. This requires integrating EbA into relevant policies and plans of a range

of sectors. Efforts to integrate EbA will be focused on prioritised sectors initially. These will relate to the priority sectors of the White Paper, as well as other sectors, as determined with relevant partners and stakeholders and should include the environment sector tools that enhance opportunities for integration and uptake are also addressed in this outcome.

- **Implementation Projects** are an important component of an emerging area of practice in a changing context. Not only do they enable action to be taken from the start in order to help natural resources and people adapt to climate change, they also enable learning through doing. Identifying implementation projects offers opportunities to profile successes, lessons learned and practice of EbA, to enhance capacity, inform monitoring efforts, to share learning, to undertake applied research, and to draw policy lessons that can be taken to scale through policy integration. Ensuring that implementation projects offer these opportunities to learn from and strengthen the practice, effect policy change and deliver co-benefits requires a coordinated programme of work.

Internal coordination mechanisms to ensure feedback and integration with each of the components are built into the Strategy. Additionally, this Strategy was developed in consultation with stakeholders, and in recognition of the importance of collaboration in the effective implementation of the Strategy, ongoing engagement with EbA stakeholders is seen as a guiding principle in the roll out of the strategy.

### ***5.2 Resourcing the EbA Strategy***

The EbA Strategy has been developed so that it can be implemented under three different funding scenarios:

- **Low road activities:** can be undertaken with existing human and financial resources. This scenario recognizes the constraints of the current fiscal climate and assumes the Strategy needs to be implemented with existing resources.
- **Medium road activities:** can be implemented with a dedicated EbA Coordinator appointed at level 11 or 12 on the public sector salary scales to oversee the implementation of the Strategy. This position will enable a wide-range of coordination and foundational activities, including developing a resource mobilisation plan to enable high road activities. Should the appointment not be made at level 11 or 12, then a reassessment of the medium road activities will be required.
- **High road activities:** are only possible with additional resources.

### 5.3 Structure of the EbA Strategy

As depicted in Figure 5, The EbA Strategy has two interrelated components.

The first is a **Strategic Framework**, which includes:

- An overarching vision,
- Four outcome areas (reflected in Figure 4) which collectively lead to the achievement of the vision,
- A number of outputs per outcome which together deliver the outcome, and
- Activities per output according to three different funding scenarios of the strategy.

This is supported by an **Overarching Implementation Plan**, which sets out, for each output:

- Lead and support organisations
- Timeframe
- Indicative resources (financial and human), and possible sources of these resources.

Together, the Strategic Framework and the Overarching Implementation Plan provide a roadmap for the next five years (with implementation commencing in the 2016/17 financial year, and running until the 2020/21 financial year) to take forward South Africa's EbA programme of work. Following this initial 5 year timeframe, the Strategy will be revised.



**Figure 5.** The EbA Strategy consists of a Strategic Framework and Overarching Implementation Plan

*Notes to the budget for the EbA Strategic Framework and Overarching Implementation Plan:*

- Budget figures are 2016/17. Figures and inflation will need to be added to these figures from 2017/18 onwards.
- Budget figures are approximate. Activities will need to be costed before an accurate budget for the strategy or individual items is known.

## 5.4 Strategic Framework and Overarching Implementation Plan

### 5.4.1 Outcome 1: Effective coordination, learning and communication mobilises capacity and resources for EbA

As an emerging area of practice that is seen as part of an overall response to climate change, EbA is not a standalone practice. The delivery of a wide range of co-benefits through EbA requires a coordinated programme of work implemented by partners and stakeholders across sectors. The approach to coordination therefore needs to enable a transdisciplinary and multisectoral programme of work. Opportunities exist to learn from the institutional mechanisms established to coordinate South Africa's biodiversity mainstreaming programmes. Similarly, as an emerging approach to climate change adaptation, the implementation of EbA requires resourcing, learning, capacity building and profiling. The Strategy also requires revisiting as results emerge from the various areas of work, these should inform the future body of work of the strategy. The role of coordination is therefore vital to ensuring a relevant, results-oriented strategy implemented through partnerships with the key actors and beneficiaries of EbA.

Outputs	Main activities		Lead org	Support org	Timeframe	Resources (financial and human)	Resource source
1.1. Coordination mechanisms for EbA are established and operating to ensure a relevant, responsive EbA strategy	Low	1.1.1. Integrate coordination functions into existing DEA & SANBI staff KPAs	DEA & SANBI	Coordinating Steering Committee (CSC)	2016/17	Alignment of existing DEA & SANBI staff posts and KPAs with outputs in EbA strategy  Approx. R400,000 for level 10 post (EbA Coordinator) plus approx. R100,000 (annual operating and overhead costs for coordinator, including travel, and steering committee)	DEA-MTEF or donor
		1.1.2. Establish DEA/SANBI EbA Strategy Coordination Mechanism					
		1.1.3. Develop TORs for a cross-sectoral Coordinating Steering Committee (CSC) that coordinates implementation and revision of the EbA Strategy as needed (but at least every 5 years)					
		1.1.4. Convene Steering Committee as per TORs					
		1.1.5. Raise funds, get post approved and recruit EbA coordinator					
	Med	1.1.6. Define the scope of an EbA community of practice and assess opportunities for convening it alongside other relevant for a, such as the Adaptation Network	DEA & SANBI	Coordinating Steering Committee (CSC) and other organisations	2017/18	EbA Coordinator & SANBI CCA Director & DEA Director	Resources funded output 1.1

	High	1.1.7. Convene an EbA Community of Practice (CoP) as determined in the scoping exercise	To be determined by scoping	supporting EbA Coordinating Steering Committee (CSC) and other organisations supporting EbA	2017/18	Budget to be determined by scoping, approx. R80,000 per annum	DEA-MTEF, other depts or donor
1.2. Resources are raised and channeled to priorities of the EbA strategy	Low	<i>No low road activities</i>					
	Med	1.2.1. Develop resource mobilisation plan for EbA strategy that identifies funding priorities	DEA & SANBI	Coordinating Steering Committee (CSC), Community of practice (CoP)	2017/18 onwards	EbA Coordinator & SANBI CCA Director & DEA Director	Resources funded output 1.1
		1.2.2. Develop funding proposals for priority outputs in line with resource mobilisation plan					
	High	1.2.3. Secure agreements with donors for priority projects/outputs in line with resource mobilisation plan	DEA & SANBI	Coordinating Steering Committee (CSC), Community of practice (CoP)	2017/18 onwards	EbA coordinator & SANBI CCA Director & DEA Director	Resources funded output 1.1
1.3. Learning, capacity building and communications supports EbA implementation, replication and upscaling	Low	<i>No low road activities</i>					
	Med	1.3.1. Develop learning and communication framework for EbA Strategy that identifies messages and communications channels and aligns with existing communication and learning platforms	DEA & SANBI	Coordinating Steering Committee (CSC), Community of practice (CoP), NCCCC, IGCCC	2017/18 onwards	EbA Coordinator – costs covered 1.1 above	Resources funded output 1.1
		1.3.2. Develop and implement mechanisms that enable the learning and communication framework to draw from the monitoring, research, integration and implementation outcomes of the EbA Strategy					
		1.3.3. Coordinator draws on CoP to write EbA news, stories and case studies for existing communications and learning platforms (e.g. e-news, websites, etc.)					

		1.3.4. Coordinator draws on CoP to make existing EbA resources (e.g. guidelines, case studies, lessons, tools)					
		1.3.5. Coordinator participates in national and international EbA events					
	High	1.3.6. Develop capacity building plan based on a capacity needs assessment that identifies priority needs and groups	DEA & SANBI	Coordinating Steering Committee (CSC), Community of practice (CoP), NCCC, IGCCC, SALGA, municipalities	2017/18	To be determined by communications and learning framework, approx. R500,000 per annum	DEA-MTEF, other depts or donor
		1.3.7. Develop new EbA communications and learning materials guided by the communication and learning framework					
		1.3.8. Expand the platforms and channels to strengthen EbA communication and learning					
		1.3.9. Implement capacity building plan					

#### 5.4.2 Outcome 2: Research, monitoring and evaluation provides evidence for EbA's contribution to a climate-resilient economy and society

Coordinated and targeted research, monitoring and evaluation is vital to knowing whether EbA is delivering benefits that help communities adapt to climate change, support socio-economic development and thus contribute to a climate-resilient economy and society. There is a limited but growing body of research that requires review to identify the gaps and research priorities that need to be addressed in order to understand the role EbA plays as part of a climate change response strategy. Providing a platform for the coordination of EbA research practitioners and the development of a research strategy, which identifies priorities, institutional alignment and sources of funding, will enable research in support of a body of evidence needed to inform EbA policy and practice. Together with a monitoring and evaluation plan this component seeks to better understand and evaluate EbA to support effective implementation, replication and upscaling of EbA in the future. A coordinated approach is needed to set out an effective monitoring and evaluation plan and research strategy. The development of a standalone EbA research programme or monitoring and evaluation plan is seen as less effective than integrating EbA priorities into existing strategies and plans and leveraging these resources towards growing the EbA body of evidence.

Outputs	Main activities		Lead org	Support org	Timeframe	Resources (financial and human)	Resource source
2.1. EbA research addresses knowledge gaps and supports to policy-relevant knowledge	Low	No low road activities					
	Med	2.1.1. Undertake a scoping assessment of EbA research to identify research gaps, priorities and relevant coordination structures	SANBI & DEA	Coordinating Steering Committee (CSC), DST, CSIR, WRC, ARC, NGOs, networks, provincial governments	2017/18 onwards	EbA Coordinator, SANBI & DEA staff	Academic institutions' research budgets (2.1.3)
		2.1.2. Convene a meeting of relevant research institutions to discuss a coordinated approach to EbA research and initial high level priorities	Academic institutions (2.1.3)				
		2.1.3. Undertake research projects to address EbA research priorities (building on from 2.1.1)					
		2.1.4. Develop and implement mechanisms that ensure research informs coordination, learning, communications, integration and project implementation					
	High	2.1.5. Develop EbA Research Strategy which identifies priorities, including policy-relevant research, the research approach and guides funding opportunities and institutional alignment	SANBI & DEA  Academic	SANBI, DEA, DST, CSIR, NGOs, provincial	2017/18 ongoing	R150,000 (travel & meetings for staff at key institutions to meet & develop strategy)	NRF, GCF, Global Change, WRC, DEA-

		2.1.6. Establish coordination structure/panel to guide research 2.1.7. Integrate EbA research priorities into other sector research strategies 2.1.8. Undertake research projects that address EbA research priorities in support of EbA Research Strategy (building on from 2.1.3)	institutions (2.1.7)	governments, WRC, ARC		Research budgets to be determined based on projects (2.1.7)	MTEF, other depts or donors  Academic institutions' research budgets (2.1.7)
2.2 EbA strategy is monitored and evaluated	Low	2.2.1. Develop quarterly and annual progress reports on implementation for submission to and review by DEA, SANBI, Coordinating Steering Committee (CSC) and other relevant bodies (e.g. working groups and intergovernmental structures)	DEA & SANBI	Coordinating Steering Committee (CSC)	2016/17	DEA & SANBI staff EbA Coordinator, SANBI CCA Director, DEA staff	Resources funded output 1.1
	Med	2.2.2. Develop and implement mechanisms that ensure M&E informs coordination, learning, communications, integration and project implementation	DEA & SANBI	Coordinating Steering Committee (CSC), Community of Practice	2017/18 M&E plan developed, Implementation: ongoing	EbA Coordinator, DEA & SANBI staff	DEA-MTEF, other depts or donor
	High	2.2.3. Develop and implement a Monitoring and Evaluation Plan for the EbA Strategy that aligns with the DEA climate change M&E system	DEA & SANBI	Coordinating Steering Committee (CSC), Community of Practice	2017/18 M&E plan developed, Implementation: ongoing	EbA Coordinator, DEA & SANBI staff  Approx. R250,000 to develop M&E Plan	DEA-MTEF, other depts or donor

### 5.4.3 Outcome 3: Integration of EbA into policies, plans and decision-making supports an overall climate change adaptation strategy

Coordinated efforts are needed to integrate EbA into the relevant policies, plans and decision-making to ensure that EbA is part of an overall climate change adaptation strategy. This is necessary to enable EbA to deliver a wide range of co-benefits at scale in support of sustainable development. Immediate opportunities for strengthening EbA outcomes exist in environment sector policies and plans (national, provincial and municipal). Thereafter a process of engagement with other sectors is needed, focusing on priority sectors (relating to the priority sectors of the White Paper, as well as other sectors, as determined with relevant partners and stakeholders). EbA offers great opportunities to advance South Africa's development priorities, if effective alignment is sought with these priorities. Key components would include the coordination of existing and new tools that would enable integration. An important first step is to clarify the types of interventions that would be seen as EbA, which would enable useful guidance on the development of the spatial component of EbA. This should enable researchers, practitioners and policy-makers to consistently define and pursue the additionality that South Africa is seeking from EbA.

Outputs	Main activities		Lead org	Support org	Timeframe	Resources (financial and human)	Resource source
3.1 EbA outcomes strengthened through implementation of sector policies and plans	Low	3.1.1. Integrate EbA into environment policies, plans and strategies, including the National Adaptation Strategy and the Third National Communication to the UNFCCC.	DEA	SANBI, provincial government, municipalities, Coordinating Steering Committee (CSC), Community of Practice, representatives from the project teams for the National Adaptation Strategy and the Third National Communication	2017/18	DEA staff	Resources funded output 1.1
	Med	3.1.2. Undertake a high level baseline assessment to identify opportunities and barriers for integrating EbA into policies, planning and decision-making	DEA & SANBI	Coordinating Steering Committee (CSC),	2017/18 onwards	EbA Coordinator	Resources funded output 1.1

		3.1.3. Identify priority sectors for EbA based on opportunities and willingness		Community of Practice, depts linked to priority sectors, provincial and local government, SALGA			
		3.1.4. Develop a high level implementation plan for integrating EbA into priority sectors					
		3.1.5. Develop and implement mechanisms that support EbA integration through communications, learning including drawing policy relevant lessons from EbA implementation projects					
	High	3.1.6. Workshop with other sectors <sup>9</sup> with EbA links convened to identify opportunities to strengthen EbA outcomes	DEA & SANBI	DWS, DAFF, DRDLR, DoH, DHS, COGTA incl NDMC etc.	Med road: 17/18	EbA Coordinator & SANBI CCA Director & DEA Director	DEA-MTEF or donor
		3.1.7. Sectoral EbA programme of work developed which includes interventions/a series of workshops to raise awareness and strengthen capacity for EbA					
		3.1.8. Sectoral EbA programme of work implemented					
3.2. Tools developed to support EbA implementation	Low	3.2.1. Develop and document draft principles and criteria and circulate to stakeholders for review	DEA	SANBI, Coordinating Steering Committee (CSC)	2016/17	DEA	DEA-MTEF
		3.2.2. Finalise and distribute EbA Guideline for identifying and implementing EbA projects					
	Med	3.2.3. Convene discussion sessions at various relevant fora to inform an approach to identify spatial priorities for EbA	DEA & SANBI	Coordinating Steering Committee (CSC), Community of Practice	2017/18	EbA Coordinator, SANBI CCA Director & DEA Director	Resources funded output 1.1
		3.2.4. Develop and implement mechanisms that ensure EbA tools are shared through communications and learning and inform integration and EbA project implementation					
	High	3.2.5. Develop a spatial tool for EbA and use this to identify spatial priorities for EbA	SANBI	Provinces and local government,	2017/18 onwards	R700,000 (consulting time) and SANBI expertise	DEA-MTEF or donor

<sup>9</sup> Such as sectors identified in NCCR White Paper, and LTAS and the NAS, i.e. water, agriculture, rural development, municipalities including disaster management, forestry, health, human settlements, mining, transport, infrastructure).

			incl. agencies and entities, EbA specialists, practitioners			
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#### 5.4.4 Outcome 4: Implementation projects demonstrate the ability of EbA to deliver a wide range of co-benefits

There is an existing and growing EbA and EbA-like practice in South Africa. However many of these are standalone/isolated projects that offer the potential to add considerable value and benefit, if included as part of a coordinated programme of work. An inventory of existing EbA related activities in this outcome would provide a foundation for EbA research (linking to Outcome 2) as well as pilots and evidence of EbA being integrated into sector plans, policies and programmes in support of sustainable development (linking to Outcome 3). Once there is clarity on what constitutes EbA in South Africa, EbA implementation projects could be identified and new ones initiated that provide opportunities to deepen the practice, strengthen learning and influence policy in ways that enable replication and scaling up interventions. Implementation projects offer important opportunities to identify the challenges and limitations of EbA. Consideration should be given to identifying implementation projects across different biomes, including at the coast, within different sectors and value chains (e.g. rangeland agriculture) and projects that are scalable. The role of coordination is therefore particularly highlighted in the potential that implementation projects offer for learning, profiling, undertaking applied research, and taking practical successes to scale through influencing policy, in other words, ensuring effective connections across the EbA Strategy. Implementation projects have also been identified as part of a range of other strategies, including, amongst others, the National Climate Change Response Strategy, the NBSAP and the National Biodiversity Economy Strategy. Bringing a climate perspective into the implementation projects of other sectors and programmes of work, such as the sustainable natural resource management programmes, offers opportunities to demonstrate the contribution of EbA to a broader set of objectives.

Outputs	Main activities		Lead org	Support org	Timeframe	Resources (financial and human)	Resource source
4.1. Implementation of sustainable natural resource management projects and programmes support EbA	Low	<i>No low road activities</i>					
	Med	4.1.1. Develop an inventory of existing EbA and EbA-like activities that align with principles and criteria for EbA (1.2.3) 4.1.2. Review the inventory and meet with relevant stakeholders of sustainable natural resource management projects and programmes to identify opportunities to strengthen EbA outcomes	DEA	SANBI, CSIR, DAFF, DRDLR; DWS, provincial departments, DEA NRM, WRC, ARC, NGOs	2017/18	DEA staff	Resources funded output 1.1
	High	4.1.3. Integrate relevant climate information into the tools used by the sustainable natural resource management programmes (DEA NRM, LandCare etc.) to prioritise interventions	DEA	SANBI, CSIR, DAFF, DRDLR; DWS, provincial departments, NGO, DEA NR	2018/19 onwards	DEA staff Approx. R500,000	DEA-MTEF or donor

				M			
4.2. Existing EbA implementation projects identified, coordinated and monitored	Low	<i>No low road activities</i>					
	Med	4.2.1. Select and prioritise existing implementation projects from inventory that meet EbA criteria	DEA, SANBI, Project implementers	Coordinating Steering Committee (CSC), Community of Practice	2017/18 onwards	EbA Coordinator  Project implementers ( <i>*no additional budget needed</i> )	Resources funded output 1.1
		4.2.2. Develop and implement mechanisms between pilot project implementers and EbA coordinator for communications, learning, monitoring, research and influencing policy					
	High	<i>No high road activities</i>					
4.3. New EbA projects developed, funded, implemented and monitored	Low	<i>No low road activities</i>					
	Med	4.3.1. Support the development of project concepts for new EbA implementation projects that effectively contribute to adaptation across priority sectors (identified in 3.1.2) and a range of biomes.	DEA, SANBI, Project implementers	Coordinating Steering Committee (CSC), Community of Practice	2017/18 onwards	EbA Coordinator  Project implementers ( <i>*no additional budget needed</i> )	Resources funded output 1.1
	High	4.3.2. Write proposals and secure funding for project concepts.					
		4.3.3. Implement EbA projects	Project implementers (NGOs, other stakeholders)	EbA Coordinator, DEA, SANBI, Coordinating Steering Committee (CSC), Community of Practice	2017/18 onwards	Coordination covered by EbA Coordinator Project budgets dependent on proposals (approx. R 5-10 million per project implemented over 5 years)	GCF; DEA-MTEF or donor
		4.3.4. Develop and implement mechanisms between pilot project implementers and EbA coordinator for communications, learning, monitoring, research and influencing policy					

## **6. Institutional Arrangements for Implementation**

South Africa's EbA programme of work will be co-led by DEA and SANBI, in partnership with other government departments, public entities, civil society, academia and the private sector as agreed during the implementation process.

In DEA, the EbA programme of work will be housed in the Biodiversity Planning and Management Chief Directorate of the Biodiversity and Conservation Branch, and overseen by staff in the Directorate: Biodiversity Risk Management.

In SANBI, the EbA programme of work will be supported by the Climate Change Adaptation Directorate, the Biodiversity Information and Policy Advice Chief Directorate and the Biodiversity Research Assessment and Monitoring Chief Directorate. In these line functions, the work will be closely linked with SANBI's work as National Implementation Entity for the Adaptation Fund and its role as Accredited Entity of the Green Climate Fund, SANBI's Ecological Infrastructure Directorate and SANBI's researchers whose focus is understanding biodiversity pressures and responses.

A DEA/SANBI EbA Strategy Coordination Mechanism will be established to oversee and coordinate implementation of the EbA Strategy. In addition, a Cross-sectoral Coordinating Steering Committee will support the coordination and oversight of the Strategy. The Cross-sectoral Coordinating Steering Committee is intended to encompass DEA, SANBI, NGO's and other public entities as relevant and will operate according to an agreed Terms of Reference to provide broader oversight and direction to the implementation of the strategy. This Steering Committee will be convened by DEA in the low road scenario. In the medium road scenario, wherein it is envisaged that an EbA Coordinator is appointed in SANBI, this responsibility will move to SANBI.

Much of the existing EbA work in South Africa is implemented by other organisations, and in partnerships between different organisations. This provides an opportunity, with additional resources, to convene a Community of Practice in order to harness, learn from and share experience and expertise, and to build relationships and shared resources that enable South Africa's EbA programme of work. This medium road activity will be supported by SANBI's EbA Coordinator once this position is secured.

In addition, a range of organisations are involved in the implementation of particular activities in the Strategy, including particular research activities, which are likely to be undertaken by academic institutions, and pilot projects, which are likely to be implemented by DEA's Environmental Programmes, public entities such as South African National Parks, as well as NGOs.

Long term institutional arrangements that would support the implementation of the high road of the Strategy will see the formation of an EbA Directorate within SANBI, the appointment of additional staff to support this function, and the flow of additional resources that would enable EbA research, the integration of EbA into policies, plans and decision-making and support for EbA project implementation.

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