NATIONAL BIODIVERSITY STRATEGY AND ACTION PLAN 2014

MINISTRY OF ENVIRONMENT,
WATER AND CLIMATE

REPUBLIC OF ZIMBABWE

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Foreword

Zimbabwe is party to the United Nations Convention on Biological Diversity (UNCBD) and accordingly has obligations to implement the provisions of the convention. The convention requires Zimbabwe to prepare a national biodiversity strategy and to ensure that it is mainstreamed into the planning and activities of all sectors that have an impact on biodiversity. National biodiversity strategies and action plans (NBSAPs) are the principal instruments for implementing the convention at national level. In line with this provision, Zimbabwe developed its first national biodiversity strategy and action plan (NBSAP) in 1998, which covered the period 2000-2010.

In 2013, Zimbabwe embarked on a process of reviewing the NBSAP and aligning it with the UNCBD Strategic Plan 2011-2020 and the Aichi Targets. The UNCBD Strategic Plan 2011-2020 emphasizes the communication, education and public awareness and the ecosystems approach, including the value of ecosystems, in the development of NBSAPs. This new NBSAP therefore promotes the integration of conservation and sustainable use of biological diversity into relevant sectoral or cross-sectoral plans, programmes and policies.

The country's rich biodiversity and associated ecosystems are under threat from land use changes resulting mainly from agricultural expansion, mining, urban expansion, tourism, pollution of water and air, invasive alien species, unsustainable harvesting of natural resources, and the related impacts of climate change. This second-generation NBSAP, whose vision is "a Zimbabwe with resilient ecosystems and biodiversity values for social, political and economic development", aims to address some of the threats to biodiversity.

The mission of the strategy is "to utilize traditional knowledge, research, technology, innovations and best practices to protect the environment, conserve and sustainably use biodiversity and ecosystems to benefit present and future generations". The NBSAP, through its strategic objectives, will contribute to national development targets in the economic blueprint for the period 2013 to 2018, the Zimbabwe Agenda for Sustainable Social Economic Transformation (ZimAsset).

I thank the United Nations Development Programme and the Global Environment Facility for financial support and all the stakeholders who supported the preparation of the national biodiversity strategies and action plans.

Honourable O.C. Z. Muchinguri (MP)
MINISTER OF ENVIRONMENT WATER AND CLIMATE

Contents

Figures and tables

Acronyms

ABS	Access benefit sharing
CAMPFIRE	Communal Areas Management Programme for Indigenous Resources
CBD	Convention on Biological Diversity
CDM	Clean development mechanisms
CEPA	Communication, education and public awareness
CITES	Convention on International Trade in Endangered Species
COP	Conference of Parties
EbA	Ecosystems-based adaptation
EIA	Environment impact assessment
EMA	Environmental Management Agency
EsA	Ecosystems approach
FC	Forestry Commission
GEF	Global Environment Fund
ICCA	Indigenous Community-conserved Areas
IPPC	Intergovernmental Panel on Climate Change
IUCN	International Conservation Union
MDG	Millennium Development Goals
MEAs	Multilateral environmental agreements
MEWC	Ministry of Environment, Water and Climate
NBSAP	National Biodiversity Strategy and Action Plan
PoWPA	Programme of Work on Protected Areas
REDD+	Reducing emissions from deforestation and forest degradation
SEA	Strategic environmental assessments
SPS	Sanitary and phytosanitary standards
TFCA	Trans-frontier conservation areas
UNCBD	United Nations Convention on Biological Diversity
UNCCD	United Nations Convention to Combat Desertification
UNDP	United Nations Development Programme
UNFCCC	United Nations Framework Convention on Climate Change
WWF	World Wide Fund for Nature
ZimAsset	Zimbabwe Agenda for Sustainable Social and Economic Transformation
ZimStat	Zimbabwe National Statistics Agency
ZPWMA	Zimbabwe Parks and Wildlife Management Authority
ZSE	Zimbabwe Stock Exchange

Executive summary

Zimbabwe is rich in natural resources that are important locally and globally. The key economic sectors of agriculture, mining, industry, energy and tourism are dependent on natural resources. Rural and urban Zimbabweans alike depend on the natural environment for their livelihood and well-being. Sixty-eight percent of the population live in the rural areas and derive their livelihoods from agriculture and biodiversity (ZimStat 2013).

Zimbabwe has some internationally recognized biodiversity hotspots (see Glossary):

- The Afromontane forest grasslands in the Eastern Highlands are a recognized centre of plant diversity and high species richness
- The Eastern Zimbabwe mountains are one of 218 endemic bird areas identified globally by BirdLife International
- The Great Dyke in the drier Zambezian miombo is a globally recognized centre of high plant diversity
- Mana Pools in the mid-Zambezi floodplain is another area of high species richness
- Hwange National Park has a great diversity of bird species

The country's rich biodiversity and associated ecosystems are under threat from the following: land use changes resulting mainly from expansion of agricultural land, mining, urban development and tourism; pollution of water and air; invasive alien species (see Glossary); unsustainable harvesting of natural resources; and the related impacts of climate change.

In 2013, Zimbabwe launched the development of its second-generation National Biodiversity Strategy and Action Plan (NBSAP) to address some of the threats facing biodiversity in the country as well as fulfilling its obligations under the United Nations Convention on Biological Diversity (UNCBD) and the Aichi Biodiversity Targets.*

The NBSAP was developed in a consultative and participatory process with input from diverse stakeholders. Input was solicited through two national consultative workshops, meetings of three thematic working groups and a national validation workshop. The process was augmented by three national studies commissioned at the request of stakeholders in the first consultative workshop. The studies were: i) ecosystem valuation in Zimbabwe; ii) advances in sectoral mainstreaming of biodiversity in Zimbabwe; and iii) exploring and costing options for ecosystem-based adaptation to climate change through the development of a robust action plan for the Programme of Work on Protected Areas (PoWPA; see Glossary) and a plan for sustainable land use in Zimbabwe.

The vision of the NBSAP is "a Zimbabwe with resilient ecosystems and biodiversity values for social, political and economic development". The mission of the strategy is "to utilize traditional knowledge, research, technology, innovations and best practices to protect the environment, conserve and sustainably use biodiversity and ecosystems to benefit present and future generations" (see "Strategy vision and mission" in Section 5.1 below).

The NBSAP, through its strategic objectives, will contribute to national development targets in the economic blueprint for the period 2013 to 2018, the Zimbabwe Agenda for Sustainable Social Economic Transformation (ZimAsset). It is aligned with the UNCBD Strategic Plan 2011-2020 and the Aichi Biodiversity Targets.

Ten priority biodiversity issues in Zimbabwe were identified, and they were aligned to the UNCBD strategic goals and targets. From these issues five strategic objectives were identified for the NBSAP:

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* In 2010, the 10th Conference of the Parties to the Convention on Biological Diversity held in Nagoya, Japan, adopted a new Strategic Plan for Biodiversity 2011-2020. The plan consists of 20 new biodiversity targets for 2020, termed the "Aichi Biodiversity Targets", grouped into five strategic goals that match the five strategic objectives listed for the NBSAP in Section 5.5 below. See www.cbd.int/sp/targets/ for more details.

- Address the underlying causes of biodiversity loss by mainstreaming biodiversity across government and society
- Reduce the direct pressures on biodiversity and promote sustainable use
- Improve the status of biodiversity by safeguarding ecosystems, species and genetic diversity
- Enhance the benefits to all from biodiversity and ecosystem services
- Enhance implementation through participatory planning, knowledge management and capacity building

Each strategic objective has associated strategies, targets and actions. A total of 18 targets aligned with the Aichi Biodiversity Targets were developed, with associated indicators, as was a monitoring framework. Activities described in the action plan are not exhaustive as other sectoral initiatives and activities that contribute to the targets can be incorporated during implementation and review.

Overarching strategies underpinning the successful implementation of the NBSAP are: mainstreaming of biodiversity; communication, education and public awareness (CEPA); capacity building for biodiversity conservation; research and development, and technology transfer. Mainstreaming of biodiversity across all levels of government and society is critical for the achievement of the NBSAP targets.

Implementation of the strategy and action plan will be coordinated by the Biodiversity Office in the Ministry of Environment, Water and Climate (MEWC) and guided by the National Biodiversity Forum. Strategic input and guidance from key ministries will be through an inter-ministerial committee. Establishment of biodiversity review platforms at provincial, district and ward level will ensure consistent participation and information sharing from the national to community level on the NBSAP implementation and related issues.

Monitoring, evaluation and reporting progress will be coordinated by the MEWC, with input from the thematic working groups under the National Biodiversity Forum. Annual reports will be provided to the inter-ministerial committee, the various biodiversity review platforms and the Parliamentary Portfolio Committee on Environment, Water, Tourism and Hospitality Industry.

An independent mid-term review in 2017 and final evaluation will be conducted to measure progress and contribution towards the Aichi Biodiversity Targets.

1. Introduction

Biodiversity and associated ecosystems are the basis for Zimbabwe's social and economic development. The key economic sectors of agriculture, mining, industry, energy and tourism are dependent on natural resources and the environment. Sixty-eight percent of the population live in the rural areas and derive their livelihoods from agriculture and biodiversity. Zimbabwe signed the United Nations Convention on Biodiversity (UNCBD) in 1992 and ratified it in 1994. The three objectives of the UNCBD articulated in Article 1 are the conservation of biological diversity, the sustainable use of its components, and the fair and equitable sharing of the benefits of using genetic resources, giving adequate access to genetic resources and effecting appropriate transfer of relevant technologies.

Under Article 6a of the convention, parties are expected "to develop national strategies, plans or programmes for the conservation and sustainable use of biological diversity". In line with this provision, Zimbabwe developed its first National Biodiversity Strategy and Action Plan (NBSAP) in 2000 for the period 2000-2010.

In 2013, Zimbabwe began a review of the first strategy and action plan (NBSAP 1) to contribute to the development of NBSAP 2, which is aligned with the UNCBD Strategic Plan 2011-2020 and the Aichi Biodiversity Targets, with an emphasis on integrating "as far as possible and as appropriate the conservation and sustainable use of biological diversity into relevant sectoral or cross-sectoral plans, programmes and policies". The UNCBD Strategic Plan 2011-2020 also emphasizes communication, education and public awareness and the value of ecosystems in the development of NBSAPs.

The NBSAP is a framework to guide the conservation and sustainable use of biodiversity and associated ecosystems in Zimbabwe for the next decade. It was prepared with the coordination of the Biodiversity Office in the MEWC. The process was supported by three national studies covering: i) ecosystem valuation in Zimbabwe; ii) advances in sectoral mainstreaming of biodiversity in Zimbabwe; and iii) exploring and costing options for ecosystem-based adaptation to climate change through the development of a robust action plan for the Programme of Work on Protected Areas (PoWPA) and a plan for sustainable land use in Zimbabwe. The studies are described in detail in Section 3.1 below.

This document provides the background to NBSAP 2 development process followed in Zimbabwe, an executive summary of the national studies that informed the development of the strategy and a snapshot of the status of biodiversity and ecosystems.

The sections that follow set out the priorities, strategic objectives, targets, strategies and activities needed to achieve the overarching goals of conservation, sustainable use and equity. The action plan outlines the priority activities that are needed to achieve the objectives, including lead agents, partners, targets and indicators. A monitoring framework augments the action plan.

2. Process followed in developing NBSAP 2

NBSAP 2 was prepared between March 2013 and August 2014. The Biodiversity Office was the lead agent as it also coordinates the implementation of the UNCBD in the MEWC. The process was funded by the Global Environmental Facility and the United Nations Development Programme (UNDP) under a three-year project titled "National Biodiversity Planning to Support the Implementation of the CBD 2011-2020 Strategic Plan in Zimbabwe". The Biodiversity Office facilitated stakeholders' participation with the establishment of technical working groups, which provided input throughout the process.

Wide stakeholder participation and technical input were achieved through workshops, technical working group meetings, an editorial team and thematic studies. Seven consultative workshops were conducted, of which two were national forums for stocktaking and identifying and reaching consensus on priorities for NBSAP 2. Another workshop was conducted for reviewing the draft NBSAP and an editorial team was set up. Technical working groups were constituted in the first workshop to address the following: enabling policy, legislative and institutional policy frameworks; stocktaking and target setting; and communication.

Stakeholders were drawn from academia, researchers, CBOs, NGOs, the media, donor agencies and government organizations among others. Sectors represented in the consultations were mining, gender, energy, forestry, wildlife, water, economic planning and local authorities.

The stocktaking and target setting working group identified gaps and recommended the production of biodiversity maps showing the current biodiversity status. The group also identified targets for NBSAP 2. The communication working group conducted an awareness meeting with media workers and developed a communication strategy for biodiversity.

The three aforementioned national studies were commissioned to provide input into the development of NBSAP 2. Findings from the studies and working group outputs provided input for the development of the strategy and action plan. The ecosystems approach was used in developing the strategy, in line with the recommendations of stakeholders.

The Convention on Biological Diversity (CBD) defines the ecosystem approach as "a strategy for the integrated management of land, water and living resources that promotes conservation and sustainable use in an equitable way".

3. Summary of key studies contributing to the development of NBSAP 2

A summary of the three national studies commissioned by the Biodiversity Office, with bearing on the NBSAP implementation, are outlined as follows:

3.1. Valuation of protected areas ecosystem

The protected areas network covers 28% of the land area of Zimbabwe, with national parks constituting 13%, gazetted forests 3%, conservancies and private game parks 1.9% and the Communal Areas Management Programme for Indigenous Resources (CAMPFIRE) 11.9%. There are diverse commercial operations around the network. They include the following: consumptive and non-consumptive tourism, commercial and artisanal fishing, trade in game products, hardwood harvesting, non-timber forest products harvesting and secondary business operations such as accommodation, transportation, tanneries, fish processors, crocodile and fish farmers, bird gardens, snake parks, hardwood furniture manufacturing companies, taxidermists and safari training institutions.

To sustain the protected areas network significant investments into its management is required. In 2012 an estimated US$31 million was directly invested in protected area management by the protected area agencies, local authorities and communities (through CAMPFIRE) and donors. The ideal maintenance budget is estimated at US$40 million annually (Madzara 2013).

The estimated direct revenue from protected areas is US$382.5 million. About 32,770 people directly derive employment from the network. Protected areas have numerous multiplier effects and support a significant number of downstream industries, as listed above, most of which have not been valued. (Madzara 2013) The major threats to the integrity of the protected areas network and its capacity to sustain revenue generation are climate change, poaching, fires, human encroachment, mining and lack of harmony in policies, especially for transboundary ecosystems. There are costs associated with these threats. An estimated US$1.1million is lost to poaching of bush meat and the government spends US$50 million annually to fight invasive alien plant species and livestock diseases emanating from wildlife areas. Poaching of major species in parks estates between 2009 and 2012 led to an estimated cumulative loss of US$47.5 million. The CAMPFIRE programme benefits more than million households and generated US$2.5 million in 2012 (Madzara 2013).

3.2. Ecosystem-based adaptation to climate change

Statistical analysis of climate data from the Zimbabwe Meteorological Service shows that the country experienced a warming trend of 0.4°C from 2000 to 2010 and a decline of 5% in annual average rainfall as compared to the 1980-1999 averages. Projections by the Intergovernmental Panel on Climate Change based on global circulation models indicate that by 2050 Zimbabwe will warm up by between 2°C and 4°C, while rainfall will decline by 18% if efforts to reduce dangerous climate change at global level are not put in place and practised on time (Gotora 2013).

Available information suggests that climate change in Zimbabwe will:

- Alter forest and grassland ecosystems dynamics directly and via interactions with land use and land use change. Plant diversity will fall sharply, with the highest decline in the west, the lowest in the eastern regions and moderate decline in the central regions
- Alter animal diversity and animal population densities with respect to the changes in net primary productivity; this will severely affect ecosystems dominated by long-lived species as these species have low reproduction rates, low growth rates and a high degree of specialization, making them difficult to recover in the event of long-term and more permanent changes
- Change thermal cycles of lakes and rivers, affecting the solubility of oxygen and thus freshwater ecosystems structures and function; this will result in direct changes in hydrological processes, thus affecting the volume and flow of water in freshwater bodies, dambos, wetlands and swamp ecosystems and subsequently impacting their diversity and species distributions
- Change the phenology of species differentially, thereby affecting ecological dynamics and synchronies in habitats and ecosystems
- Worsen trends of ecosystems change and biodiversity loss due to negative feedbacks, with multiple pressures such as increased land use intensity and land use change and the associated destruction of natural or semi-natural habitats
- Increase the vulnerability of species that are already at pressure from other factors

Ecosystems and biodiversity in Zimbabwe are vital for responses to climate change through adaptation and mitigation. Ecosystems provide water, food, medicines and biomass energy for communities. They generate incomes through timber and non- timber forest resources, jobs for local communities through tourism, recreational and hunting ventures and livestock rearing and cropping (market gardening). They also provide manure and biomass energy for small-scale agro-processing and domestic fuel needs. These ecosystem services are vital for adaptation through the increased resilience of communities in reaction to changes in climate – resilience which is highly dependent on socio-economic factors such as health, food and nutrition, and incomes.

Forests, as part of terrestrial ecosystems, play a significant part in carbon sequestration, thereby mitigating climate change. The advent of "Reducing emissions from deforestation and forest degradation with multiple benefits" (REDD+) and developing "clean development mechanisms" (CDM) projects* such as afforestation and reforestation have created opportunities for monetary compensation for activities that enhance reductions of emissions from land-based sectors and that enhance carbon sequestration.

Ecosystems-based adaptation (EbA; see Glossary) approaches provide opportunities for enhancing resilience of ecosystems and livelihoods dependent on a country's biodiversity and ecosystems to climate change. These approaches include:

- Improved and enhanced management of protected areas and transboundary conservation areas
- Establishment of biodiversity corridors
- Assisted dispersal and colonization of highly threatened species
- Enhanced sustainable production
- Rehabilitation and restoration of severely degraded landscapes

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* REDD+ is an initiative of the United Nations Framework Convention on Climate Change that has the twin objectives of mitigating climate change through reducing emissions of greenhouse gases and removing greenhouse gases through enhanced forest management in developing countries. A series of decisions based on these objectives has been adopted since 2007. See www.un-redd.org/ for more details. CDM is a mechanism defined in the Kyoto Protocol of 2007 that provides for emissions reduction projects that may be traded in emissions trading schemes. See www.fao.org/forestry/11280-03f2112412b94f8ca5f9797c7558e9bc.pdf for more details.

- Market-based instruments, including biodiversity offsets, carbon instruments (under initiatives such as REDD+ and CDM Programme of Activties), and payment for ecosystem services schemes
- Expansion of conservation enterprises such as CAMPFIRE
- Ecosystem-friendly land tenure systems such as share cropping

Innovative international, regional and domestic financing instruments and mechanisms are available to implement EbA approaches to benefit local ecosystems and biodiversity. They include international assistance for climate change mitigation, REDD+ finance facilities, market-based financing and the Green Climate Fund. Conservation planning for climate change uncertainty needs to be more holistic and flexible and to be effected on time.

3.3. Advances in sectoral biodiversity mainstreaming

The key economic sectors with a potentially negative impact on biodiversity are mining, agriculture, industry, energy, transport and tourism. Most of Zimbabwe's mineral reserves occur in areas bordering on the protected area network and areas in the Highveld that are rich in biodiversity. Protected areas, such as parks estates and gazetted forests, and communal and resettled areas are open lands for prospecting and mining according to the Mines and Minerals Act [Chap. 21:05]. This has created conflict between resettled farmers and miners over prospecting and mining activities. Small-scale mining presents a great threat to biodiversity in terms of scale and impact. There are over 2,000 artisanal miners in each rural district council are and about one million small-scale miners nationwide.

Though Zimbabwe has sound environmental legislation, there is a perception that the economically productive sectors can infringe on the environment with impunity. This perception is enhanced by the fact that environmental management agencies are failing to implement provisions of their acts and policies due to human and financial constraints. For example, national wildlife policy requires that detailed research be conducted before allocating annual quotas, but this has not been done consistently. Sentences for environment-related offences are lenient and fail to deter offenders, thus undermining enforcement efforts.

The Ministry of Agriculture has a long-term planning framework spanning 20 years, in contrast with all the other sectoral ministries and cross-sectoral plans that have five-year planning time frames. Such a short planning phase does not allow for an adequate assessment of the impacts of these plans and polices on biodiversity, ecosystems and human well-being in the long term.

The Constitution of Zimbabwe provides for biodiversity conservation through the founding principles and values [Chap. 1: Section 3] national objectives [Chap. 2], environmental rights [Section 73] and provisions for provincial and metropolitan councils [Section 270].

The Environmental Management Act [Chap. 20:27] has 28 provisions for environmental management, which provide an overarching framework for sectoral integration of environmental issues The permanent secretaries of 12 sectoral ministries, including those which cause biodiversity loss, serve on the National Environmental Council and the Standards and Enforcement Committee, which provides a platform for sectoral integration of biodiversity issues. Provision for the Environmental Management Agency (EMA) board to conduct hearings on environmental issues is a foundation for the establishment of an environmental issues court.

The Indigenization and Economic Empowerment Act [Chap. 14:33] recognizes natural resources as finite resources that have to be used to benefit indigenous people. In the Indigenization Act, provisions for use of community share ownership trust funds include gully reclamation, soil conservation and general environmental conservation.

Spatial planning provides an opportunity for addressing tensions and contradictions among sectoral policies through territorial organization of land use. The Regional Town and Country Planning Act [Chap. 29:12] provides for spatial planning.

The National Gender Policy (2013-2017) has a key strategy on environment and participation in the development of the National Biodiversity Strategy and Action Plan.

The Draft Comprehensive Agricultural Policy Framework 2012-2032 recognizes the need for compliance with intellectual property rights requirements and international and local sanitary and phytosanitary standards. The agricultural policy recognizes the value of agro-ecological zones and recommends their re-assessment n response to climate change impacts.

Provisions for control of invasive alien species in the Environmental Management Act [Chap. 20:27] focus only on plant species, although invasive alien species include terrestrial and aquatic species like birds, animals, insects, fish and micro-organisms. Proceeds of the carbon tax (a tax on sources that emit carbon dioxide in the atmosphere, payable by every motorist to the Zimbabwe Revenue Authority) should ideally accrue to the EMA for use in rehabilitation of degraded lands, soil conservation and waste management, but this is not the case.

As for the environment sector, intra-sectoral coordination on biodiversity issues is largely weak. There is no coordination of biodiversity conservation issues at national level as functions are split between the Biodiversity Office in the Ministry of Environment Water and Climate and EMA. This is also reflected in the lack of harmonized reporting and monitoring on multilateral environmental agreements to leverage resources, especially with the United Nations Convention to Combat Desertification (UNCCD), the Convention on Wetlands of International Importance (also known as the Ramsar Convention), the UN Framework Convention on Climate Change (UNFCCC), the UN Convention on Biological Diversity (UNCBD) and the Convention on International Trade in Endangered Species (CITES).

Biodiversity conservation has not been mainstreamed into the Ministry of Environment, Water and Climate as the Biodiversity Office is considered a project that is externally funded. This has led in part to data and other information on biodiversity becoming outdated, unavailable or scattered across various institutions. Lack of a national biodiversity monitoring framework to provide updated information contributes to these anomalies.

Approval for by-laws by the Ministry of Local Government is protracted, taking as long as 24 months and resulting in the continued loss of biodiversity at the local level while law enforcement agents remain unwilling to implement unapproved measures.

3.4. Key observations and lessons for NBSAP 2

Zimbabwe developed its first National Biodiversity Strategy and Action Plan in 2000. The strategy was accompanied by a country study on the status of biodiversity and aligned with the CBD strategic plan and targets for 2000-2010. The assessment of the implementation of NBSAP 1 offers the following observations and lessons for NBSAP 2:

1. NBSAP 1 was not accompanied by a financing plan for the proposed actions. The full implementation of the strategy was limited by the subsequent economic downturn in Zimbabwe and the rapid changes in the environment due to the fast-track land reform programme. *Sustainable financing mechanisms and strategies must be developed to ensure that NBSAP 2 is implemented and that the interest of stakeholders generated during the development process is maintained.*

2. The consultative process for NBSAP 1 was fairly comprehensive; national and provincial workshops provided an opportunity for raising awareness about the process. However, the momentum was not sustained due to limited funding and the economic challenges after 2000. NBSAP 1 did not have an adequately developed action plan with targets and accountability for each component. Broad action plans were identified in the strategy. NBSAP 1 was also not adequately mainstreamed into other sectors. *An action plan with clear roles, responsibilities and time frames is critical for implementing NBSAP 2.*

3. Although a communication strategy was developed and implemented during the development of the NBSAP, it was not carried through to the implementation phase of the strategy. This was mainly due to a lack of funding. Hence, communication and awareness about the NBSAP in the environment sector and across other sectors of government was very limited. This emerged

from interviews during the country studies for NBSAP 2; many of the key informants outside the environment sector were not aware of the NBSAP at all. *Communication, awareness and education strategies have to be broader than a mere focus on media personnel and should be a cross-cutting theme in the action plan for NBSAP 2.*

4. NBSAP 1 did acknowledge the importance of the ecosystems approach in planning for biodiversity conservation. But in the analysis of unmet needs it was easier and more convenient to use a sectoral approach. Subsequently the NBSAP continued to use key environmental sectors as an approach in its formulation. *NBSAP2 will use an ecosystem-based approach.*

5. Economic valuation of biodiversity and ecosystems was applied to a limited extent in the NBSAP for wildlife, forestry and agro-biodiversity. *Economic valuation of ecosystems and biodiversity was initiated during the development of NBSAP 2. This should be continued in the implementation as it is a critical component of mainstreaming biodiversity across sectors and in society.*

6. Mainstreaming of biodiversity across sectors is not specifically highlighted in NBSAP 1 although some components are alluded to such as the cross-cutting contributions and impacts of biodiversity in the social, economic and ecological sectors of the country. *A mainstreaming strategy for biodiversity is important to ensure participation of all stakeholders in delivering on the set targets in NBSAP 2. NBSAP 2will be aligned with the country's economic planning frameworks such ZimAsset.*

4. The biodiversity of Zimbabwe

4.1. Biodiversity defined

Biological diversity, or biodiversity, is defined in Article 2 of the UNCBD as

> the variability among living organisms from all sources including … terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity in species, between species and of ecosystems.

There are three levels of biodiversity: i) genetic diversity, which is the variety of genetic information contained in individual plants, animals and micro-organisms; ii) species diversity, which is the variety of species; and iii) ecosystem diversity, which is the variety of habitats, ecological communities and ecological processes.

4.2. The relationship between biodiversity and human well-being

Human well-being is dependent on resilient and healthy biodiversity components. Biodiversity is central in the generation of ecosystems goods and services that support human well-being. Humans depend on biodiversity for food, fibre, materials and energy as the foundation of livelihoods. Some critical ecosystems services (see Glossary) are production of oxygen, soil formation and retention, water and nutrient cycling, and climate regulation. The growth of human populations and human affluence has placed increased pressure on biodiversity, threatening human well-being. Most Zimbabweans live in the rural areas and are largely dependent on natural resources for their livelihoods.

4.3. Ecosystems approach

The ecosystems approach (EsA) is based on the application of appropriate scientific methodologies focused on levels of biological organization that encompass the essential processes, functions and interactions among organisms and their environment, and it recognizes that humans with their cultural diversity are an integral component of ecosystems.

In comparison, the sectoral approach to biodiversity conservation aims to manage activities with a focus on a particular sector or species. This approach is supported by fragmented management authorities using different legislation and management regimes. It has been argued that the EsA in its present form is still a form of sectoral management as it focuses on managing a sector in ways that acknowledge ecosystems considerations (an example is the Parks and Wildlife estates).

The EsA was designed to deliver biodiversity conservation on a larger scale rather than for a single species or habitat while considering human needs at a particular time. The UNCBD advocates use of this approach and stakeholders agreed to use it in the development of NBSAP 2. The following assessment of the status of the biodiversity of Zimbabwe is based on the ecosystems approach, though the availability of information is limited:

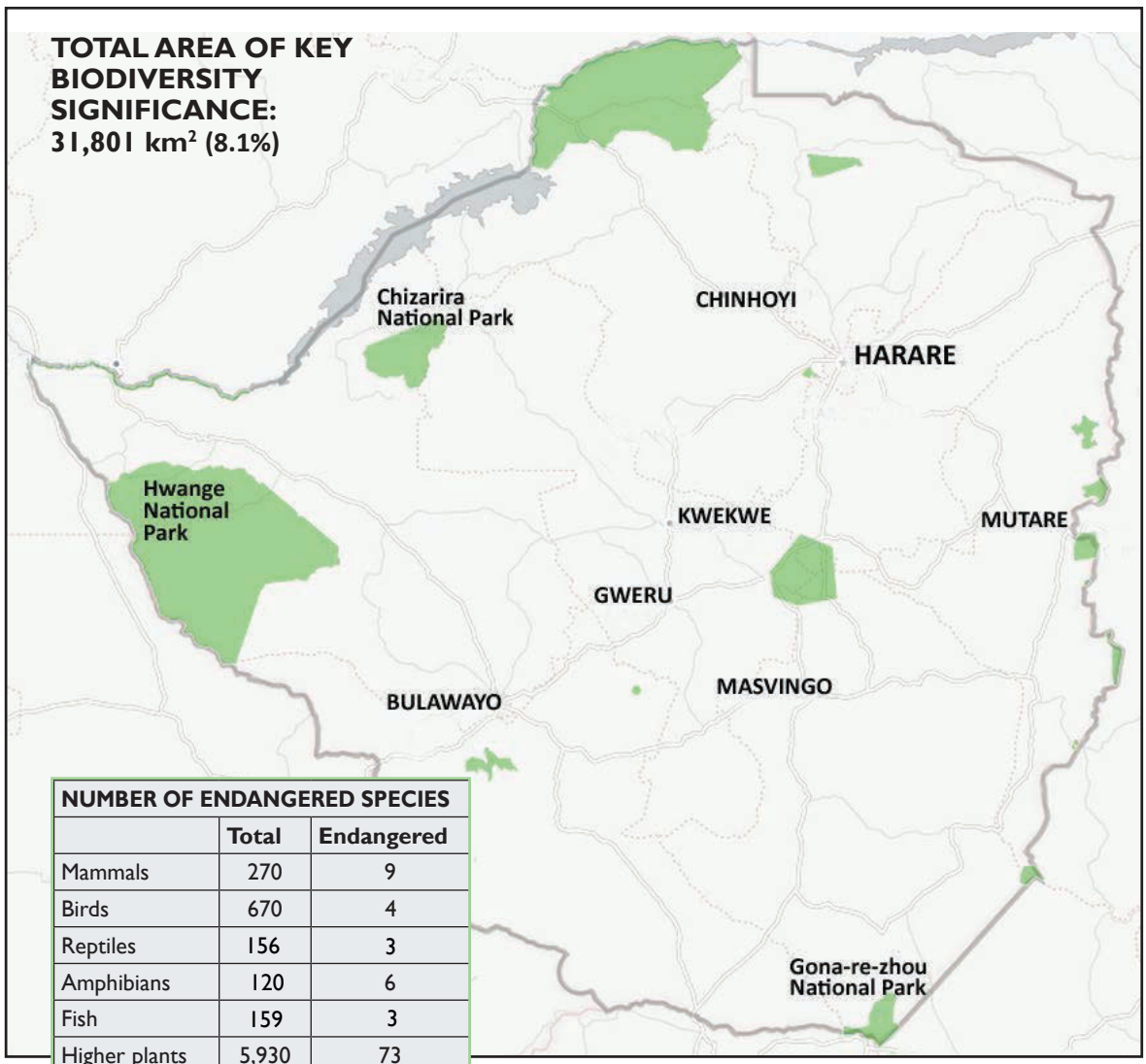
4.4. Assessment of biodiversity

4.4.1. Species assessment

Broadly, at species level, Zimbabwe supports 5,930 vascular plants (Mapaura and Timberlake 2004) of which 214 are endemic; 670 bird species; 270 mammals (Groombridge and Jenkins 1994); 156 reptiles (Branch 1993); 120 amphibians (Groombridge and Jenkins 1994) and 151 fish species (Marshall 2010). There is limited knowledge of micro-organisms.

Data on the current status of the species are not readily available. Changes over time are an important aspect in assessing the status of biodiversity across the various land uses given the changes in the aftermath of the fast-track land reform programme. Figure 1 shows areas of high biodiversity significance in Zimbabwe.

Figure 1: Areas of high biodiversity significance in Zimbabwe



NUMBER OF ENDANGERED SPECIES		
	Total	**Endangered**
Mammals	270	9
Birds	670	4
Reptiles	156	3
Amphibians	120	6
Fish	159	3
Higher plants	5,930	73
TOTAL		**98**

Source: Pulse Lab Uganda

Plant diversity

Besides the 5,930 recorded indigenous and naturalized vascular plant taxa (species, sub-species and varieties) there are 1,449 introduced taxa (Maroyi 2006). Of the recorded vascular plants, seven species are extinct in the wild and 211 species are threatened (Mapaura and Timberlake 2002). Of the threatened species, 54 are critically endangered, 29 are endangered and 121 are classified as vulnerable. This assessment gives a mere snapshot as only 10% of Zimbabwe's plant taxa have been assessed for threat status (Mapaura and Timberlake 2004).

Diversity of bird, animal and fish species

Information on the current status of the diversity of bird, animal and fish species is site-specific as different stakeholders undertake monitoring based on availability of financial and technical capacity.

Birds: There are more than 670 bird species (Fishpool and Evans 2001). Of these, 16 are classified as threatened, 11 are vulnerable and four are endangered. One species – the white-winged flufftail (*Sarothrura ayresi)* – is critically endangered. Twenty-four species are designated specially protected birds under the Parks and Wildlife Act [Chap. 20:14] in the 6th Schedule. Only nine of the threatened bird species are specially protected under schedule 6.

Animals: According to Groombridge and Jenkins (1994) there are 270 recorded wildlife species, although some sources mention 196. Twelve of these species are classified as threatened with the black rhino being critically endangered. The wild dog is rated as being endangered and nine species – elephant, cheetah, lion, squirrel, spring hare and four bat species – are vulnerable (IUCN 2000). There is a significant information gap on status of the mammalian population. Major surveys were last done in 2006. However, updated information does exist for selected species in specific sites where monitoring and research have been ongoing. They include a national leopard research project, work on lions, wild dogs and elephants in Hwange National Park, and rhino conservation generally. Information about animal populations in CAMPFIRE districts is limited. Overall assertions are that there has been a decline in the populations of key huntable species in CAMPFIRE areas and in resettled areas. Protected areas have maintained fairly healthy populations, although some species have declined due to targeted poaching, and there has been habitat loss. Assessments of changes over time are difficult due to the lack of systematic updating of monitoring data.

Fish: There are 159 fish species that have been recorded in Zimbabwe (Marshall 2010). Of these, 25 were introduced and only 10 have established. Currently 151 fish species are present in the country; one is possibly extinct (*Pristis microdon*), two are considered endangered, five are vulnerable and three are threatened by the alien *Oreochromis niloticus*, or Nile tilapia (Marshall 2010). There has been an increase in aquaculture at subsistence level to augment commercial production, with the exploitation of some indigenous species such as the Mozambique tilapia (*Oreochromis mossambicus*) the red-breasted tilapia (*Tilapia rendalii*), the green-headed tilapia (*Oreochromis macrochir*), the Kariba bream (*Oreochromis mortimeri*) and sharptooth catfish (*Clarias gariepinus*).

Subsistence and small-scale commercial aquaculture is being promoted as an alternative livelihood source in some climate change adaptation projects. A major threat to indigenous fish species is siltation of rivers and dams and water pollution from domestic and industrial effluent and mining and agricultural chemicals. The red claw crayfish (*Cherax quadricarinatus*), which was accidentally introduced to Lake Kariba, is potentially a serious threat to fish species. The extent and scale of its spread has not been assessed across water bodies in Zimbabwe.

4.4.2. Ecosystems status

Terrestrial ecosystems

Terrestrial ecosystems are those that are found only on land and include territory in and outside of protected areas and associated flora and fauna, but they exclude managed ecosystems such as agriculture and forest plantations. Terrestrial ecosystems in Zimbabwe exist under different land tenure systems. The protected area estate under the Parks and Wildlife Management Authority and the Forestry Commission make up 14.9% of the land area. The rest of the ecosystems exist under

Figure 2: Terrestrial ecosystems of Zimbabwe

the communal, resettled, small-scale commercial and large-scale commercial areas. There is a gap in updated information and statistics on the changes in status of biodiversity in the various land tenure systems over the last 13 years. General observations indicate a decline in the overall status of biodiversity across ecosystems outside the protected area network, although this needs to be verified through research. Figure 2 shows the key terrestrial ecosystems in the country and their connection with the protected area network. Table 1 gives a summary description of the terrestrial ecosystems in terms of importance to biodiversity conservation, status and threats.

Freshwater ecosystems

Freshwater ecosystems in Zimbabwe are floodplains, riparian wetlands, dambos, pans, swamps and artificial impoundments. They provide a diverse range of goods and services for human well-being, such as food, drinking water, water filtration, flood control and fisheries. They have high species diversity. Globally, current estimates mention 126,000 freshwater animal species and 2,614 aquatic

Table 1: Summary description of terrestrial ecosystems

TERRESTRIAL ECOSYSTEM	IMPORTANCE TO BIODIVERSITY CONSERVATION	THREAT	STATUS
Montane forest grassland mosaic	Headwaters of four key rivers; part of the Afromontane centre of endemism; high species richness; Important Bird Area; biodiversity conservation hotspot; important for ecosystem-based adaptation to climate change	Invasive alien species such as *Lantana camara* and wattle; artisanal mining, harvesting of non-timber forest products (NTFPs), closure of tea company	Protected area provides protection in such areas as Chimanimani National Park, Chirinda rain forest, Chimanimani Transfrontier Conservation Area (TFCA)
Kalahari *Acacia baikiaea* woodland	Varying species diversity	Wildlife poaching; wild fires; climate variability; wood poaching; elephant population; human encroachment; gazetted forests under threat; invasive plant species; coal mining; Zambezi water channel through Hwange	Half of Hwange National Park falls in this ecosystem; part occurs in CAMPFIRE areas which have some conservation activities; part of Kavango-Zambezi TFCA
Southern Africa bushveld	Dominated by mega herbivores	Conversion to agriculture; urban expansion; pollution; mining; unsustainable harvesting; bush encroachment by invasive species	Protected in the Matopo National Park, Gonarezhou National Park and CAMPFIRE areas; forms part of the Greater Limpopo and Limpopo Shashe TFCA
Southern miombo woodland (drier Zambezian miombo)	Centre of plant diversity; high mineral composition; 500 bird species with six confined to the region; high reptile endemism with 30 species exclusively found in the eco-region; four reptile species strictly endemic	Wildlife and firewood poaching; conversion to agriculture; deforestation to tobacco curing; commercialized harvesting of (NTFPs); urban expansion; mining	Greater part of the area in protected areas under the Parks Estate private game farms and CAMPFIRE wildlife areas; protected areas in the ecoregion include Chizarira National Park, Chirisa Safari Area, Matusadonha National Park, Mavuradonha Safari Area, Nyanga National Park, Mazowe Botanical Reserve and Sebungwe, Chivero, Kyle and Ngezi recreational parks
Zambezian *baikiaea* woodland	Dominant tree species is the *Baikiaea plurijuga* (Zambezian teak) which is endemic to the ecoregion; Important Bird Area	Timber logging; recurrent wild fires; conversion to agriculture; climate change	Greater part of the region within the Hwange National Park and CAMPFIRE areas
Zambezian and mopane woodland	Important area for mammalian diversity; rich in mega fauna	Mining; conversion to agriculture; large elephant populations; invasive alien species; wildlife and timber poaching	Protected under the protected area network and the Kavango-Zambezi TFCA

vascular plant species (Darwall *et al* 2009). They occupy a habitat that is less than 0.8% of the world's surface area. In Zimbabwe, classification of freshwater biodiversity has been limited to fish, crocodiles, hippo and amphibians and, to a lesser extent, aquatic plants. There are 151 fish species, 163 amphibians and larger animals such as the Nile crocodile and hippopotamus.

The status of Zimbabwe's freshwater biodiversity is not well researched. The International Conservation Union (IUCN) Species Programme, in collaboration with the South Africa Institute for Aquatic Biodiversity and the South African National Biodiversity Institute, conducted an assessment of the status and distribution of 1,279 taxa of freshwater fishes, molluscs, odonates, crabs and

Table 2: Summary description of the freshwater ecosystems

FRESHWATER ECOSYSTEM	IMPORTANCE	THREAT	STATUS
Floodplains – confined to mid-Zambezi in the west and Save/Runde in south-east	Important centres for aquatic biodiversity as they provide a unique range of habitats; regulation of flooding and water flows	Destruction of riparian parkland by elephants; commercial wildlife and bushmeat poaching; inappropriate tourism facilities, invasive alien species; inadequate transfrontier coordination; oil and mineral prospecting; development of irrigated agriculture; dam construction	Some sections protected under Mana Pools and Gonarezhou national parks
Dambos, wetlands and vleis widely distributed	Attract important bird species; water and grazing for livestock and wildlife; cultivation of crops	Extensive agriculture; overgrazing; gully erosion; wild fires; infrastructural development	Seven areas declared Ramsar sites; several initiatives under the Global Environment Fund and UN Development Programme small grants programmes to restore and protect communal areas wetlands
Pans – major pans occur in Tsholotsho, Mwenezi and Hwange, and Gonarezhou national parks	Habitat for game and waterfowl; domestic and wildlife grazing	Overgrazing; drying;	Protected within the national parks
Man-made impoundments (more than 8 000 dams)	Domestic, industrial and agriculture water supply; fishing, recreation and tourism	Siltation; pollution from surrounding urban centres; invasive alien species	Zimbabwe National Water Authority catchment councils oversight
Lake Kariba	Hydro-electric power generation; kapenta and bream fishing industry (US$42,7million)	Overfishing; shoreline development, invasive plant and fish species and mining	Under the management of Parks and Wildlife Authority, although capacity constraints limit effectiveness

selected families of aquatic plants from across southern Africa (Darwall *et al* 2009). According to this assessment, 7% of freshwater species are threatened. Table 2 gives a summary description of the freshwater ecosystems in terms of their importance to biodiversity conservation and the ecosystem services, status and threats.

The freshwater ecosystems are under threat from overgrazing, invasive alien species, informal settlements, urban development and industrial and agricultural pollution. Riparian activities such as sand mining, impoundments and cultivation also threaten aquatic habitats and associated biodiversity. Decreasing freshwater availability due to increased droughts, climate change and reduced ground water recharge are the greatest threats to aquatic biodiversity.

Protected areas

Zimbabwe has a well-established network of protected areas that was set up during the colonial period and expanded after 1980. Before 1990, national parks and gazetted forests constituted the bulk of the protected areas network. Amendments to the 1975 Parks and Wildlife Act granted appropriate authority over wildlife to individuals on private land and to rural district councils in communal areas. To date 28% of land area forms Zimbabwe's protected areas network, consisting of national parks (13%), gazetted forests (3 %); conservancies and private game parks (1.9 %) and CAMPFIRE areas (11.9%).

There have been changes in the percentage compositions of these protected area categories as a result of the fast-track land reform programme since 2000. A key change has been the conversion of large-scale commercial farms that were operating as private game ranches to resettled areas and arable land. Figures for the extent of this conversion are not readily available. The wildlife-based land reform policy and the forest-based land reform policy tried to encourage resettled farmers to venture into wildlife production and commercial timber production, but this has been limited largely by a lack of capacity and skills as well as limited support from government agencies. There have been minor changes in the land area of the forest and wildlife estate as a result of the fast-track land reform process.

There are conflicting views of land reform trends between 2001 and 2013. One view cites physical evidence that land area under active conservation could have significantly decreased as a result of land reforms, particularly on private game farms and in conservancies. The same argument draws evidence from the decline in forest areas such as the Mafungautsi and Gwai forest areas due to human settlement. The other view is that the protected area network has increased to 33%, with the area under CAMPFIRE increasing threefold in the last 10 years as more rural district councils acquired appropriate authority to manage wildlife (Madzara 2013). Changes in land tenure and the provisions of the wildlife-based land reform policy brought former commercial game farms under the jurisdiction of CAMPFIRE districts as wildlife areas. To date there are 52 CAMPFIRE districts with appropriate authority compared to 24 in 1999. The IUCN recently supported the inclusion of indigenous and community-conserved areas (ICCAs) in the account of the protected areas network of Zimbabwe due to the increasing importance of the role of communal areas traditional structures and institutions in conservation. According to the IUCN's Commission on Environmental, Economic and Social Policy, there is also growing recognition of ICCAs and acknowledgement of their role in the conservation of biodiversity. Some governments have integrated them into their official protected area systems, and the fifth World Parks Congress and the Programme of Work on Protected Areas of the CBD accepted them as legitimate conservation sites that deserve support and, as appropriate, inclusion in national and international systems (Madzara 2013).

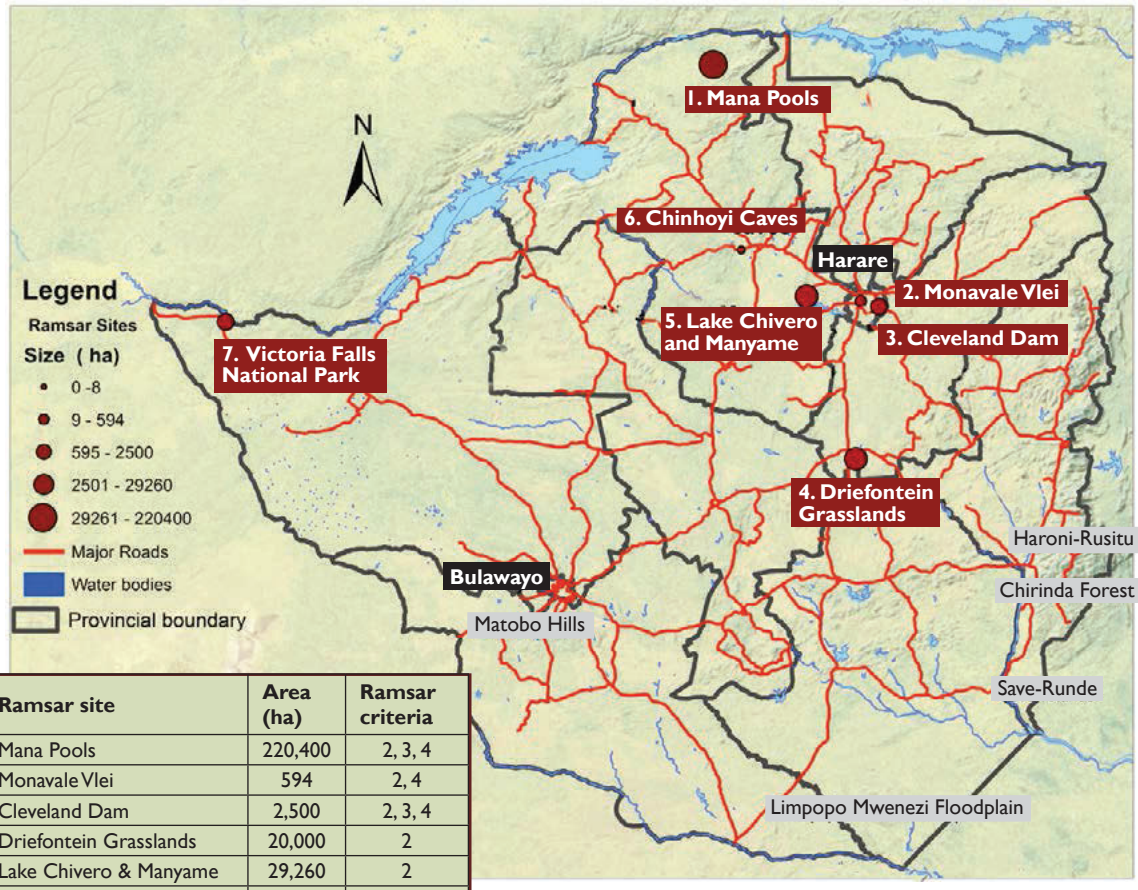
The designation of seven wetlands as Ramsar sites in 2012 has provided an opportunity for the extension of the protected area network to include wetlands in communal areas such as the Driefontein Grasslands near Chivhu, an area of 200,000 ha. Figure 3 shows Zimbabwe's Ramsar sites. Transfrontier conservation areas in Zimbabwe, Important Bird Areas* and biosphere reserves cover protected areas and other land use systems. They provide an opportunity to increase the extent of the protected area network, although their status needs to be closely monitored and reported, and a process of gazetting some of them may be necessary.

4.4.3. Agricultural biodiversity

Agricultural biodiversity, also known as agro-biodiversity (see Glossary), comprises the diversity of genetic resources (varieties, breeds) and species used for food, fodder, fibre, fuel and pharmaceuticals. It also includes the diversity of non-harvested species that support production (soil micro-organisms, predators, pollinators), and those in the wider environment that support agro-ecosystems (agricultural, pastoral, forest and aquatic) as well as the diversity of the agro-ecosystems" (FAO 1999). Agro-biodiversity is the result of natural selection processes and the careful selection and inventive developments of farmers, herders and fishers over time (FAO 1999) as well as cultural and local knowledge of diversity. It is a vital sub-set of biodiversity. Many people's food and livelihood security depend on the sustained management of various biological resources that are important for food and agriculture.

Agro-biodiversity has become of great importance to Zimbabwe and globally as an adaptation strategy in the face of climate change. Thus for rural communities the conservation of the local landraces, which have adapted to and do well in harsh and marginal conditions, is important for food security. Maintaining agro-biodiversity is a way of enhancing resilience. Women are particularly dependent on these local crop varieties. Local knowledge and culture are closely linked to the conservation of agro biodiversity.

Figure 3: Zimbabwe's Ramsar sites



Ramsar site	Area (ha)	Ramsar criteria
Mana Pools	220,400	2, 3, 4
Monavale Vlei	594	2, 4
Cleveland Dam	2,500	2, 3, 4
Driefontein Grasslands	20,000	2
Lake Chivero & Manyame	29,260	2
Chinhoyi Caves	8	1
Victoria Falls National Park	2,340	2

Source: Environment Management Agency

ZimAsset prioritizes "food security and nutrition" as one of its key clusters. The draft National Agricultural Policy Framework (2012-2032) has as some of its policy goals the promotion of high-yielding, drought-tolerant varieties and research on high-value crops such as small grains and tubers, as well as preservation and improvement of indigenous breeds. Given this policy thrust, conservation of agro-biodiversity is relevant and important for the country's food security and achievement of the first of the UN Millennium Development Goals – eradication of extreme poverty and hunger.

Current information on the status of agro-biodiversity in the country is based on 2010 data from the State of Environment Report. It includes both indigenous and exotic breeds. Introduction and promotion of high-yielding exotic breeds have led to genetic contamination of the adapted indigenous breeds. Livestock distribution is biased towards smallholder farmers, with the sector having 68% of Zimbabwe's cattle population, 99% of the goats, 84% of the sheep, 60% of the pigs and almost 100 % of the donkey population.

Community-based management of both animal and plant genetic resources should be encouraged and supported for food security and conservation. Aspects for consideration are protection of farmers' rights, of indigenous knowledge and of genetic resources from bio-piracy. A major limitation in animal genetic resource conservation is the lack of an information management system for breed conservation and use. There is a need for developing such a system to collect, process, store and disseminate all information on breed conservation and their uses.

* Important Bird Areas are globally important habitats for the conservation of bird populations. BirdLife International has identified about 10,000 such areas worldwide.

4.5. Uses of biodiversity

In Zimbabwe, terrestrial and freshwater ecosystems and their associated species are used for commercial, semi-commercial and subsistence purposes in the formal and informal sectors.

Commercial uses of ecosystems and associated biodiversity are hunting, fishing, forest timber harvesting, ecotourism and harvesting of non-timber forest products. These activities are regulated through the issuing of licenses and permits, but the effectiveness of monitoring what is actually harvested is not satisfactory. Commercial use of biodiversity in the country provides employment and income for communities and private sector and state agencies. Table 3 gives a summary of the value of commercial use of ecosystems.

Semi-commercial uses of biodiversity include the harvesting for selling of non-timber forest products such as mushrooms and edible fruits such as masau (*Ziziphus mauritiana)*. Harvesting of wild vegetables has increased as interest in traditional foods as an alternative and healthier lifestyle has grown. An estimated gross value from harvesting of natural products in Zimbabwe is US$110 million a year (Willis 2012). Natural resource harvesting is a significant component of rural livelihood strategies in both communal and resettled areas given the low prices of agricultural products, unreliable rainfall and unemployment. The Forestry Commission, rural district councils and the EMA issue permits for collecting resources. This, however, does not ensure sustainability. The collection of natural products and other resources usually benefits individuals rather than local communities.

A wide variety of resources are harvested for food and subsistence incomes, including different food types (plants and animals), materials for craft production, building materials, fuel and medicinal plants. A major constraint in recent years has been lack of research and monitoring of resources and resource use at subsistence level and assessment of sustainability of the ecosystems.

Informal resource use is an important aspect of the livelihood strategy of many poor rural communities. Wood, reeds and thatch are widely used for housing and shelter of livestock, and many species of plants are collected for food and medicines, while "bushmeat", birds and insects also help rural communities meet their nutritional requirements. Wetlands also play an important role in livelihood strategies of rural communities, as land for cultivation, winter grazing and harvesting resources such as reeds, thatch and fish.

Firewood is the primary source of energy for heating and cooking in Zimbabwe. Increased tobacco production in the communal and resettled areas has increased the demand for firewood. The total value of the services and goods from terrestrial and freshwater ecosystems in the informal and subsistence use has not been quantified. Estimates have been provided in terms of the value of firewood used in tobacco curing.

Table 3: Monetary value of commercial use of ecosystems

USE	ECOSYSTEM	VALUE*
Safari hunting	Terrestrial (parks and forestry estates and communal areas)	US$45 million
Kapenta fishing	Freshwater (Kariba)	US$13 million
Crocodile farming	Freshwater	US$25 million
Bream/other fishing	Freshwater	US$30.8 million
Forest timber harvesting	Terrestrial (gazetted forests & communal areas)	US$2.1 million
Ecotourism	Terrestrial and freshwater,	US$336 million
Non-timber forest products, including honey	Terrestrial (forests and woodlands)	
Carbon sequestration	Terrestrial (communal land forests and woodlands)	US$30 million per annum (Kariba REDD+)

* 2012 or nearest available value

Compiled from Madzara (2013) and Gotora (2013)

Table 4: Threats to biodiversity and underlying causes

CRITICAL THREAT	UNDERLYING CAUSES	IMPACT
Land use changes	Expansion of urban centres; mining and infrastructure development; agriculture expansion; illegal settlements; encroachment	Habitat fragmentation, habitat loss, reduced ecosystem services and declining human well-being
Habitat loss	Mainly conversion to agriculture; Expansion of urban settlements; Unsustainable land management resulting in land degradation; Uncontrolled wild fires; water abstraction and pollution; Increased prospecting and mining activities; Deforestation	Biodiversity loss, increased conflict between humans and wildlife
Climate change impacts	Mainly changes in temperature and rainfall; Increased flooding and droughts, resulting in changes in species composition, ranges, densities and growth rates; Increased species migration; increased frequency and intensity of forest fires resulting in loss of vegetation cover and biodiversity; Increased reliance on natural resources (trees and forests) for livelihoods, resulting in overexploitation; Decreasing water availability and quality	Extinction of threatened species; Increased vulnerability for species, with low productivity and population numbers; Restricted and patchy habitats; Limited ecosystem ranges
Pollution	Urban expansion; mining; energy generation; transport; fires; unsustainable land management practices; industrialization (especially by small to medium enterprises); limited solid waste management strategies	Contributes to carbon emissions, habitat loss, reduced access to clean water and sanitation, eradication of ecosystems (esp. freshwater – wetlands and rivers)
Invasive alien species	Exacerbated by lack of proper framework on regulation, enforcement and control or eradication	Loss of indigenous biodiversity, resulting in species losses and ecosystem breakdowns
Unsustainable exploitation of natural resources	Severe over-exploitation, involving excessive tree cutting for tobacco curing and commercial firewood; Growing market for firewood in urban centres due to limited grid electricity accessibility and other economic challenges; Limited access and benefit sharing for local communities' results in poaching; Unfavorable agriculture outputs and market prices, resulting in more people unsustainably harvesting natural resources as an alternative income source; Large-scale ivory poaching	Deforestation causing land degradation; Reduced ecosystems services to local communities; Increase in uncontrolled fires, resulting in biodiversity loss; International restrictions on consumptive use of flora and fauna and restrictions of trade; Lack of information and appreciation of sustainable use programmes and inaccessibility of information

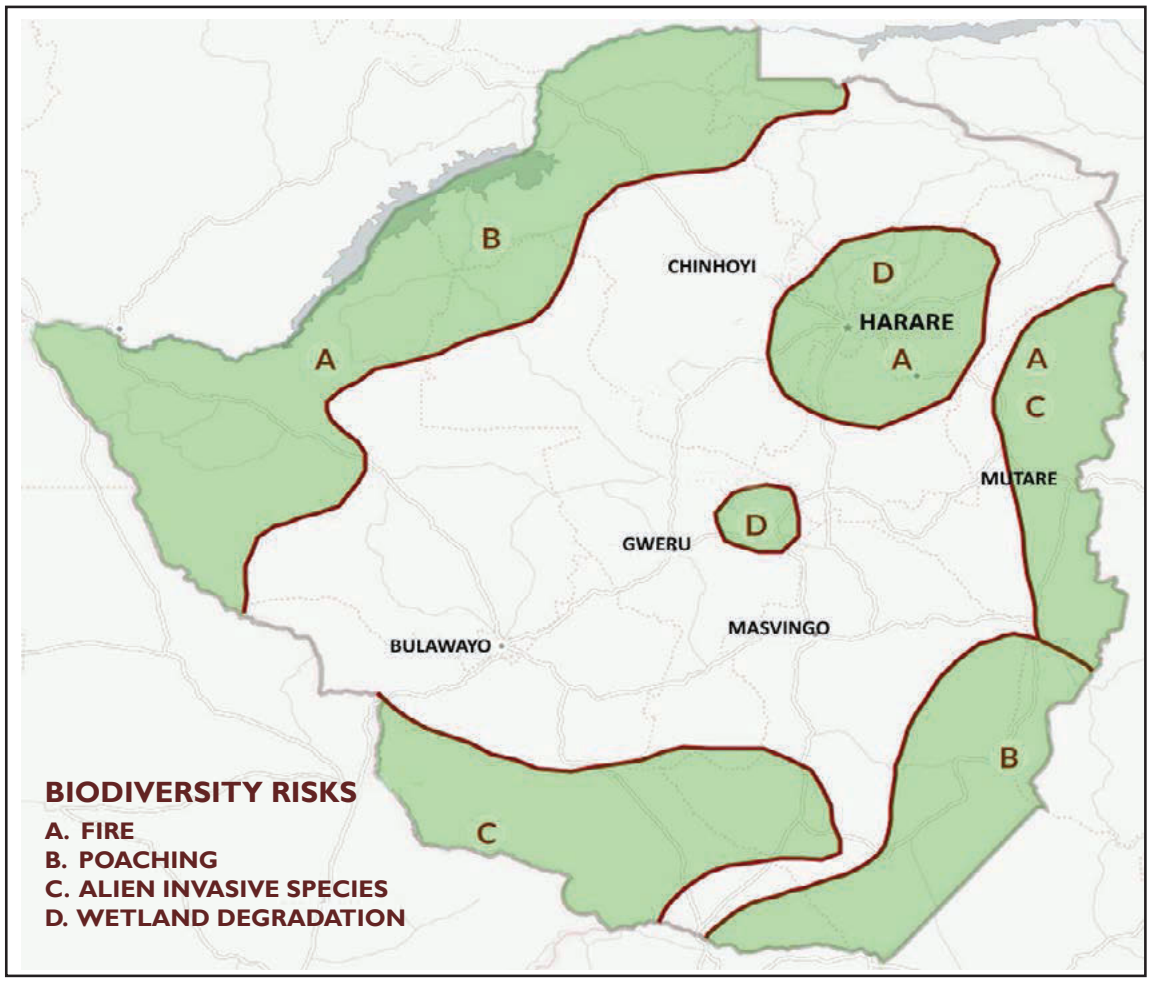
4.6. Main threats to biodiversity

Many and varied threats to biodiversity in Zimbabwe were identified during the development process of NBSAP 2 through literature reviews and stakeholder meetings and workshops. Critical threats to biodiversity conservation and sustainable use and the underlying causes are shown in Table 4. The areas where biodiversity and the associated ecosystem services losses are most prominent in the country are shown in Figure 4.

4.7. Summary of NBSAP 2 priorities

Priorities for the strategy and action plan were identified in accordance with the issues raised in the preceding sections, as well as in stakeholder consultations, and were used in structuring the strategic objectives and targets. The 10 high-priority biodiversity issues listed below are elaborated in the following sections:

Figure 4: Areas of prominent biodiversity and ecosystem loss in Zimbabwe



Source: Pulse Lab and NBSAP validation workshop of the Ministry of Environment, Water and Climate

Priority biodiversity issues identified for NBSAP2

- Land use and land use systems
- Biodiversity and business
- Poor coordination in policy implementation
- Mainstreaming biodiversity into planning processes
- Innovative biodiversity financing
- Alternative renewable energy solutions
- Baseline information for NBSAP 2 implementation, monitoring, evaluation and reporting
- Communication, education and awareness of biodiversity for all stakeholders
- Strategic environmental assessments and a stronger framework for environmental impact assessments framework for key sectors impacting on biodiversity
- Integrated water management

4.7.1. Land use and land use systems

Land use greatly affects biodiversity management across the different land use systems. The major land use systems in Zimbabwe are protected areas consisting of national parks and gazetted forest areas and grazing, cropping and settlement areas. The following shortcomings in the current land use systems and their composition identified by stakeholders in the NBSAP consultations: resource tenure resides with local authorities and not communal institutions; land rights are limited to

user rights; land use planning does not involve stakeholders such as local communities; and the implementation of land use plans is uncoordinated. Changes in land use mainly due to the fast-track land reform programme are one of the major causes of biodiversity loss.

4.7.2. Biodiversity and business

There are a number of businesses around biodiversity – hunting and photographic safaris, non-timber forestry products cottage industries (such as harvesting of honey and mopane worms and making fruit jams) and curios. Tourism contributes 6.5% of the GDP. Zimbabwe is renowned for the sustainable use and incentive-based approach to natural resources through CAMPFIRE. Some REDD+ activities have been initiated in Mbire, Nyami Nyami, Hurungwe and Binga districts in the Kariba area. Furthermore, Zimbabwe subscribes to a statutory instrument on access benefit sharing, intellectual property rights and Payment for Ecosystem Services (SI 61 of 2009). However, challenges exist in the form of low CAMPFIRE revenues largely from wildlife hunting, lack of awareness of the provisions of SI 61, limited win-win business partnerships and lack of enabling conditions for implementing REDD+. The value of biodiversity and its contribution to the economy need to be enhanced through sustainable use and equitable benefit sharing. In the absence of economic valuations of biodiversity and its associated ecosystems, there is limited appreciation of biodiversity and its linkages with business and the economy.

4.7.3. Poor coordination of policy implementation

Poor coordination of policy implementation and enforcement among sector agencies is stifling progress and creating conflicts in biodiversity management in spite of the comprehensive policies and legislation on the environment. Implementation of legislation is along sectoral lines and enforcement is generally poor. Furthermore, the responsible sector ministries are not obliged to consult all the interested or affected stakeholders. For example, the Mines and Minerals Act [Chap. 21:05] compels developers to consult the Zimbabwe National Water Authority and local government but not the EMA before it issues operating permits. Other laws that govern biodiversity use have not been updated to be aligned with requirements of the Environmental Management Act [Chap. 20:27]. This causes loss of biodiversity on the ground.

4.7.4. Mainstreaming biodiversity into planning processes

Biodiversity is an integral component of Zimbabwe's national development agenda. It should therefore be mainstreamed into all aspects of development planning at national, sectoral and community levels.

Biodiversity planning is provided for in existing legislation through the local government structure, from ward level upwards through local and provincial authorities to the Ministry of Economic Planning. Appropriate structures exist at the various planning levels, such as the environmental and wildlife monitors at ward level, district environmental committees, provincial councils, the value-addition and beneficiation cluster of ZimAsset and Chap. 4 Section 73 of the Bill of Rights of the Constitution, which enshrines the sustainability of the environment.

In the approach to planning at all levels of government, biodiversity is not considered a priority compared to the competing needs of food security, health, education and housing. The official mindset is focused on economic growth and neglects the social and environmental dimensions of sustainable development. Mainstreaming of biodiversity across all sectors of government and society is important for its conservation.

Economic growth driven by productive sectors is considered a priority since the true value of biodiversity is not known. There is a need to make a business case for biodiversity through ecosystem valuations and adopting an ecosystems approach in biodiversity planning as well finding innovative financing sources for biodiversity.

4.7.5. Innovative approaches to biodiversity financing

Key sources of funding for biodiversity conservation are investments by government conservation agencies, such as the Parks and Wildlife Management Authority, the EMA and the Forestry

Commission, CAMPFIRE districts and communities, and their partners in the private, NGO and donor sectors. These entities invested US$51 million in biodiversity management in 2012 – US$31 directly in protected area management and US$20 million to fight foot-and-mouth disease (Madzara 2013). Funding levels are still low in relation to the existing needs. There is no coordination of biodiversity funding, capacity for revenue collection is limited and inconsistent, and the contribution of the private sector is not formalized. Biodiversity should be mainstreamed into fiscal budget allocations and local funding sources optimized. A study should be made of income from the different sources, its destination and the funding potential of each source. Economic valuation of biodiversity and ecosystems should be used to establish a business case for biodiversity funding and a funding strategy developed for each funding source, with clear targets and marketing strategies underpinned by the business case, with a provision for monitoring.

4.7.6. Alternative renewable energy solutions

Wood energy is a major driver of deforestation in Zimbabwe. Fuelwood provides 60% of the total energy supply. Annual fuelwood consumption in Zimbabwe is estimated at 8.54 million cubic metres (FAO 2011). Major uses of fuelwood are cooking and heating in households, brick making and tobacco curing. Energy-saving technologies for improved fuelwood efficiency and alternative energy sources such as solar panels and localized mini hydro power stations should be promoted. Research and development are crucial for the development of such alternative energy sources.

4.7.7. Baseline information for NBSAP 2 implementation, monitoring, evaluation and reporting

National biodiversity strategy and action plans generally suffer from lack of baselines for monitoring progress in their implementation. Significant information gaps exist in Zimbabwe, making it difficult to establish baselines. Part of the monitoring framework and implementation plan of Zimbabwe's NBSAP will be to establish baselines for the identified areas to ensure effective monitoring and reporting on progress.

4.7.8. Communication, education and awareness on biodiversity for all stakeholders

Effective communication of biodiversity messages in a concise, understandable manner remains a major challenge among stakeholders such as communities, policy makers and the implementing and affected sectors. It is therefore critical that good biodiversity stewardship is nurtured during the life of the NBSAP through communication, education and awareness. This should be underpinned by a clear communication strategy that speaks to each of the prioritized biodiversity issues. Development and utilization of the national "clearing house mechanism for biodiversity" facility will enhance communication and awareness. The clearing house mechanism (CHM) is website with a network of government and partner organizations facilitating scientific and technical cooperation through information exchange. The CHM is a platform for sharing information but stakeholder institutions remain repositories of their own biodiversity data. Table 5 shows key audiences identified for communicating biodiversity messages during the implementation of the NBSAP.

4.7.9. Strategic environmental assessments and environmental impact assessments

Strategic environmental assessments (SEAs)* and environmental impact assessments (EIAs) are powerful tools for safeguarding Zimbabwe's rich biodiversity. SEAs are a tool for incorporating environmental considerations into policies, plans, and programmes at the earliest stages of decision making. They also involve sustainability assessments that take into account not only the environmental effects of policies, plans, and programmes but also their social and economic effects on current and future generations (Therivel *et al* 2013). Enforcement of EIA recommendations and mitigation measures should be strengthened.

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* Strategic environmental assessments are defined as "the formalized, systematic, and comprehensive process of evaluating the environmental effects of a policy, plan, or programme and its alternatives, including the preparation of a written report on the findings of that evaluation, and using the findings in a publicly accountable decision-making" (Thérivel et al 2013:19).

Table: 5: Audience analysis and key messages for communicating biodiversity

STAKEHOLDERS	STAKEHOLDER CHARACTERISTIC	STAKEHOLDER NEEDS/PROBLEMS	KEY MESSAGES	MEDIA	FEEDBACK MECHANISM
Government ministries and agencies	Policy direction; they make decisions.	Factual information Policy briefs; reports	Trends in biodiversity; key biodiversity areas; information on ecosystems	Policy briefs and position papers; workshops; meetings	Policy review, development and implementation
Farmers	Crop and livestock production, involved in conservation; they depend on biodiversity for their livelihoods.	To now threats to biodiversity and benefits. Information of future biodiversity focus; information on sustainable utilization Recognition of IK Clean, safe and healthy environment	Linkages between biodiversity and livelihoods; information on opportunities for biodiversity conservation	Field days; drama radio; television, extension services; farmer field schools	Success stories; best practices; field days
Civil society organizations	Projects implementation; capacity building; leveraging resources.	Commitment from government Accountability and transparency	Information on challenges and opportunities for biodiversity; threats and trends to biodiversity;	Workshops; symposiums; online platforms; websites;	E-mails; press statements; lobbying and advocacy
Local communities	Crop and livestock production, involved in conservation; they depend on biodiversity for their livelihoods.	To know threats to biodiversity and benefits. Information of future biodiversity focus; information on sustainable utilization Support and recognition, especially recognition of IKS	Linkages between biodiversity and livelihoods; information on opportunities for biodiversity conservation	Field days; live theatre; radio and television; extension services; farmer field schools	Success stories; best practices; behavior change
Urban communities	They have access to information.	Information on biodiversity; awareness of policy and legislation. Clean, safe and healthy environment	Importance of biodiversity to health; importance of ecosystem services	Social media (like Facebook), print and electronic media	Suggestion boxes; walk-in; email; websites
Industry	Diverse group with capacity; business minded.	Profits, raw materials, sustainability and markets	Linkages between biodiversity and their industries; cleaner production technologies; to know impact of their activities on biodiversity; corporate social responsibility; potential for restoration of degraded biodiversity areas	Workshops; radio and television; conferences; meetings	Investment in cleaner technologies; investment in biodiversity

Table: 5. Audience analysis and key messages for communicating biodiversity (cont.)

STAKEHOLDERS	STAKEHOLDER CHARACTERISTICS	STAKEHOLDER NEEDS/PROBLEMS	KEY MESSAGES	MEDIA	FEEDBACK MECHANISM
International bodies and conventions	International in nature; platforms for government discussions/debate	Need to harmonize environmental and related conventions;	Information on the status of biodiversity; strategies or management plans; trans-boundary issues; national frameworks	Websites; e-mails; conferences; visits for assessments	Project reports; convention reports
Academic and research institutions	Involved in research and academics; skills development	Need support and scientific, timely information	Potential areas for research	Journals, websites and books	Publications; symposia
Schools	Education; skills development; willingness to learn	EE biodiversity related	Integrate biodiversity issues across the curricula; Use environment as a teaching and learning resource	Print media and websites	Projects; exhibitions; interviews; school visits; quizzes; debates
Local authorities	Make by-laws and providing services	Capacity to implement biodiversity projects; biodiversity Information	Sustainable environmental management; Value of biodiversity	Reports; minutes	Meetings
Traditional and religious leaders	Custodians of biodiversity and natural resources	Integration of biodiversity information with indigenous knowledge systems (IKS); Conflicting information	Importance of biodiversity; Biodiversity linkage with IKS	Song and live theatre; meetings	Meetings
Mining firms	Destroy biodiversity during extraction	Biodiversity information; Environmental management techniques; Rehabilitation skills	Importance of environmental conservation; Importance and value of biodiversity	Workshops; media	Workshops; training sessions

4.7.10. Integrated water resources management

Pollution from urban and mining areas adversely affects water bodies and their biodiversity, as well as human well-being. Remedial actions should be included in framework of the NBSAP, notably for integrated water basin management. The functions of water catchment councils and their outline plans for each river system provide an important opportunity for an integrated approach to ecosystems management. Conflict does exist, however, between the catchment councils, local authorities, traditional leaders and resettled farmers in terms of water allocation, because each group claims greater responsibility and rights to water allocation at the local level (Dzingirai and Maturure 2008). Issues of water resource management are related to land use rights and land use changes.

5. National biodiversity strategy

5.1. Strategy vision and mission

The vision for the strategy is "a Zimbabwe with resilient ecosystems and biodiversity values for social, political and economic development". The mission is "*to utilize traditional knowledge, research, technology, innovations and best practices to protect the environment, conserve and sustainably use biodiversity and ecosystems to benefit present and future generations*".

5.2. Principles underpinning the strategy

The formulation of NBSAP 2 was guided by the UNCBD, the UNCBD Strategic Plan (2011-2020) and the Aichi Biodiversity Targets, the Constitution of Zimbabwe, the National Environmental Policy (2009) and the three national studies. NBSAP 2 will be implemented in line with the following principles, mainly derived from these documents:

- Mainstreaming of biodiversity conservation, sustainable use of biological resources and equitable sharing of benefits from biological resources into existing policy, legislative, institutional and development frameworks as appropriate
- Participatory approach to the development, implementation, monitoring, evaluation and reporting of NBSAP 2
- Communication, education and awareness training on the importance of biodiversity and ecosystems at community, local authority, regional and national levels for effective participation, implementation and monitoring of biodiversity conservation measures (as outlined in the communication, education and public awareness strategy)
- Economic valuations of ecosystems and associated biodiversity incorporated in the implementation of the strategy and action plan
- Identification and implementation of alternative financing mechanisms through multi-sector and stakeholder involvement in biodiversity conservation
- Recognition and incorporation of traditional and indigenous knowledge of biological resources and sustainable resource management, as well as access and benefit sharing for communities
- Integrated and coordinated implementation, monitoring and reporting of multilateral environmental agreements
- Equal consideration of the three objectives of the UNCBD, namely conservation, sustainable use and benefit sharing arising from the use of biological resources

5.3. Time frame

The study on advances in sectoral mainstreaming identified short-term sectoral planning and management as factors contributing to challenges in the attainment of conservation and sustainable use of biodiversity. There is a need to move to a more systematic, integrated and long-term planning approach. The strategy addresses this by following a 10-year planning time frame (2011-2020) and using the ecosystems approach. Given this long-term perspective, priority will be given to key biodiversity

areas and pressing issues. Progress will be reviewed every five years against the targets of the strategy. Priorities and responses will be adapted as necessary, based on available monitoring information.

5.4 Strategic objectives

- To address the priorities identified in the preceding sections, the following five strategic objectives were identified
- Address the underlying causes of biodiversity loss by mainstreaming biodiversity across government and society
- Reduce the direct pressures on biodiversity and promote sustainable use
- Improve the status of biodiversity by safeguarding ecosystems, species and genetic diversity
- Enhance the benefits to all from biodiversity and ecosystem services
- Enhance implementation through participatory planning, knowledge management and capacity building

5.5. Detailed description of each strategic objective

For each strategic objective, a set of strategies, targets and actions was developed. The strategies and targets are outlined in the following sections. The actions are provided in the action plan.

5.5.1. Objective 1: Address the underlying causes of biodiversity loss by mainstreaming biodiversity across government and society

An assessment conducted by the International Institute for Environment and Development in 2002, on the implementation of first-generation NBSAPs identified the need for mainstreaming biodiversity as a critical factor in reducing biodiversity loss and achieving set targets (Swiderska 2002). In line with the emphasis on mainstreaming in the CBD guiding documents, Zimbabwe commissioned a study on advances in sectoral and cross-sectoral mainstreaming as part of the NBSAP 2 development process. Sectors identified as having an impact on biodiversity were mining, industry, transport, agriculture, energy and tourism. The need to mainstream biodiversity across government and society was identified as a priority area in the NBSAP 2 consultative process. For effective mainstreaming of biodiversity and addressing the underlying causes of biodiversity loss, key elements are necessary in NBSAP 2. They are the economic valuation of biodiversity and ecosystems services for integration of biodiversity in national and sectoral planning, budgeting and decision making; effective and coordinated communication, education and public awareness on biodiversity issues for all stakeholders; identification, development and implementation of economic incentives to promote conservation and sustainable use of biodiversity; and identification of entry points for biodiversity mainstreaming at national and sectoral level. The following strategies will be used to address this objective:

- Develop and implement a comprehensive communication, education and public awareness (CEPA) strategy on the conservation and sustainable use of biodiversity
- Develop a biodiversity policy that will be mainstreamed into all sectors and incorporated into the national accounting and reporting system
- Use biodiversity and ecosystems services valuation tools to quantify the economic, social and ecological values

The following targets have been developed to assist in the implementation of the strategies:

Target 1: By 2020, at least 75% of the population is aware of the values of biodiversity and the steps they can take to conserve and use it sustainably.

Target 2: By 2020, biodiversity is mainstreamed into all seven sectors (mining, agriculture, health, manufacturing, transport, and education) and incorporated into national accounting and reporting systems.

5.5.2. Objective 2: Reduce the direct pressures on biodiversity and promote sustainable use

Direct pressures on biodiversity identified during the consultative process are human induced. They are linked either to existing policies or their lack. Some of the pressures identified are unplanned land use changes, industry and urban expansion. To reduce the direct pressure on biodiversity and promote sustainable use, some of the key aspects that need to be considered are: improved coordination in implementation and enforcement of legislative provisions; the development and implementation of cleaner, affordable alternative technologies; and developing an approach to planning over a long time frame. Other issues recommended for consideration are: establishing stronger links between biodiversity, business and industry; assessment of likely impacts of policies and legislation on biodiversity and human well-being; and a coordinated framework for land use planning and implementation.

The following strategies will be used to address this objective:

- Strengthen institutional capacity for implementation of biodiversity and ecosystems conservation
- Promote sustainable land use
- Promote and lobby for development of renewable energy and energy-saving alternatives
- Adopt integrated ecosystems management
- Prevent pollution of ecosystems
- Adopt disaster risk reduction approaches

Target 3: By 2020, reduce the rate of loss of natural habitats including forests by at least 50%.

Target 4: By 2020, ecosystem-based approaches to aquatic resources management are being applied on Lake Kariba and other water bodies so as to avoid overfishing, enable the recovery of fish stocks, and reduce loss of indigenous species.

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Target 5: By 2020, 60% of areas under agriculture, aquaculture and forestry are managed sustainably, ensuring conservation of biodiversity and sustainable land use

Target 6: By 2020, integrated pollution prevention and control strategies are in place to reduce detrimental effects to ecosystem functioning and biodiversity

Target 7: By 2020, the threats to biodiversity from Invasive alien species have been assessed, and measures put in place to control and manage their impact

Target 8: By 2020, adaptation and mitigation strategies are implemented to reduce the impact of climate change on vulnerable ecosystems and communities.

5.5.3. Objective 3: Improve the status of biodiversity by safeguarding ecosystems, species and genetic diversity

The major threats to ecosystems, species and genetic diversity in Zimbabwe are land use and land use changes and their associated drivers. To ensure that ecosystems, species and genetic diversity are safeguarded, the following key elements should be considered: increased awareness and appreciation of the contribution of biodiversity and associated ecosystems to people's livelihoods and the national economy; improved coordination of policies and activities of organizations with a biodiversity conservation mandate; establishment of baselines for monitoring and reporting on key ecosystems; and full stakeholder participation and a spatial planning framework.

The following strategies will be used to address this objective:

- Use an adaptive ecosystems management approach such as trans-frontier conservation areas, which encourage private and public participation
- Integrate the implementation of conventions such as the Ramsar Convention and the UN Framework Convention on Climate Change
- Identify threatened species and institute mechanisms to protect them
- Use ex-situ and in-situ conservation
- Incorporate private, public and community participation
- Safeguard genetic diversity

Target 9: By 2020, at least 28% of Zimbabwe's terrestrial and inland water under protection, is maintained and conserved, and protected area connectivity enhanced through integrated resource management.

Target 10: By 2020 the loss of known threatened species has been prevented and their conservation status, particularly of those most in decline, has been improved and sustained.

Target 11: By 2020, develop and implement strategies to conserve and maintain cultivated, farmed and domesticated genetic resources and their wild relatives, including other socio-economically and culturally valuable species.

5.5.4. Objective 4: Enhance the benefits to all from biodiversityand ecosystem services

Zimbabwe is renowned for its participatory approaches to conservation through CAMPFIRE, which has, however, seen its performance decline for various reasons. Some of the threats facing biodiversity in Zimbabwe, such as unsustainable harvesting, habitat destruction and wild fires are linked to reduced benefits from biodiversity – actual and perceived – for local and other stakeholders. The priority area of considering biodiversity as a business that provides incentives for communities is directly related to this strategic objective. Key elements to consider in its implementation are unlocking the value of biodiversity for all shareholders, especially communities, and identifying mechanisms for increasing incentives and benefits from biodiversity.

The following strategies will be used to address this objective:

- Improve conservation and management status of ecosystems
- Promote an ecosystems approach to livelihood enhancement
- Strengthen enforcement of laws and policies
- Use gender mainstreaming
- Increase the basket of income-earning opportunities
- Enhance ecosystem resilience
- Adoption and implementation by the government of the Nagoya Protocol*

5.5.5. Objective 5: Enhance implementation through participatory planning, knowledge management and capacity building

A key lesson from NBSAP 1 was the lost momentum in the implementation stage due to inadequate coordination and resources. A key priority area for NBSAP 2 is the communication of the NBSAP, capacity building, knowledge management and financial resource mobilization for implementation of the strategy and action plan. Some of the key elements that need to be considered to address these priorities are:

* The Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits arising from their Utilization is a supplementary agreement to the Convention on Biological Diversity. It was adopted in Ngoya, Japan, in October 2010.

Target 12: By 2020, implement policies and strategies to maintain and restore ecosystem integrity, and reduce ecosystems degradation to enhance the livelihoods and well-being of all Zimbabweans, especially those of women, indigenous and local communities, and the poor and vulnerable.

Target 13: By 2020, combat desertification, and enhance ecosystem resilience through conservation and restoration of degraded ecosystems.

Target 14: By 2015, accede and domesticate the Nagoya Protocol on access to genetic resources and the fair and equitable sharing of benefits arising from their utilization.

- Sharing, transferring and applying knowledge and improved technology among stakeholders;
- Mobilizing sustainable financial resources
- Improved participation through stakeholder ownership of NBSAP 2
- Improved communication, education and awareness on biodiversity and ecosystems services

The following strategies will be used to address this objective:

- Lobby for adoption of the NBSAP as policy instrument
- Empower local communities to develop and implement local environment action plans
- Acknowledge and incorporate IKS
- Use enabling provisions in the current science, technology and innovation policy
- Promote payments for ecosystems services
- Review the scale of fines for environmental infringements
- Biodiversity to benefit from Environment Fund
- Undertake a valuation of ecosystems to make a business case for biodiversity

Target 15: By 2015, NBSAP updated and adopted as a policy instrument, and implementation has commenced.

Target 16: By 2020, the traditional knowledge, innovations and practices of local communities relevant for the conservation and sustainable use of biodiversity, and their customary use of biological resources, are respected and integrated and reflected in the implementation of the NBSAP with the full and effective participation of local communities, at all relevant levels

Target 17: By 2020, science, technology and innovation relating to biodiversity, its values, functioning, status and trends and the consequences of its loss, are strengthened, improved, widely shared, transferred, and applied.

Target 18: By 2020, mechanisms for resource mobilization and accounting are established and financial resources from national budgets and other sources for the implementation of the NBSAP increased from current levels.

6. Monitoring, evaluation and reporting

Tracking the progress and achievement of set objectives in the NBSAP is important for its implementation and relevance as well as in helping to address any oversights. To assist in the monitoring, Zimbabwe developed a monitoring framework (Appendix 2) as part of the NBSAP. Stakeholders agreed on 18 national targets aligned to the Aichi Biodiversity Targets (See Sections 5.51-5.5.5.). Indicators, baselines, milestones and responsible stakeholders were identified. The baselines in the framework will be established and reviewed in the first year of implementation as input from the baseline data gathering planned in the action plan.

The MEWC will be the lead agency in coordinating monitoring, evaluating and reporting on progress

through the Biodiversity Office. Review platforms for progress on implementation will be established at national, provincial and district levels on an annual basis. The informal structures set up during the development of NBSAP 2, such as the thematic working groups and the Biodiversity Forum, will continue to provide input in monitoring, evaluation and reporting on progress to ensure continued ownership and interest in the NBSAP. The inputs made and challenges encountered on implementation will be made available on the clearing house mechanism website and published every four years in line with the CBD requirements for national reports. Annual reports on progress against set targets will be produced and presented to the parliamentary portfolio committee on mines, energy, environment and natural resources and other relevant committees as well as the NBSAP review platforms. They will be supported by case studies. The Biodiversity Office will establish coordinating mechanisms for a biodiversity information management system with databases in agencies such as the National Herbarium. An independent mid-term review will be conducted in 2017 and a final review in 2020 at the end of the implementation time frame covering ecological, social and economic impacts of the implementation.

7. Implementation framework

The success of the NBSAP requires a clear implementation framework. This includes the institutional framework, coordination, overarching strategies during implementation, and the financing plan. These aspects are considered in the following sections.

7.1. Institutional framework

The MEWC is the lead and coordinating agency for the implementation of NBSAP 2. The ministry will, however, depend on various stakeholders for the actual implementation. Strategic guidance will be provided by an inter-ministerial committee and the Biodiversity Forum as the national steering committee. The Biodiversity Office will take the lead in coordinating and monitoring progress. Existing institutional structures being used by the EMA at provincial, district and ward level will be used. A biodiversity focal point at district level will be identified to ensure that biodiversity gets the appropriate consideration. Figure 5 shows the proposed institutional framework.

7.2. Coordination

The Biodiversity Office is responsible for ensuring that NBSAP 2 is implemented as planned. There is a need for the Biodiversity Office to be integrated into the MEWC so that it receives support from the fiscus as it is currently an externally funded project. It will act as the secretariat to the Biodiversity Forum and provide oversight on implementation, coordination, monitoring and reporting on progress, which need to be closely linked to other multilateral environmental agreements that are coordinated under the MEWC. They include the Convention on International Trade in Endangered Species (CITES) under Parks and Wildlife Management Authority, Ramsar Convention and UNCCD under EMA, and UNFCCC under the MEWC.

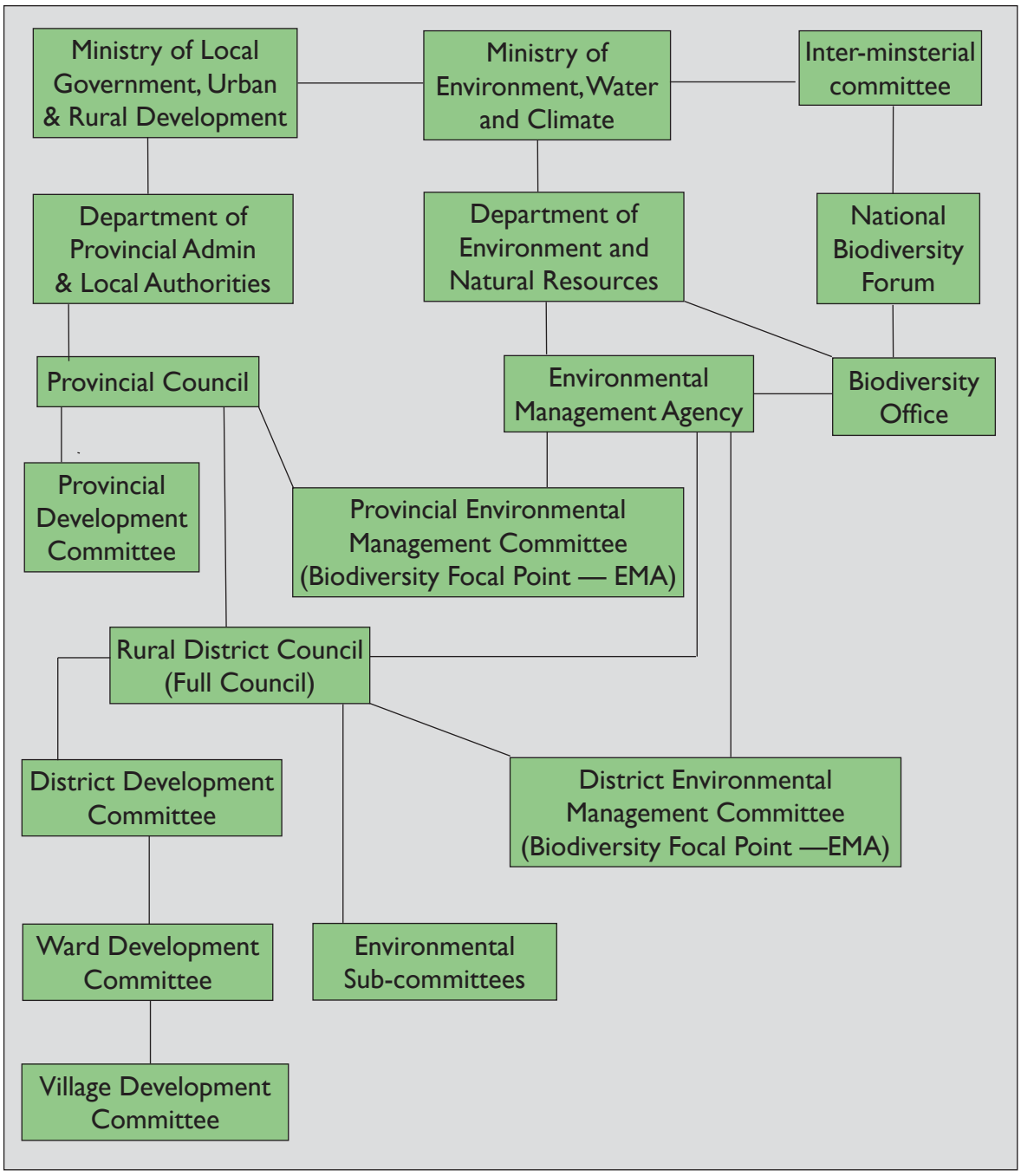
7.3. Strategies for implementation

For effective implementation of the NBSAP, overarching strategies to be applied across all the strategic objectives are mainstreaming of biodiversity, communication, education and awareness, capacity building, research and development, and technology transfer. Each of the overarching strategies is expounded upon in the following section.

7.3.1. Mainstreaming of biodiversity

The key overarching strategy is mainstreaming and its associated components: evaluations of biodiversity and ecosystems; CEPA; and wide stakeholder participation and advocacy. Mainstreaming of biodiversity (see Glossary) is a key theme in the CBD Strategic Plan 2010-2020.

Figure 5: Institutional framework for NBSAP 2 implementation



Justification for mainstreaming

There is a close link between the economic growth and development and the conservation of biodiversity and associated ecosystems. Although this interdependence is acknowledged in sectoral and cross-sectoral planning documents, biodiversity has not been significantly mainstreamed in government, the private sector and society for its conservation and sustainable use.

To effectively engage all citizens in biodiversity conservation it is important to demonstrate the values and benefits of biodiversity. Industries with direct positive and negative impacts on biodiversity (such as agriculture, fishing, forestry, mining, energy, construction, manufacturing and tourism) or indirect impacts (such as the financial services sector) need to incorporate biodiversity considerations into their planning and decision-making processes as well as management activities and reporting. Some sectors are already doing so to a limited extent.

Biodiversity mainstreaming involves a change in mindset from the old, isolated approach to a more integrated approach of the whole social ecological and economic systems. For this to take place, Zimbabwean society has to understand and communicate the term biodiversity in an appropriate manner. To ensure that mainstreaming of biodiversity does take place in practice, there is a need to identify current activities that provide entry points for mainstreaming and to build on them to enhance participation. Ideally, participation at local and regional level by industries, local authorities and communities in conservation of biodiversity provides viable mainstreaming opportunities.

Key elements for mainstreaming

The key elements to be mainstreamed are based on the recommendations from the national studies that provided input into the NBSAP development process and stakeholder consultations. They are:

Ecosystems services and importance for human well-being: The linkages between ecosystems services, economic development and human well-being need to be well understood, articulated to key stakeholders and integrated with sectoral and cross-sectoral processes. The associated economic benefits and opportunities from sustainable utilization of biodiversity need to be measured, documented and communicated to policy makers regularly. This will ensure biodiversity conservation and maintenance of ecosystems integrity (functions and processes).

Value addition: Increased beneficiation and appreciation of biodiversity and associated ecosystems services require value addition for natural resources such as wildlife, non-timber forest products, minerals and water, in line with a key focus of ZimAsset.

Broad-based research and technological innovations: Research has in the past focused on key commercial plant and animal species such as commercial timber exotics and mega species like elephant and rhino. Other biodiversity aspects should be researched for a holistic appreciation of the status of species in the country. The environmental challenges that confront the country now and in the future require a concerted effort to come up with innovative technologies and approaches to address the challenges. Academics, practitioners, state organizations, the private sector and communities have to work together to harness the diverse knowledge, expertise, experiences and resources of each sector.

Community empowerment, participation and sharing of benefits: The community-based natural resource management approach implemented through CAMPFIRE, NGO-initiated community trusts, CBOS working with the small grants programme of the Global Environment Fund and community share ownership schemes are all attempts to increase the ownership, responsibilities and benefits of communities from natural resources. These approaches need to be refined and strengthened to ensure long-term sustainability of community based conservation of biodiversity.

Public participation in biodiversity consultative processes: Increased understanding and appreciation of biodiversity and ecosystems require a facilitated process to make them relevant to the everyday realities of Zimbabweans and create an environmentally conscious society that demands environmental accountability from industry and policy makers.

Coordination and harmonization: Zimbabwe is signatory to various multilateral environmental agreements (MEAs) that contribute to biodiversity and ecosystems conservation. To leverage resources, coordination of the implementation and reporting on the agreements is required. Greater appreciation of the linkages between biodiversity and the MEAs will enhance coordination and harmonization of the implementation, monitoring and reporting on the biodiversity status in the country across all MEAs.

Communication and public awareness activities: These will target different stakeholders in order to gain support for mainstreaming as part of a broader NBSAP communication strategy and should deliver clear and convincing messages about the importance of biodiversity to well-functioning economic sectors, livelihoods and national development. Messages should be grounded in solid evidence in the targeted policy areas.

Capacity building for mainstreaming: Mainstreaming biodiversity into the sectoral and cross-sectoral plans and activities requires capacity building among stakeholders for understanding biodiversity, ecosystem services and human well-being as well as the tools, approaches and measures that can be used to integrate biodiversity into sectoral strategies, plans, policies and programmes.

Tools for mainstreaming

There are many tools that can be used for mainstreaming biodiversity. The selection of appropriate tools depends on the targeted sectors, the country context and the approach being used. For Zimbabwe some of the appropriate tools are: CEPA; economic valuations of biodiversity and ecosystem services; the penalties and incentives that are linked to strong law enforcement; use of strategic environmental assessments to determine impact of activities on development and biodiversity; and EIAs that are supported by monitoring of outcomes and implementation of the environmental management plans, especially for mitigation and rehabilitation. For industry the use of standards, codes of conduct, guidelines and good practices are tools that can be used to achieve environmentally and socially sustainable resource management practices. Some of these tools are already in use in Zimbabwe, but they require systematic and coordinated support and engagement with the Biodiversity Office and stakeholders.

The following strategies will be used to address this objective:

- Increase and improve awareness and understanding of biodiversity among policy makers and the public
- Integrate the biodiversity and ecosystems services approach
- Enhance public participation in conservation activities
- Encourage participation by the private and primary industries sector in biodiversity conservation
- Enhance the cross-sectoral integration of biodiversity conservation in public and private sector planning and management
- Use ZimAsset provisions to raise the profile of biodiversity and the concept of ecosystem services in other national, regional and local policies
- Ensure curricula in schools and tertiary institutions promote the understanding of biodiversity and its environmental, economic and social value
- Lobby for biodiversity and ecosystem services to be part of national accounting process
- Increase mobilization of resources for biodiversity conservation and sustainable use

7.3.2. Communication, education and public awareness (CEPA)

Successful implementation of the strategy and action plan requires the cooperation and participation of stakeholders at all levels of society and government. To harness this cooperation and place biodiversity on the agenda of government ministries and departments as well as various segments of society requires a range of communication, education and awareness activities.

Article 13 of the UNCBD encourages parties to promote and encourage understanding and development of CEPA programmes. CEPA is a change process vital for the implementation of the NBSAP. It involves processes that attract, mobilize and motivate individual and collective action on biodiversity. It provides tools to gain the cooperation of different stakeholders and involves action learning and tools for developing capacity to support biodiversity conservation and sustainable use.

Justification for CEPA

Socio-economic development is also dependent on natural resources and biodiversity. The key sectors of ZimAsset, namely agriculture, mining, energy, industry and tourism, depend on and impact biodiversity and associated ecosystems. There is therefore a need for a concerted effort to increase awareness of the importance of biodiversity and its sustainable use across all levels of government and society.

The terms associated with CEPA

C for communicating, connecting, capacity building and change in behaviour.

E for educating and empowerment (learning and professional updating).

P for public, public awareness, public participation and policy instrument.

A for awareness, action and action research. — CBD 2008.

There is limited understanding and appreciation of the value of biodiversity in Zimbabwe. The ecological, social and economic values of biodiversity to society need to be explained and communicated so that policy makers, civil society, industry and the public appreciate the importance of biodiversity to Zimbabweans.

Zimbabwe's environmental legislation, policies and strategies are fairly comprehensive and provide an enabling framework for natural resource conservation and management. CEPA is a tool for establishing enabling conditions for collaboration and coordination so that policies, incentives and regulations across sectors encourage biodiversity conservation and sustainable use.

Key elements for CEPA

Key elements to consider in developing the actions are: stakeholder awareness programmes on biodiversity and its value; awareness of the NBSAP itself; relevant educational programmes; training of personnel from media; extension, research and management across sectors; enhancing access to information on biodiversity; and ensuring adequate funding for implementation of the CEPA action plan through use of networks locally and internationally.

Strategies for CEPA

- Mainstream the NBSAP
- Undertake a comprehensive identification of primary, secondary, tertiary and internal stakeholders
- Conduct a capacity needs assessment for the implementation of the NBSAP
- Define the roles of the coordinator and the Biodiversity Forum and steering committee
- Develop strategies for engaging stakeholders from the grassroots, media and wider society
- Integrate biodiversity with education in primary, secondary and tertiary institutions
- Develop appropriate messages

7.3.3. Capacity building

The preamble of the UNCBD talks of the "urgent need to develop scientific, technical and institutional capacities" in order to be able to "plan and implement appropriate measures" for biodiversity conservation and sustainable use (CBD 2000). Capacity building is the process by which individuals, groups, organizations, institutions and societies increase the abilities, relationships and values that enable them to perform core functions, solve problems and define and achieve development objectives. It involves the strengthening of processes, systems and rules influencing individual and collective behaviour in meeting their development needs and enhancing the technical ability and willingness to take on new roles in adapting to new challenges (UNEP 2002). Capacity building is a pertinent theme that needs to be addressed in the implementation of the NBSAP. It should be considered integral to the implementation plan. An analysis of capacities that are important for biodiversity conservation should be undertaken.

Justification for capacity building

Gaps exist in technical and institutional capacities to undertake effective biodiversity conservation and in economic valuation of biodiversity and associated ecosystems. Carrying out targeted capacity building as part of the NBSAP will address these gaps.

Elements for capacity building

Some important aspects to consider under this theme are capacity and training needs assessments at all levels, formulation of training and curricula that are relevant to Zimbabwe's biodiversity needs at all levels and use of radio programmes for both national and community broadcasting.

Strategies for capacity building

- Strengthen the capacity of people directly responsible for and involved in the management, conservation and use of biodiversity
- Establish networking in and among entities for knowledge, skills and experience sharing

7.3.4. Research and development

Research and development (R&D) involves the discovery of new knowledge about products, processes and services and its application to create new and improved products, processes, and services. In relation to the NBSAP, it addresses the identified needs for human well-being and biodiversity conservation.

A lack of information about biodiversity and ecosystems conservation and management was identified during the development of the NBSAP. The information relates to baselines, status of species, terrestrial and freshwater ecosystems, use of non-timber forest products, the extent, impact and control of invasive alien species, as well ecosystems services and biodiversity valuation. Research is required to address this shortcoming. Innovative approaches to the challenges facing Zimbabwe's biodiversity are required, notably the development of models (for climate change impact, for instance), new approaches to address social, economic and ecological challenges and the development of new techniques and practices.

Justification for R&D

Changes occurring in biodiversity and ecosystems are due to increasing human pressures such as pollution, land use changes and overharvesting. There is a pressing requirement for research to assess the extent and impacts of these pressures and for developing new knowledge, products and processes to ensure that human well-being is maintained while biodiversity is conserved and used sustainably. In the implementation of the NBSAP R&D is important across all strategic objectives.

Key elements for R&D

Key aspects of R&D for biodiversity conservation are the use and protection of traditional knowledge, value addition, product development and innovation. This is ideally supported through needs assessment and collaboration among government, private sector, communities, academic and research institutions.

Strategies

- Develop mechanisms to support the training of young scientists in fields such as taxonomy
- Promote research and sharing of species-specific data covering aspects such as identification, dispersion and status
- Facilitate development of research networks for improved scientific dialogue, improved transfer of scientific findings to practice and policy, and, conversely, of practical issues into scientific research
- Develop public-private parterships in priority research and development areas with model projects, such as improved management of commercialized NTFPs

7.3.5. Technology transfer

Access to, transfer and adaptation of technology are important for the attainment of the three goals of the UNCBD. The convention encourages "sharing of information and cooperation in technology development and transfer among countries and with the private sector, indigenous and local communities, research institutions and NGOs" (CBD 2010). The technology covers techniques for *in*

situ and *ex situ* conservation, sustainable management techniques, monitoring techniques to generate accurate information about biodiversity for effective policy development and implementation and modern biotechnology based on genetic resources, as well as indigenous and local knowledge.

Justification

The threats facing biodiversity in Zimbabwe require use of hard and soft technology. Technology transfer provides quick solutions for biodiversity challenges by using experience and expertise locally and in the global biodiversity fraternity. This avoids re-inventing the wheel. The Zimbabwe science, technology and innovation policy of 2012 has objectives related to biodiversity conservation which can benefit the NBSAP during implementation.

Key elements in technology transfer

Technology transfer involves local, regional and international cooperation. The key approach should be to find local solutions to local challenges by disseminating existing technology to a wider audience. An enabling environment for technology transfer through clear policies, regulations and frameworks is important. Incentives for technology transfer such as research-oriented tax breaks can be applied. Partnerships, networks and consortia bringing together research institutions, the private sector and international and regional entities are also important. Using the provisions of the UNCBD programme of work on technology transfer including the clearing house mechanisms is a key aspect.

Strategies and actions for technology transfer

- Identify and establish an appropriate institutional framework conducive to inter-sectoral technology access, transfer, adaptation and diffusion
- Encourage and facilitate community-to-community sharing and transfer of knowledge and technology through channels such as exchange visits, workshops and publications
- Strengthen capacity of research and academic institutions to adapt and develop imported technologies
- Improve awareness, appreciation and use of intellectual property rights in technology transfer
- Disseminate relevant national technology
- Promote innovative financing for technology transfer such as public-private-community partnerships (PPCPs)

7.4. Mobilizing financial resources

One of the major challenges in implementing NBSAP 1 was the lack of financial resources. Stakeholders identified this as a major risk in the achievement of NBSAP 2 targets. Substantial resources are required for its implementation and cost estimates are included in the action plan. Several opportunities for international, regional and domestic funding exist which the Biodiversity Office can exploit in partnership with relevant government, civil, community and private partners. These are outlined in Appendix 3. The greater proportion of this funding is from the climate change portfolio, but with focus on biodiversity and ecosystems adaptation. Other innovative financing mechanisms are payments for ecosystems services, biodiversity offsets and environmental fiscal reforms.

Annual budget reviews will be conducted during the implementation of the strategy and action pan. New priorities will be identified and budgeted. Resource mobilization for the NBSAP is the responsibility of the all biodiversity stakeholders, with the MEWC through the Biodiversity Office taking the lead.

7.4.1. Strategies for resource mobilization

- Facilitate resource mobilization training for stakeholders, especially communities and NGOs
- Ensure access to international funding through participation in global thematic initiatives and regional programmes through the Southern African Development Community

- Support certification under globally recognized programmes such as Ramsar sites and the UNESCO Man-and-the-Biosphere Reserves
- Pursue domestic funding, especially from the government and private sector and communities through the PPCPs

8. NBSAP action plan

The action plan is based on the strategic objectives and identified targets from the preceding sections. It includes the strategic objectives, corresponding targets, strategies and actions as well as the indicators. Estimated costs for each activity are provided, although they will be reviewed annually during implementation. Details of the action plan are shown in Appendix 2.

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Appendix 1: Roles and responsibilities for implementation of the strategy and action plan

The strategy is designed to provide a roadmap for all groups involved in conserving biodiversity. Clarity on roles and responsibilities is important in the implementation of the strategy. The broad roles and responsibilities are outlined below.

Local communities

About 27.5 million hectares of Zimbabwe's land area is under local communities as either communal, or resettlement lands. Eleven percent of the land area is under CAMPFIRE. Local communities are critical in the conservation of biodiversity and ecosystems. In the implementation of the NBSAP, communities need to be central and active partners with the application of traditional knowledge and practices. Communities should also have access to scientific knowledge and best practices in natural resource management. Urban communities are equally important in the implementation of the strategy and should contribute to biodiversity conservation through sustainable lifestyles.

Government of Zimbabwe

The government is responsible for managing the country's international borders. This includes regulating the import and export of animals and plants, and substances and items made from them, as well as toxic substances. Through its various agencies the government also manages state lands, parks, forests and water bodies, and administers the Environmental Management Act [Chap 20:27]. The Act is a key piece of legislation in the management and protection of wetlands, areas of ecological significance, water and air quality, waste management and control of invasive alien species. The state also has the constitutional responsibility of ensuring that the environmental rights of citizens are protected. The implementation of the NBSAP will aid the government in fulfilling its key environmental obligations.

Local government

Local government is a valuable and ongoing contributor to the efforts to conserve biodiversity through its role in local and regional planning and, increasingly, through its role in environmental management, monitoring and reporting. Local government includes provincial councils, urban and rural councils and the ministry departments at national level. Its engagement in the strategy is important in increasing awareness and mobilizing local actions through its local councils and sub-council structures. Provisions within the Act [Chap. 20:27] and the Parks and Wildlife Act [Chap. 20:14] and other policies and legislation make local government a critical player in the NBSAP implementation and monitoring.

Traditional authorities

Traditional authorities in Zimbabwe fall under the local government legislation. Their role in the implementation and monitoring of the strategy is important as custodians of the cultural and traditional heritage of the country. Traditional authorities are part of the local community and command an inherited respect from the community. This makes them key partners in communication and awareness raising for the strategy as well as implementation of localized priority actions and monitoring for biodiversity and ecosystems conservation.

Non-governmental organizations

NGOs from all sectors are key players in the implementation of the NBSAP. They have local knowledge and expertise in conservation and issues impacting on biodiversity which are important to the NBSAP. NGOs also have effective formal and informal information networks that offer an important mechanism for improving and communicating Zimbabwe's biodiversity knowledge.

Private sector

The private sector includes fisheries, forestry, wildlife, agriculture, mining, tourism, manufacturing, financial services and land and urban development industries. Mining, agriculture, manufacturing and urban development (infrastructure development) have been identified as important in the implementation of ZimAsset up to 2018. The private sector has a fundamental role in making most of the development and investment decisions that affect key economic sectors. The formation of long-term partnerships with the private sector will help to ensure that the priorities of this strategy inform their decision making and investments. This partnership should be founded on open communication, information sharing and consultation on actions.

Research and education institutions

Implementing and monitoring the strategy will require the best available scientific expertise and knowledge. Tertiary and research institutions within the country have the necessary frameworks and expertise to conduct research on biodiversity to fill identified gaps. Existing linkages between government, NGOs and research institutions can be strengthened in specific scientific and technical areas for effective implementation of the strategy . The education and media sectors are valuable partners in increasing the awareness and understanding of Zimbabwe's biodiversity its importance to the society.

National and international financiers

The implementation of the strategy requires substantial and sustainable financial resources. Several potential financial sources exist. They include international donors, local financial service providers and the local corporate sector. Partnerships based on open communication and consistent engagement will need to be established to ensure that financial decisions made are ecologically and economically sustainable. Support for implementation and monitoring of the NBSAP is an environmentally sustainable investment.

Appendix 2: Zimbabwe biodiversity targets and indicators 2014-2020

Strategic Objective 1: Address the underlying causes of biodiversity loss by mainstreaming biodiversity across government and society

Target 1: By 2020, at least 75% of the population is aware of the values of biodiversity and the steps they can take to conserve and use it sustainably

STRATEGY	ACTION	INDICATOR	RESPONSIBILITY	TIME-FRAME	COST (US$)
Develop and implement a comprehensive communication, education and public awareness strategy on the conservation and sustainable use of biodiversity	Identify key target groups and select sectoral champions to drive awareness of biodiversity among specific sectors, such as mining, agriculture, energy, plantation forestry, health, youth, gender and local government	At least 15 champions from government agencies, NGOs, private sector, educational and research institutions take a lead in running biodiversity programmes; At least five collaborative initiatives are in place between mainstream biodiversity sectors and other sectors	Biodiversity Office and ministries of Environment, Water and Climate (MEWC) and of Media, Information and Broadcasting Services	By 2020	75,000
	Expand coverage of biodiversity issues in schools curricula and tertiary institutions	At least one subject or course incorporating biodiversity is included in schools curricula and tertiary institutions	Ministries of Primary and Secondary Education, Higher and Tertiary Education and Science and Technology Development	By 2020	100,000
	Prioritize, promote and facilitate academic and professional research and publications on biodiversity issues in the country; Produce and widely disseminate simplified versions of academic publications	At least twenty peer reviewed publications on biodiversity produced per year and available within the clearing house mechanism (CHM)	Biodiversity Office, MEWC and academic and research institutions	By 2020	150,000
	Develop informative messages for public awareness campaigns on fires, invasive species, biosafety, deforestation, pollution and land degradation	At least five products (videos, brochures or posters) per year and awareness campaigns conducted	Biodiversity Office, MEWC, Forestry Commission (FC), Parks and Wildlife Management Authority (PWMA) and NGOs	By 2020	30,000
	Publish and widely disseminate summary versions of the NBSAP2	At least 1000 copies of summary versions of NBSAP2 produced and disseminated; At least one NBSAP2 public awareness campaign held per province	MEWC	By December 2015 By 2017	50,000
	Conduct a survey of targeted stakeholders to assess levels of understanding (knowledge, attitude and practice) of biodiversity	All targeted stakeholders have a KAP score of at least 50%	MEWC, Environmental Management Authority (EMA), FC and ZPWMA	By 2020	20,000

Strategic Objective 1: Address the underlying causes of biodiversity loss by mainstreaming biodiversity across government and society (cont.)

Target 1: By 2020, at least 75% of the population is aware of the values of biodiversity and the steps they can take to conserve and use it sustainably

STRATEGY	ACTION	INDICATOR	RESPONSIBILITY	TIME-FRAME	COST (US$)
	Promote and support community-based biodiversity programmes in rural and urban areas	At least one functional community-based biodiversity programmes per district; At least two community-based environmental information and education centres in each province are resuscitated and strengthened	EMA, FC, ZPWMA, local authorities, MEWC, NGOs and CBO	Up to 2020	300,000
	Explicitly use spatially based data as awareness-raising tool	At least two awareness-raising tools such as posters and pamphlets have spatially-based data	MEWC	Up to 2020	50,000
	Promote and support community-based biodiversity programmes in rural and urban areas	At least one functional community-based biodiversity programmes per district; At least two community-based environmental information and education centres in each province are resuscitated and strengthened	EMA, FC, ZPWMA, local authorities, MEWC, NGOs and CBOs	Up to 2020	300,000
	Explicitly use spatially based data as awareness-raising tool	At least two awareness-raising tools such as posters and pamphlets have spatially-based data	MEWC	Up to 2020	50,000

Target 2: By 2020, biodiversity is mainstreamed into all seven sectors (mining, agriculture, health, manufacturing, transport, energy and tourism) and incorporated into national accounting and reporting systems

STRATEGY	ACTION	INDICATOR	RESPONSIBILITY	TIME-FRAME	COST (US$)
Develop a biodiversity policy to be mainstreamed into all sectors and incorporated into the national accounting and reporting system	Coordinate processes to develop the biodiversity policy	Biodiversity policy document	MEWC and Biodiversity Office	By 2018	100,000
	Biodiversity issues reflected in national economic blueprints	All seven sectors (mining, agriculture, health, manufacturing, transport, energy, tourism) have mainstreamed biodiversity	Ministries of Agriculture, Lands and Rural Resettlement, Higher and Tertiary Education, Science and Technology Development; Mines, Transport, Health and Child Care, Tourism and Hospitality Industry, Energy	By 2018	150,000
	Sensitize parliamentary portfolio committees of these sectors , traditional leaders, local authorities and private sector on the issue of developing a biodiversity policy	At least one awareness and training session per year	MEWC	By 2018	80,000
	NBSAP endorsed by government at the highest level	NBSAP endorsement	MEWC	By Dec 2015	5,000
Use biodiversity and ecosystems services valuation tools to quantify economic, social, cultural and ecological values	Conduct economic valuation studies for priority biodiversity areas	Ecosystem valuation of at least two ecosystems (one terrestrial, one aquatic)	MEWC, Ministry of Finance and Zimbabwe National Statistics Agency (ZimStat)	By 2017	200,000
	Use spatially based data and other biodiversity information to lobby for increase in financial resource allocation of biodiversity in national budget	Amount of money allocated to key biodiversity sectors in national budget annually increased by 10% from the 2012 baseline	MEWC and ZimStat	By 2017	20,000
	Promote incorporation of environmental reporting/ accounting systems by industry	At least 64 companies (those listed on the ZSE) incorporate environmental reporting and accounting systems	Ministry of Industry and Commerce; Zimbabwe Stock Exchange; MEWC; Consumer Council of Zimbabwe and Business Council for Sustainable Development of Zimbabwe	By 2020	75,000
	Facilitate the meetings of the Environmental Council and mainstream biodiversity issues within the agenda	Inter-ministerial committee meets at least biannually has biodiversity issues on their agenda	MEWC	By 2017	30,000
	Facilitate capacity building on biodiversity mainstreaming for the National Planning Agency	At least one training per year for NPA staff in biodiversity	MEWC and Ministry of Finance	By 2020	40,000

Strategic Objective 2: Reduce the direct pressures on biodiversity and promote sustainable use

Target 3: By 2020, reduce the rate of loss of natural habitats including forests by at least 50%

STRATEGY	ACTION	INDICATOR	RESPONSIBILITY	TIME-FRAME	COST (US$)
Strengthen institutional capacity for implementation of biodiversity and ecosystems conservation	Systematically implement a national fire protection strategy including use of spatially based data	15% reduction in area burnt per year	EMA, FC, ZPWMA and rural district councils	By 2020	50,000
	Strengthen the capacity and coordination of law enforcement agencies at national level	At least two meetings on biodiversity per year for law enforcement agencies	MEWC	By 2015	50,000
	Strengthen capacity of local authorities to promote sound environmental management	At least 50% of local authorities incorporate NBSAP in their plans	MEWC, Ministry of Local Government, Public Works and National Housing	By 2020	40,000
Sustainable land management	Promote and support community-based natural resources management (water, forest, fisheries, wildlife, rangelands and soil conservation)	Community-based natural resources management protects at least 60,000km^2 of buffer zones around national parks and forest reserves	Forestry Commission, NGOs, CBOs, ZPWMA, EMA and Agritex	By 2020	200,000
	Promote and support community-based forestry enterprises	At least two forestry enterprises are set up and functioning per district	Forestry Commission, NGOs, CBOs, ZPWMA, EMA and Agritex	By 2020	50,000
	Monitor and evaluate success of afforestation programme	At least one woodlot per district per year is evaluated	Forestry Commission	By 2020	10,000
Promote and lobby for development of renewable energy and energy saving alternatives	Formulate renewable energy policy	Renewable energy policy in place	Ministry of Energy and Power Development	By 2020	100,000
	Establish a financing mechanism for renewable energy projects	A renewable energy investment prospectus in place	Ministry of Energy, MEWC	By 2020	20,000
	Scale up renewable energy and energy conservation technologies including sustainable fuelwood use	At least five medium scale renewable energy projects are implemented (solar, hydro, biogas and natural); Renewable energy contributes at least 10% to the national energy grid	Ministry of Energy	By 2020	500,000
	Promote use of alternative energy in small scale agriculture and promote energy-efficient and energy-saving techniques for processing agricultural produce, such as fuel-efficient barns	At least two alternative energy technologies used by 60% of small holder farmers and small scale brick molders	Ministries of Energy, Agriculture & Higher and Tertiary Education	By 2020	1, 300,000

Target 4: By 2020, ecosystem-based approaches to aquatic resources management are being applied on Lake Kariba and other water bodies so as to avoid overfishing, enable the recovery of fish stocks, and reduce loss of indigenous species

STRATEGY	ACTION	INDICATOR	RESPONSIBILITY	TIME-FRAME	COST (US$)
Integrated ecosystem-based management plan	Monitor and effectively manage fish stocks of key commercial species	Fishing effort of kapenta in Kariba reduced by 20% per year; Annual report on fish stocks and water quality	ZPWMA	By 2020	50,000
	Promote the implementation of the code of conduct for responsible fisheries	At least 70% of the principles, goals & elements of the code of conduct are incorporated into national fisheries policy & legislation	ZPWMA	By 2020	20,000
	Develop appropriate monitoring mechanism for water quality and determinant factors in key water bodies	Monitoring mechanism for water quality in place	ZPWMA and Zimbabwe National Water Authority, EMA	By 2020	50,000
	Adopt and Implement international guidelines for securing sustainable small-scale fisheries	International guidelines locally adopted and implemented	ZPWMA	By 2020	30,000
	Review and develop appropriate framework to strengthen community-based management of fisheries (including monitoring and reporting)	20% of fisheries co-management structures resuscitated; International guidelines locally adopted and implemented	ZPWMA and Ministry of Agriculture	By 2020	20,000
	Enhance trans-boundary management of aquatic resources through engagement	At least three technical consultative meetings held annually	ZPWMA	By 2020	40,000
	Monitor aquaculture and promote use of indigenous species	Database of all aquaculture businesses	ZPWMA and Ministry of Agriculture	By 2020	30,000
Fisheries and aquaculture policy	Develop fisheries and aquaculture policy	Fisheries and aquaculture policy in place Aquaculture operations regulated	ZimStat, ZPWMA and Ministry of Agriculture; Trends in the number of aquaculture operations registered and licensed	By 2020	250,000

Target 5: By 2020, 60% of areas under agriculture, aquaculture and forestry are managed sustainably, ensuring conservation of biodiversity and sustainable land use

STRATEGY	ACTION	INDICATOR	RESPONSIBILITY	TIME-FRAME	COST (US$)
Biodiversity management	Promote and support adoption of conservation agriculture, agro-forestry and organic farming	At least 60% of small-holder farmers are practicing conservation agriculture, agro-forestry and organic farming	ZimStat, ZPWMA and Ministry of Agriculture, Forestry Commission	By 2020	
	Establish soil conservation works on farms	50% conservation works achieved in all farming areas	Ministry of Local Government, Public Works and National Housing	By 2020	50,000
	Identify and define key biodiversity areas under threat	Report on nationwide inventory of key biodiversity areas	MEWC, Ministry of Agriculture	By 2017	100,000
	Identify important fragile habitats and institute mechanisms to conserve them	Report and map of fragile habitats	Forestry Commission, EMA, ZPWMA, Ministry of Agriculture	By 2017	100,000
	Conduct ecological monitoring	Status reports on key species and biodiversity areas produced annually	Forestry Commission, EMA, ZPWMA	By 2020	120,000
	Promote and support holistic rangeland management	Four districts in the south-western Zimbabwe communities practicing holistic rangeland management species diversity	Ministries of Agriculture, Women's Affairs, Gender and Community Development		20,000
	Integrate biodiversity management with agricultural development programmes, including Comprehensive Africa Agricultural Development Programme	At least one national-level agricultural programme incorporates agro-biodiversity conservation (heat and drought maize tolerance and low nitrogen on maize) by Crop Breeding Institute	MEWC and Ministries of Agriculture, Women's Affairs, Gender and Community Development	By 2020	40,000
	Use spatial data analysis to establish the land under agriculture, aquaculture and forestry as a baseline and monitor area sustainable development	Up-to-date land use maps and data	MEWC, Forestry Commission, EMA, Ministry of Agriculture		
	Use value addition and beneficiation opportunities to promote sustainable management of forests	At least two agro- and natural biodiversity processing centres established per province	Forestry Commission and Ministry of Agriculture	By 2020	20,000

Strategic Objective 2: Reduce direct pressures on biodiversity and promote sustainable use

Target 6: By 2020, integrated pollution prevention and control strategies are in place to reduce detrimental effects to ecosystem functioning and biodiversity

STRATEGY	ACTION	INDICATOR	RESPONSIBILITY	TIME-FRAME	COST (US$)
Prevent pollution of ecosystems	Monitor and enforce national quality standards for water, air and solid waste	Improved environmental quality in heavily impacted areas; air quality improved by 10%; water quality improved by 15%; solid waste quality improved by 10%; and hazardous waste quantities reduced by 15%	EMA, Local Authorities, Ministry of Mines and ZINWA	By 2020	300,000
	Review environment fines and mechanisms for enforcement	At least five of the seven statutory instruments on environmental regulations are reviewed	MEWC , Local authorities and Ministry of Health and Child Care	By 2020	30,000
	Upgrade waste dump sites in line with SI 6 of 2007	At least 40% of dump sites are upgraded in urban centres	MEWC, Local authorities and Ministry of Health and Child Care	By 2020	100,000
	Promote increased recycling of waste	At least 40% of waste is recycled	MEWC, local authorities and Ministry of Industry and Commerce	By 2020	150,000
	Promote and support alternative uses for solid waste, such as biogas production	See Target 3	Local authorities and Ministry of Energy and Power Development	By 2020	
	Promote increased consumer consciousness and demand for environmentally sustainable production and services	KAP score at 50% of the target population	MEWC and Consumer Council of Zimbabwe	By 2020	50,000
	Undertake measures to ensure environmental impact assessments are effective	Reviewed EMA document on EIA process in Zimbabwe	MEWC and EMA	By 2020	40,000
	Conduct assessment of the extent of impact of chemical use on water bodies	Report on extend of chemical use on major water bodies supplying municipal water in major cities	Municipalities, academic institutions, EMA		100,000

Target 7: By 2020, threats to biodiversity from invasive alien species have been assessed and measures put in place to control and manage their impact

STRATEGY	ACTION	INDICATOR	RESPONSIBILITY	TIME-FRAME	COST (US$)
Biodiversity management	Monitor invasive alien species in terms of species, abundance and trends in distribution: Eastern Highlands (wattle, wild ginger, water lettuce)[Mashonaland Central and Mashonaland East (fruit fly – *Bactrocera invadens*); Mashonaland Central, Mashonaland West and Midlands (maize weevils and large grain borer); Zambezi Valley (water hyacinth, crayfish); Hwange (*Lantana camara,* Umkhawuzane *Dichapetalum cymosum* and Indian mynah) Matabeleland South, Masvingo and Gonarezhou (*Opuntia*, *Lantana camara*, Indian mynah)	An updated comprehensive invasive alien species inventory	Min of Agriculture and MEWC, EMA, Forestry Commission, ZPWMA, ZINWA	By 2020	50,000
	Update current schedule of invasive species	Updated list of invasive species in the Environmental Management Act	MEWC, EMA	By 2020	50,000
	Develop policy on invasive alien species	Policy document in place	MEWC, EMA, Forestry Commission, ZPWMA, ZINWA	By 2020	200,000
	Develop and implement management plans for controlling priority invasive alien species	Management plans in place; At least five management plans implemented; Reduction in rate of spread or area affected by invasive alien species, particularly *Lantana camara* (reduced by at least 1000 ha per year), *Opuntia* (reduced by at least 500 ha per year), water hyacinth, crayfish and Indian mynah	MEWC EMA, Forestry Commission, ZPWMA, ZINWA	By 2020	150,000

Target 8: By 2020, adaptation and mitigation strategies are implemented to reduce the impact of climate change on vulnerable ecosystems and communities

STRATEGY	ACTION	INDICATOR	RESPONSIBILITY	TIME-FRAME	COST (US$)
Disaster risk reduction	Incorporate biodiversity conservation action into the national disaster risk reduction strategy	A composite, comprehensive and functional key biodiversity areas disaster risk management plan	Ministries of Environment, Water and Climate, Agriculture and Local Government, Public Works and National Housing	By 2020	200,000
	Promote ecosystem based adaptation and mitigation programmes (including REDD+, assisted dispersal, connectivity, market-based mechanisms, increasing protected areas, rehabilitation and restoration, and enhancing sustainable production)	At least three large-scale adaptation and mitigation programmes (including community-driven projects) implemented; The National Adaptation Plan incorporates biodiversity issues; Intended Nationally Determined Contributions incorporate biodiversity issues	Ministries of Environment, Water and Climate, Agriculture and Local Government, Public Works and National Housing	By 2020	500,000
	Investigate and monitor effects of climate change on priority biodiversity and ecosystems services (conduct vulnerability assessments)	At least three selected key biodiversity areas and key species have climate change vulnerability assessments; At least five climate change key indicator species are identified and monitored	MEWC	By 2020	250,000
	Incorporate value of ecosystems to climate change adaptation in environmental planning	At least 50% of environmental plans include value of ecosystems to climate change adaptation	MEWC	By 2020	40,000
	Promote production of drought- and heat-tolerant, high-yielding local varieties	At least two high-yielding local plant varieties promoted	MEWC, Ministry of Agriculture	By 2020	100,000
	Promote the production of drought-tolerant livestock	At least two indigenous drought-tolerant animal breeds promoted	Ministry of Agriculture	By 2020	100,000
	Support measured to reduce poaching in protected areas	Poaching of major wildlife species reduced by 50%	MEWC Parks, Forestry Commission, EMA	By 2020	1,500,000

Strategic Objective 3: Improve the status of biodiversity by safeguarding ecosystems, species and genetic diversity

Target 9: By 2020, at least 28% of Zimbabwe's terrestrial and inland water under protection, is maintained and conserved, and protected area connectivity enhanced through integrated resource management

STRATEGY	ACTION	INDICATOR
Adaptive ecosystems management approach, such as trans-frontier conservation area, with private and public participation	Take stock of the protected area network to verify the 28% total land area extent baseline and establish new baseline, if necessary	Exact percentage of terrestrial and aquatic ecosystem under protection verified
	Conduct annual assessments of the effectiveness of management of protected areas in priority biodiversity areas	Annual assessment reports produced for each protected area
	Develop mechanisms for recognition of the contribution by successful community-conserved areas to the national protected area system	At least three community conservation areas conserved per district
	Promote initiatives that support appropriate land use options consistent with protected area policy and practices, especially where settlements are a threat	Regularize all settlements in protected areas; Work to ensure no new settlements in protected areas
Coordination and integration of the implementation of conventions, notably CBD, UNCCD, Ramsar, World Heritage Sites, UNESCO Biosphere Reserves, Convention on the Migratory wild Species, SADC Protocol on Fisheries, SADC Protocol on Wildlife Conservation and Law Enforcement, transboundary treaties, protected sites and the UN Framework Convention on Climate Change	Establish a platform for all environmental conventions' focal points for coordination and establish a conventions office under the MEWC	Functional environment conventions office established at MEWC

Target 10: By 2020 the loss of known threatened species has been prevented and their conservation status, particularly of those most in decline, has been improved and sustained

STRATEGY	ACTION	INDICATOR	RESPONSIBILITY	TIME-FRAME	COST (US$)
Conservation and protection of threatened species	Undertake species diversity, population status and trends studies and maintain species inventories	Species checklists; Species population status and trends reports	All responsible authorities: MEWC, ZPWMA, NGOs, EMA, Forestry Commission, ZINWA and National Herbarium and Botanical Garden, research institutions, academia and communities	Ongoing	200,000
	Assess and review the threat status of species	Red Data Lists and books for threatened species produced for Zimbabwe	As above	Ongoing	200,000
	Develop and implement management plans for selected priority species	Species action plans developed for at least five species	As above		50,000
	Promote and strengthen transboundary mechanisms for conservation of threatened species including shared ecosystems	Regional framework for collaboration and implementation in place	As above	Ongoing	
	Operationalize clearing house mechanism	Clearing house mechanism in place and regularly updated	MEWC	Ongoing	20,000

Target 11: By 2020, develop and implement strategies to conserve and maintain cultivated, farmed and domesticated genetic resources and their wild relatives, including other socio-economically and culturally valuable species

STRATEGY	ACTION	INDICATOR	RESPONSIBILITY	TIME-FRAME	COST (US$)
Ex situ and *in situ* conservation (ecosystem conservation approach)	Develop checklist of cultivated plant and farmed animals	A database of cultivated plants and farmed animals and their wild relatives	Ministry of Agriculture	2020	5,000
	Establish and maintain fully equipped plant and animal gene banks	At least one fully equipped and functional national plant and animal gene bank	MEWC and National Biotechnology Authority	2020	500,000
Private, public and community participation	Raise public awareness on biosafety issues	All targeted stakeholders have a KAP score of at least 50%	MEWC, NBA	2020	100,000
Safeguarding genetic diversity	Promote market driven seed supply, cultivation and consumption of local crop varieties (herbs and vegetation)	At least 50% of smallholder farmers are cultivating and/or consuming at least two local crop varieties	Ministries of Agriculture and Women's Affairs	2020	300,000
	Promote market driven rearing and consumption of local livestock varieties	At least 50% of smallholder farmers are rearing and/or consuming at least two indigenous livestock varieties	MEWC and Ministry of Agriculture	2020	500,000

Strategic Objective 4: Enhance the benefits to all from biodiversity and ecosystem services

Target 12: By 2020 implement policies and strategies to maintain and restore ecosystem integrity, and reduce ecosystems degradation to enhance the livelihoods and well-being of all Zimbabweans, especially those of women, indigenous and local communities, and the poor and vulnerable

STRATEGY	ACTION	INDICATOR	RESPONSIBILITY	TIME-FRAME	COST (US$)
Improve conservation and management status of ecosystems; Ecosystems approach to livelihood enhancement	Raise awareness on ecosystems integrity and livelihood nexus	At least three voluntary initiatives per district that enhance ecosystems integrity and local livelihoods; An increase of 50% in the level of adherence and compliance to by-laws that enhance ecosystem integrity and local livelihoods	MEWC and ministries of Women's Affairs, Gender and Community Development, and Youth, Indigenisation and Economic Empowerment, and rural district councils	By 2018	150,000
	Conduct baseline surveys to determine status and trends in ecosystem health	One national socio-economic and-ecological survey	MEWC, ministries of Agriculture and Women's Affairs, Gender and Community Development, universities, researchers, NGOs and Forestry Commission	by 2020	200,000
Policy formulation and implementation	Realign and harmonize biodiversity-related policies and instruments to the new Constitution; Facilitate harmonization in the formulation and implementation of policies and legislation	At least 95% of biodiversity-related policies and instruments are reviewed, aligned and harmonized with the new Constitution At least two multi-stakeholder dialogue meetings held annually	Ministries of Local Government, Public Works and National Housing, Lands and Rural Resettlement, and Women's Affairs, Gender and Community Development, and universities	2018	180,000
	Review and develop appropriate models for devolving appropriate authority to communities	At least two community-based initiatives per province are legally and wholly owned and controlled by communities	Ministries of Local Government, Public Works and National Housing, Lands and Rural Resettlement, and Women's Affairs, Gender and Community Development	by 2020	100,000
Livelihoods enhancement	Promote and support community-based enterprises	Two viable biodiversity-related community-based enterprises per district, such as apiculture, mushroom production and medicines	MEWC, ministries of Tourism and Hospitality Industry and Women's Affairs, Gender and Community Development, and Zimbabwe Tourism Authority	by 2020	500,000

Strategic Objective 4: Enhance the benefits to all from biodiversity and ecosystem services (cont.)

Target 12: By 2020, implement policies and strategies to maintain and restore ecosystem integrity and reduce ecosystems degradation to enhance the livelihoods and well-being of all Zimbabweans, especially those of women, indigenous and local communities, and the poor and vulnerable

STRATEGY	ACTION	INDICATOR	RESPONSIBILITY	TIME-FRAME	COST (US$)
Gender mainstreaming	Incorporate gender consideration in all laws, policies, strategies, by-laws and mechanisms that govern management, access and control of biodiversity resources; Build the capacity of state and non-state development agencies in gender mainstreaming in biodiversity conservation and sustainable utilization initiatives	All provisions related to environment management and biodiversity conservation are gender sensitive; Gender balance achieved in the number of people participating in, and benefiting from biodiversity conservation initiatives	MEWC, Ministry of Women's Affairs, Gender and Community Development, local authorities and NGOs	By 2020	50,000
Diversify income-earning opportunities	Promote and support innovative income generating initiatives utilizing biodiversity and ecosystems sustainably and support PPCPs for viable biodiversity based businesses	At least five types of viable (including PPCP arrangements) & sustainable agro- and natural biodiversity enterprises per province National agro- & natural biodiversity product commercialization guidelines updated	MEWC, ministries of Youth, Indigenisation and Economic Empowerment, Mines and Mining Development, Public Service, Labour and Social Welfare, Local Government, Public Works and National Housing, Tourism and Hospitality Industry, and Women's Affairs, Gender and Community Development, universities and NGOs	By 2017	1,500,000

Target 13: By 2020, combat desertification, and enhance ecosystem resilience through conservation and restoration of degraded ecosystems

STRATEGY	ACTION	INDICATOR	RESPONSIBILITY	TIME-FRAME	COST (US$)
Enhance ecosystem resilience	Reclaim and rehabilitate degraded areas, wetlands, watersheds and rivers, using innovative approaches	At least 30% of degraded areas reclaimed – miombo woodland, aquatic ecosystems and grasslands – in the critical areas of Matabeleland South, Eastern Highlands, Manyame catchment and Masvingo	MEWC, ZimStat, ZINWA and ministries of Women's Affairs, Gender and Community Development, Youth, Indigenisation and Economic Empowerment and Agriculture	by 2020	1,000,000
		Annual deforestation rate reduced by 10%; At least 10% of deforested areas are reforested by 2020; At least 30% of wetlands restored	MEWC, EMA, Forestry Commission and ministries of Women's Affairs, Gender and Community Development, Youth, Indigenisation and Economic Empowerment, Agriculture and Lands and Rural Resettlement	Ongoing	500,000
	Implement interventions for priority water bodies and major water-courses	Integrated catchment management plans developed and implemented for all the seven major water courses	MEWC, ZINWA, Ministry of Women's Affairs, Gender and Community Development and private sector	By 2020	500, 000
	Incorporate UNCCD actions into biodiversity conservation initiatives	Joint biodiversity planning and reporting for the UNCCD and CBD adopted	MEWC, UNCCD and CBD focal points	By 2016	10,000

Target 14: By 2020, accede and domesticate the Nagoya Protocol on Access to Genetic Resources and the fair and equitable sharing of benefits arising from their utilization

STRATEGY	ACTION	INDICATOR	RESPONSIBILITY	TIME-FRAME	COST (US$)
Accession to and domestication of the Nagoya Protocol	Capacity building on ABS negotiations at all levels and entry points (contracts, traditional knowledge)	At least one meeting and workshop on ABS issues held in each area	MEWC, ministries of Higher and Tertiary Education, Women's Affairs, Gender and Community Development and Agriculture, and civil society	By 2020	50,000
	Finalize appropriate instruments for accession and domestication	Instruments deposited	MEWC, Ministry of Foreign Affairs	2016	5,000
	Promote awareness on provisions of ABS instruments	At least one community- and district-level meeting held in each province	MEWC, ministries of Agriculture, Higher and Tertiary Education, Women's Affairs, Gender and Community Development	By 2020	50,000

Strategic Objective 5: Enhance implementation through participatory planning, knowledge management and capacity building

Target 15: By 2015, NBSAP updated and adopted as a policy instrument, and implementation has commenced

STRATEGY	ACTION	INDICATOR	RESPONSIBILITY	TIME-FRAME	COST (US$)
NBSAP adoption as policy and planning instrument	Facilitate the adoption of NBSAP2as a policy instrument; Sensitize heads of ministry departments on the NBSAP	Adoption and launching of NBSAP	MEWC, Biodiversity Office	By 2015	5,000
	Lobby and facilitate for integration of NBSAP2 implementation costs into the national budget	At least 30% of the costs of implementing of the NBSAP are met by treasury funding	MEWC	By 2020	
	Implement the monitoring and evaluation framework for NBSAP2, including mid-term review	Annual NBSAP progress reports produced	MEWC		150,000
	Establish implementation and coordination structures for NBSAP2; Develop a implementation and resource mobilization plan	National Biodiversity Forum and its sub- and technical committees active and fully funded; Implementation and mobilization plan in place	MEWC	By 2015 By 2016	5,000
	Facilitate development of projects and programmes by stakeholders that address the objectives of NBSAP2	At least 90% of biodiversity-related projects are linked and address objectives of NBSAP2	MEWC, Biodiversity Office	Ongoing	25,000

Target 16: By 2020, the traditional knowledge, innovations and practices of local communities relevant for the conservation and sustainable use of biodiversity, and their customary use of biological resources, are respected, integrated and reflected in the implementation of the NBSAP with the full and effective participation of local communities, at all relevant levels

STRATEGY	ACTION	INDICATOR	RESPONSIBILITY	TIME-FRAME	COST (US$)
Community empowerment and participation	Strengthen existing local and community-based environmental structures to incorporate biodiversity issues	Functional and appropriate local and community environmental structures in place in each district	MEWC, ministries of Agriculture, Lands and Rural Resettlement, Local Government, Public Works and National Housing	By 2020	50,000
	Local communities empowered to develop and implement local environment action plans (LEAPs), including the participation of traditional leaders & CBOs; Promote the establishment of new or strengthening of existing IK-based community conservation areas	At least 30% of the wards in each district have environment action plans that are developed and implemented by local communities; At least one IK-based community conservation area per district established or strengthened	MEWC, ministries of Agriculture, Lands and Rural Resettlement, Local Government, Public Works and National Housing	By 2020	150,000
Mainstreaming indigenous knowledge systems (IKS) into biodiversity conservation	Document values, taboos, customary and traditional knowledge relevant to the conservation and sustainable use of biodiversity; Raise awareness on IK and access and benefit sharing; Integrate IKS into national biodiversity policies and programmes	One national report produced; KAP score of at least 80% demonstrating the linkage of IK to ABS in biodiversity conservation; National biodiversity-related policies incorporate IKS; Number of IKS-related mechanisms and innovations incorporated in LEAPs	MEWC, Ministry of Local Government, traditional institutions and civil societies	By 2020	150,000

Strategic Objective 5: Enhance implementation through participatory planning, knowledge management and capacity building

Target 17: By 2020, science, technology and innovation relating to biodiversity, its values, functioning, status and trends, and the consequences of its loss, are strengthened, improved, widely shared, transferred and applied

STRATEGY	ACTION	INDICATOR	RESPONSIBILITY	TIME-FRAME	COST (US$)
Science and technology innovations for reducing biodiversity loss	Invest in the development and application of innovative technologies for managing the major threats to biodiversity loss (fire, invasive species, pollution, poaching, agriculture, GMOs, LMOs and mining)	Innovations that address at least three threats are developed and/or applied to reduce negative impacts on biodiversity	MEWC and ministries of Higher and Tertiary Education, Science and Technology Development and research institutions	BY 2020	200,000
	Identify gaps in biodiversity expertise and incorporate into training programmes and especially tertiary institutions curricula	Database of biodiversity expertise, including indigenous knowledge systems; At least 50% of higher and tertiary institutions have revised and updated curricula to cover innovative technologies in biodiversity; At least one training and capacity building programme on biodiversity innovations is held annually on each threat for key stakeholders	MEWC and ministries of Higher Education, Science and Technology Development	By 2018	20,000
	Build capacity in ecosystems valuation	At least three trainings are conducted on ecosystems valuation			40,000

Target 18: By 2020, mechanisms for resource mobilization and accounting are established and financial resources from national budgets and other sources for the implementation of the NBSAP increased from current levels

STRATEGY	ACTION	INDICATOR	RESPONSIBILITY	TIME-FRAME	ROUGH ESTIMATE (US$)
Sustainable financing	Conduct a private-public income and expenditure review for biodiversity and recommend a framework for implementing payment for ecosystems services	Analysis report; Framework for PES	MEWC and Ministry of Finance	By 2017	10,000
	Lobby for access to environmental management funds to implement biodiversity programmes	Environmental Fund under an independent multi stakeholder institution; At least 70% of funds from Environmental Fund are used to finance biodiversity programmes	MEWC	Ongoing	1,000
	Network with relevant organizations, to tap into international finance, including climate finance and other funds available through global initiatives	At least one large-scale biodiversity project is financed from international finance trends in external funding towards biodiversity	MEWC and NGOs	Ongoing	750,000
Making a business case for biodiversity	Determine the economic value of ecosystem services; Sensitize planners and stakeholders at all levels across all sectors on the value of biodiversity	At least 10% increase in investment by other sectors towards biodiversity conservation; 50% increase in allocation from Treasury for biodiversity conservation; Reflection of biodiversity business in national accounts and the economic planning frameworks	MEWC, Ministry of Finance, ZimStat and private sector	By 2016	200,000

Appendix 3: Current financing opportunities for NBSAP implementation

CBD-related finance

NAME	DESCRIPTION	PROJECT TYPE SUPPORTED	FINANCING MECHANISM	STRATEGIC ACTION FOR BIODIVERSITY OFFICE
Nagoya Protocol Implementation Fund (NPIF) of the Global Environment Facility (GEF)	The NPIF has been created to fund activities under the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization, adopted at the 10th Conference of Parties of the CBD.	The fund supports existing opportunities leading to the development and implementation of concrete access to benefits (ABS) agreements involving the private sectors projects funded under NPIF. It encourages engagement with private sector entities interested in exploring the economic potential of genetic resources and facilitates the transfer of appropriate technologies.	Projects under the NPIF are supported through the GEF medium-size project modality ($1 million or less), though full-size projects (above $1 million) can be pursued on an exceptional basis.	Engage GEF focal point and jointly identify partners in the private and civil society sectors for development of funding concepts.
Life in Harmony Initiative	The initiative was launched by Japan to assist CBD partner countries in developing and implementing post-2010 biodiversity targets.	The initiative supports capacity building for the management of protected areas and conservation of wildlife habitats isolated by rapid development of agriculture, the development of conservation plans across borders, sustainable use of natural resources and ABS of genetic resources. Support is included.		
LifeWeb Initiative of the Convention on Biological Diversity (CBD)	LifeWeb was set up to facilitate financing that helps to secure livelihoods and address climate change by supporting the implementation of the Strategic Plan for Biodiversity 2011-2020 and the CBD Programme of Work on Protected Areas. It links CBD parties' financing needs with donors.	LifeWeb focuses on initiatives that will advance implementation of the Aichi Biodiversity Targets in the 2011-2020 strategic plan for biodiversity that require area-based conservation efforts. The list of Aichi targets eligible for consideration under the second phase of LifeWeb are targets 5, 9, 11, 12, 13, 14 and 15.	Submission of expressions of Interest to LifeWeb through national focal points on CBD and CBD Programme of Work on Protected Areas (PoWPA).	Initiate development of expressions of interest for national biodiversity priorities for submission to LifeWeb in consultation with CBD and CBD PoWPA focal points.

CBD-related finance (continued)

NAME	DESCRIPTION	PROJECT TYPE SUPPORTED	FINANCING MECHANISM	STRATEGIC ACTION FOR BIODIVERSITY OFFICE
Special Climate Change Fund	Covers incremental costs of interventions addressing impacts of climate change, relative to development baseline and needs in vulnerable socio-economic sectors. Administered by the Global Environment Facility.	Adaptation and technology transfer	Grant	• Pick out biodiversity and ecosystems issues from the Second National Communication to the UNFCCC; • Lobby for inclusion of specific biodiversity and ecosystems issues to prepare for the third national communication to the UN Framework Convention on Climate Change, which is under way
BMUB adaptation	The International Climate Initiative of the German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMUB) finances up to €120 million worth of climate and biodiversity projects in developing countries. The funding is mainly for ecosystem-based adaptation in the most vulnerable regions by: i) fostering measures to adapt to the effects of climate change; ii) ensuring the conservation and sustainable use of natural carbon reservoirs; and iii) conservation of biodiversity. There is also support for formulating national adaptation strategies and developing instruments for risk management.	• Ecosystem-based adaptation (EbA) in the fields of water and land-use management; • Development and implementation of national adaptation plans; • Management of climate risks	Grant and technical assistance	• Identify specific ecosystem based approaches that need technical assistance; • Lobby climate change office for the development of a national adaptation plan that addresses EbA issues
Adaptation for Smallholder Agriculture Programme (ASAP)	The International Fund for Agricultural Development administers the ASAP. It aims to scale up successful approaches that have been proved to improve agriculture production, diversity, livelihoods and to reduce over-dependence on natural ecosystems.	• Improve land management and promote gender-sensitive, climate-resilient agricultural practices and technologies; • Increase availability and efficient use of water for smallholder agriculture production and processing; • Increase capacity to manage short- and long-term climate risks and reduce losses from weather-related disasters; • Increase climate resilience of rural infrastructure; • Document and disseminate knowledge on climate-smart smallholder agriculture	Co-financing and grant	• Flag opportunities and issues for ecosystems-based approaches in the International Fund for Agricultural Development (IFAD) results-based country strategic opportunities paper (RB-COSOP); • Engage IFAD regional division and building on consultations undertaken during RB-COSOP design and development cycle

Mitigation funds

NAME	DESCRIPTION	PROJECT TYPE SUPPORTED	FINANCING MECHANISM	STRATEGIC ACTION FOR BIODIVERSITY OFFICE
Global Environment Facility (GEF 4/5)	The Global Environment Facility Trust Fund supports the implementation of multilateral environmental agreements and serves as a financial mechanism of the UN Framework Convention on Climate Change. The GEF covers the incremental costs of a measure to address climate change relative to a business-as-usual baseline. The fund is administered through implementing agencies such as the UN Development Programme, UN Environmental Programme, IFAD, Food and Agriculture Organization and the World Bank.	• Market transformation for energy efficiency in the industrial and buildings sectors; • Investment in renewable energy technologies; Energy-efficient, low-carbon transport and urban systems; • Conservation and enhancement of carbon stock through sustainable management of land use, land-use change and forestry; • Enabling activities and capacity building	Co-financing and grant	• Engage local GEF office, focal point and GEF implementing agencies, which include UNDP, UNEP, World Bank and IFAD; • Identify ecosystem-based businesses, such as tourism and hospitality, that are willing to invest in solutions that cut their costs while reducing their carbon emissions; • Advocate and lobby for increased use of energy-efficient systems in enterprises demanding high biomass energy such as brick molding, tobacco curing and institutional cuisine
The Nordic Climate Facility (NCF)	The NCF encourages and promotes technological innovation in sectors susceptible to climate change, such as energy, transport, water and sanitation, health, agriculture, and forestry, and those related to natural resources management. Projects may receive partial grant financing of between €250,000 and €500,000 over two years. NCF is financed through the Nordic Development Fund, which is financed from the development cooperation budgets of the five Nordic countries. The NCF is in its third year now and has dispersed over US$18 million. Financing can be granted to partnerships between Nordic institutions, organizations, companies, or authorities, and qualified local partners with the lead partner being a Nordic-registered entity.	• Use of energy efficiency technologies; • Substitution of fossil fuel use; • Carbon sequestration	Grants	Foster the establishment of partnerships with Nordic biodiversity and ecosystems-based business and industries in anticipation of the next call.
Renewable Energy and Energy Efficiency Partnership (REEP)	REEEP is a market catalyst for renewable energy and energy efficiency in developing countries and emerging markets administered by the European Investment Bank. It was established at the 2002 World Summit on Sustainable Development in Johannesburg. In 10 years over 18-month periods REEEP has helped establish more than 180 projects, disbursed €18.4 million and leveraged €35.1 million in co-funding.	• Facilitate the transformation of energy systems by accelerating the uptake of renewable and energy efficiency technology, to reduce carbon emissions, increase energy security, and improve access to sustainable energy for the poor worldwide; • Develop the market for sustainable energy by: i) assisting governments in creating favorable regulatory and policy frameworks; and ii) promoting innovative finance and business models to activate the private sector		

REDD+ finances

NAME	DESCRIPTION	PROJECT TYPE SUPPORTED	FINANCING MECHANISM	STRATEGIC ACTION FOR BIODIVERSITY OFFICE
Germany's International Climate Initiative (ICI)	The ICI of the BMUB supports preservation and sustainable use of carbon reservoirs, including wetlands. Importantly, ICI targets savannahs, which are not covered by the UN REDD+ mechanism. The ICI is funded from the sale of emission allowances in the European carbon market and to date has funded 76 projects with more than €202 million.	• Development, application and monitoring of ecological and social standards ("safeguards") with a focus on the participation of local communities and indigenous peoples; • Development of effective, efficient and equitable national benefit distribution systems for REDD+; • Addressing the drivers of deforestation, and the rehabilitation of forest ecosystems; • Innovative ways of linking the conservation and sustainable use of ecosystems with adaptation	Grant	• Capitalize on existing REDD+ projects and focus on developing access-and-benefit-sharing protocols; • Develop a government-backed REDD+ project that targets protected areas, particularly forests, which are affected by high deforestation rates
International Climate Fund (ICF) of the United Kingdom	The ICF is the primary channel of UK climate change finance and is worth £2.9 billion. The fund is managed through the Department for International Development (DFID), the Department for Environment and Climate Change, the Treasury, the Department for Environment, Food and Rural Affairs and the Foreign and Commonwealth Office. REDD+ funding is a priority for the ICF and is administered by multilateral organizations: Forest Investment Programme (£100 million); the Congo Basin Forest Fund (£50 million), administered by the African Development Bank; and the Forest Carbon Partnership Facility (£3.5 million to the Readiness Fund and £11.5 million to the Carbon Fund). Major emphasis in REDD+ is on working with governments and the private sector to build greater value in standing forests and to address agricultural drivers of deforestation, in line with their REDD+ national strategies. This new REDD+ initiative is funded to the tune of £500 million. The ICF also creates bilateral funds with specific countries.	• The incoming call for 2013/2014 will focus on integrating agriculture and REDD+ and explores the role of the private sector, particularly targeting large agricultural companies and their role in deforestation; • Demand-side measures to build greater market share for sustainably produced timber and agricultural commodities, such as sustainable public procurement policies; • Enabling conditions, to address barriers to investment in activities that reduce deforestation, such as improved regulatory environments and clear land tenure; • 'Greenfield' investments, which make forests more valuable and so increase the incentives to keep forests standing, such as community forestry and reforestation initiatives; • 'Brownfield' investments, which support the production of key agricultural commodities in ways that do not result in further deforestation, such as intensification of production; • Jurisdictional approaches, which test the above interventions in a defined sub- national or national jurisdiction	Grant, loan and overseas development assistance	• Identify major agriculture commodities fuelling high deforestation rates; • Engage local DFID officials to forge bilateral financing mechanisms

REDD+ finances (continued)

NAME	DESCRIPTION	PROJECT TYPE SUPPORTED	FINANCING MECHANISM	STRATEGIC ACTION FOR BIODIVERSITY OFFICE
United States Sustainable Landscapes	The U.S. Agency for International Development (USAID) is the primary agency working on REDD+ actions in developing countries, with support from the U.S. Forest Service, the Environmental Protection Agency and the Department of State, among others. Funding to the tune of US$1 billion supports the World Bank Forest Carbon Partnership Facility, a number of regional and global initiatives, and a large number of bilateral forest conservation and REDD+ efforts in developing countries. Country programmes focus primarily on REDD+ Phase 1 readiness activities, including the development of forest inventories, measuring, reporting and verification (MRV) systems and national and local REDD+ strategies. They are usually funded to the tune of US$20-50 million. The fund approach emphasizes the development of national low-emission development strategies (LEDS), of which the REDD+ programmes are a component. The fund is expected to focus more closely on bilateral REDD+ programmes with countries of high interest to USAID, as well as on sectors that drive deforestation such as agriculture. Financing is usually by cooperative agreement and contract. The former is geared towards international NGOs, while the latter is of more interest to commercial consultancy firms, where profits can be made.	The fund investment is based on country-specific pre-assessments baseline studies and focuses on: • Integrated land use planning; • Forest conservation and restoration; • Technical support for readiness, in particular around MRV and baselines; • Addressing the drivers of deforestation, in particular agriculture; • Engaging the private sector	Grant	• Develop a LEDS with focus on REDD+, biodiversity and ecosystems issues; • Lobby international NGOs and local consultancy firms to engage directly with the in-country U.S. mission

Market-based financing

NAME	DESCRIPTION	PROJECT TYPE SUPPORTED	FINANCING MECHANISM	STRATEGIC ACTION FOR BIODIVERSITY OFFICE
Voluntary markets	Voluntary markets are different from the compliance schemes under the Kyoto Protocol and the European Union Emissions Trading Scheme. Instead of undergoing national approval from the project participants and the registration and verification process from the UN Framework Convention on Climate Change (UNFCCC), the calculation and the certification of emission reductions are implemented in accordance with a number of industry- or sector-specific created standards and methodologies, especially the Voluntary Carbon Standard and the Climate, Community and Biodiversity Alliance.	Vapour recovery units that can be traded under voluntary markets originate from projects that use voluntary standard approved methodologies. Such projects are: • Afforestation, reforestation and vegetation; • Agricultural land management; • Improved forest management; • Reduced emissions from deforestation and degradation (REDD); • Avoided conversion of grasslands and shrub lands; • Wetlands restoration and conservation	Most voluntary emission reduction units are traded directly between sellers and buyers or sometimes through middlemen.	Lobby for market-based mechanisms for pollution control locally and lobby local industries to invest in local projects as corporate social responsibility offsets for their negative impacts on ecosystems.
Clean Development Mechanism (CDM)	The CDM is a UNFCCC-backed standard, which is usually synonymous with the compliance markets. Compliance markets are developing across the world, some with regional, sectoral, national and bilateral arrangements. In essence the CDM, whose credits are traded in compliance markets, makes it mandatory for developed countries and their companies to cut their emissions to certain levels that are below their business-as-usual scenarios. Entities and countries therefore find it cheaper to invest in projects that cut emissions in developing countries, which projects accrue carbon credits that can be traded within a particular market.	• EU Emissions Trading System; • Australia's Carbon Farming Initiative; • Japan Bilateral Offset Credit Mechanism; • The New Zealand Emissions Trading Scheme	Types of projects are afforestation, reforestation and improved forest management. However, there are several opportunities for biomass energy-efficient technologies such as biogas.	Develop projects that attract investment from private players who would want to offset their emissions.

Carbon fund

NAME	DESCRIPTION	STRATEGIC ACTION FOR BIODIVERSITY OFFICE
The Africa Carbon Asset Development Facility (ACAD)	The ACAD Facility is worth US$87.1 million. It is designed to help overcome the lack of financial skills and capacity in African institutions needing to identify, appraise, develop and transact carbon projects. In order to ensure scaling up, the fund shares costs with regional banks to replicate tested and successful projects.	• Identify projects with clear carbon benefits but with no carbon assets created as yet; • Identify projects in EE and RE that have a direct positive impact on ecosystems and biodiversity; • Engage prominent and individual funds such as Althelia and Terra Bella directly with concrete project ideas
Millennium Development Goals (MDG) Carbon Fund	The MDG carbon fund aims to broaden access to carbon finance by enabling a wider range of developing countries to participate and promote emission reduction projects that contribute to the millennium development goals by yielding additional sustainable development and poverty reduction benefits.	
World Bank carbon funds and facilities	The World Bank Carbon Finance Unit uses money contributed by 16 governments and 66 private companies in member countries of the Organization for Economic Cooperation and Development to purchase project-based greenhouse gas reductions in developing countries and countries with economies in transition.	
Clean Development Mechanism (CDM) loan scheme	The CDM loan scheme offers UNFCCC-backed interest-free loans meant to support the development of carbon projects in countries with fewer than 10 registered CDM projects.	
Terra Bella Fund	Managed by Terra Global Capital, the fund invests in a portfolio of carbon-offset projects and related equity or debt structures, focusing on the land-use carbon sector run by Terra Global Capital. The fund covers land-use projects of up to US$150 million per project, including the following: reforestation for conservation; reforestation for sustainable timber management; reforestation with tree crops (agroforestry); changes in agricultural practices; crop conversion to perennials; sustainable fuel stock for biofuels; soil conservation and improvement; agricultural land management; conversion from commercial harvesting to sustainable; and avoided deforestation.	
Althelia Climate Fund	The Althelia Climate Fund supports investments in sustainable forestry and forest carbon, with a focus on REDD+. It provides returns in terms of cash or carbon assets and is open to compliance and non-compliance markets. It is a close-ended fund with a maximum size of €250 million with a first closing at €70 million. It currently seeks further investors.	
Green Climate Fund (GCF)	GCF is a UNFCCC-backed emerging institution operating as a financial mechanism under Article 11 of the convention The fund finances activities that enable and support adaptation and mitigation, including REDD+, technology development and transfer, capacity building and the preparation of national reports. Projects that are cross-cutting and include several facets of climate change are more likely to receive funding.	• Monitor development of the fund; • Lobby for the development of NAMAs, especially over agricultural commodities that have a direct influence on ecosystems change and biodiversity loss

Domestic funding

NAME	DESCRIPTION	STRATEGIC ACTION FOR BIODIVERSITY OFFICE
Carbon tax	Carbon tax was mooted and implemented with the aim of curbing greenhouse gas emissions across the country. Legislatively, the tax is governed under the Environmental Management Act and is fundamentally based on the "polluter-pays principle".	Extensive lobbying of revenue authorities and the cabinet to apportion at least a third of carbon tax generated per annum to support ecosystems-based adaptation (EbA) approaches, especially those that that remove emissions from land-based sectors and enhance revenue generation from the biodiversity and ecosystems sectors of the economy.
The National Budget (government financing)		The Biodiversity Office should clearly articulate and demonstrate the importance of biodiversity and ecosystems to the national economy and articulate its role in revenue generation systems. Current scientific research should be supported to produce position papers for this.
Fiscal instruments (drought and pollution levies)	In Zimbabwe, fiscal instruments have been implemented to deal with weather-related catastrophes, including the 1984-85, 1987, 1992-93 and 2002 droughts, by imposing a levy that has ranged from 3% to 10% on all taxable incomes in the country. In 2002 the drought levy scheme collected about US$50 million, which went towards alleviating the impact of devastating droughts on vulnerable communities. Pollution levies are collected regularly by the Environmental Management Agency as a way of trying to make industry reduce its impact on natural ecosystems, especially through effluent discharges into water bodies.	
Wildlife- and ecosystems-generated revenues	Wildlife and ecosystems generate revenues through the protected area network which are taxed. A component of this tax can be set aside for biodiversity and ecosystems conservation as a contribution to the operations of the Biodiversity Office	• Biodiversity Office to lobby with responsible authorities for a percentage of the revenues to be invested in advance for ecosystems based adaptation; • Lobby Convention on International Trade in Endangered Species to allow for the selling of the existing ivory stockpile and invest the money in enhancing EbA for protected areas.
Community share ownership trusts	The formation of community share ownership trusts is provided for under Statutory Instrument 21 of 2010. Provisions exist for use of trust funds for environmental management, especially rehabilitation.	Increase awareness of the importance of biodiversity and ecosystems conservation to CSOT trustees.
Private sector funds	Corporate social responsibility provisions and private, public and community partnerships are an avenue for financing biodiversity conservation.	Initiate deliberate and consistent corporate engagement. The Biodiversity Office should take the lead in lobbying and advancing biodiversity-based business models that enhance profit making for private investors while benefiting local communities and advance EbA approaches.

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Glossary of terms

Adaptation: adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities. Various types of adaptation can be distinguished – anticipatory, autonomous and planned.

Agro-biodiversity (or agricultural biodiversity): a broad term that includes all components of biological diversity of relevance to food and agriculture, and all components of biological diversity that constitute the agricultural ecosystems, notably the variety and variability of animals, plants and micro-organisms at the genetic, species and ecosystem levels which are necessary to sustain key functions of the agro-ecosystem, its structure and processes (COP decision V/5, appendix 2).

Biodiversity (or biological diversity): the variability among living organisms from all sources, including terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity in species, between species and of ecosystems (Article 2 of the UN Convention on Biological Diversity).

Biodiversity hotspot: exceptional concentrations of endemic species that are undergoing exceptional loss of habitat.

Biodiversity mainstreaming: the integration of the conservation and sustainable use of biodiversity in cross-sectoral plans (such as sustainable development, poverty reduction, climate change adaptation or mitigation, trade and international cooperation) and in sector-specific plans (such as agriculture, fisheries, forestry, mining, energy, tourism and transport). It implies changes in development models, strategies and paradigms.

Ecosystem: a dynamic complex of plant, animal and micro-organism communities and their non-living environment interacting as a functional unit.

Ecosystems approach: a strategy for the integrated management of land, water and living resources that promotes conservation and sustainable use in an equitable way.

Ecosystems services (also ecosystem goods and services): the benefits people obtain from ecosystems: provisioning services, such as food, water, timber and fibre; regulating services, such as the regulation of climate, floods, disease, waste, and water quality; cultural services, such as recreation, aesthetic enjoyment, and spiritual fulfilment; and supporting services, such as soil formation, photosynthesis and nutrient cycling.

Ecosystems-based adaptation: (EbA): the use of biodiversity and ecosystem services as part of an overall strategy to help people to adapt to the adverse effects of climate change. EbA uses 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. It is a means of adaptation that is readily available to the rural poor; it can generate social, economic and cultural co-benefits, contribute to the conservation of biodiversity and build on the traditional knowledge of indigenous peoples and local communities. Moreover, healthy, well-managed ecosystems have climate change mitigation potential – for example, through the sequestration and storage of carbon in healthy forests, wetlands, and coastal ecosystems (CBD 2008).

Invasive alien species: species whose introduction and spread outside their natural past or present distribution threatens biological diversity.

Protected area: a geographically defined area that is designated or regulated and managed to achieve specific conservation objectives.

Species: a group of living organisms consisting of similar individuals capable of exchanging genes or interbreeding.