



# National Biodiversity Strategy and Action Plan

2016



Department of Environmental  
Affairs  
Private Bag 0068  
Gaborone







# CONTENTS

EXECUTIVE SUMMARY.....	IX
1. INTRODUCTION.....	1
1.1 STATUS AND TRENDS OF BIODIVERSITY IN BOTSWANA.....	1
1.1.1 Large mammals.....	4
1.1.2 Small mammals.....	4
1.1.3 Avifauna.....	5
1.1.4 Fish.....	6
1.1.5 Reptiles and amphibians.....	6
1.1.6 Invertebrates.....	6
1.1.7 Vegetation.....	6
1.2 CAUSES AND CONSEQUENCES OF BIODIVERSITY LOSS.....	7
1.3 VALUE OF BIODIVERSITY AND ECOSYSTEM SERVICES IN BOTSWANA.....	11
1.3.1 Agriculture.....	11
1.3.2 Veld products use.....	12
1.3.3 CBNRM.....	12
1.3.4 Wildlife.....	13
1.3.5 Tourism.....	13
1.3.6 Ecosystem services (indirect use).....	13
1.3.7 Option and existence values.....	13
1.4 FINANCING FOR BIODIVERSITY CONSERVATION AND MANAGEMENT IN BOTSWANA.....	13
1.4.1 MEWT expenditures and revenues.....	14
1.4.2 External funding and civil society funding.....	15
1.4.3 Financial challenges and the way forward.....	16
1.5 POLICY AND INSTITUTIONAL FRAMEWORK SUPPORTING BIODIVERSITY CONSERVATION.....	17
1.6 CAPACITY BUILDING.....	19
1.6.1 Objectives.....	19
1.6.2 Challenges.....	20
1.6.3 Opportunities.....	20
1.6.4 Key capacity enhancement areas and activities.....	20
1.7 COMMUNICATION.....	21
1.7.1 Overall aim.....	21
1.7.2 Objectives.....	21
1.7.3 Challenges.....	22

1.7.4	Opportunities .....	22
1.7.5	Stakeholders and communication tools.....	23
1.8	LESSONS LEARNED FROM THE 2007 NBSAP.....	24
1.8.1	Progress in implementation .....	24
1.8.2	Gaps in information .....	24
1.8.3	Main resource constraints.....	25
1.8.4	Key lessons learned .....	25
1.9	PRECONDITIONS FOR SUCCESS - THE ENABLING ENVIRONMENT .....	26
1.9.1	Preconditions relating directly to biodiversity conservation .....	26
1.9.2	Preconditions for mainstreaming biodiversity .....	27
1.9.3	Preconditions for valuing biodiversity.....	27
2.	<b>NBSAP PRINCIPLES, VISION, GOALS AND TARGETS.....</b>	<b>30</b>
2.1	PRINCIPLES .....	30
2.2	VISION .....	31
2.3	GOALS .....	31
2.4	NATIONAL TARGETS.....	31
2.4.1	Targets under Goal 1: Biodiversity is mainstreamed and valued across all sectors of society .....	32
2.4.2	Targets under Goal 2: The pressure on biodiversity is reduced and natural resources are used sustainably .....	32
2.4.3	Targets under Goal 3: Ecosystems, species and genetic resources are protected through sound management.....	32
2.4.4	Targets under Goal 4: Fair and equitable access to the benefits of biodiversity is secured .....	33
2.4.5	Targets under Goal 5: Participatory planning, knowledge management and capacity-building are in place to support NBSAP implementation .....	33
3.	<b>ACTION PLAN AND STRATEGIES FOR IMPLEMENTATION.....</b>	<b>34</b>
3.1	COORDINATION OF ACTIVITIES .....	34
3.2	RESOURCE MOBILISATION PLAN .....	35
3.2.1	Factors influencing resource mobilisation .....	35
3.2.2	Resource opportunities .....	35
3.2.3	Funding requirements .....	36
3.3	CAPACITY BUILDING PLAN.....	40
3.3.1	Objectives .....	40
3.3.2	Capacity development activities and efforts.....	41
3.3.3	Capacity challenges .....	41
3.3.4	Opportunities .....	42

3.3.5	Enabling action items .....	44
3.4	COMMUNICATION PLAN .....	45
3.4.1	Approach .....	45
3.4.2	Overall aim.....	45
3.4.3	Objectives .....	45
3.4.4	Communication situation .....	47
3.4.5	Challenges.....	49
3.4.6	Opportunities .....	50
3.4.7	Elements for communication with stakeholders.....	51
3.4.8	Conclusions.....	53
3.5	CLEARING HOUSE MECHANISM .....	53
3.5.1	Requirements and mission under the Convention.....	53
3.5.2	Existing CHM located on the Botswana Environmental Information System .....	53
3.5.3	Proposed changes to content of the EIS .....	54
3.5.4	Partners and links .....	<b>Error! Bookmark not defined.</b>
3.6	MONITORING AND EVALUATION PLAN .....	55
3.6.1	Monitoring.....	55
3.6.2	Evaluation .....	57
3.7	NATIONAL REPORTING FRAMEWORK .....	61
3.7.1	Channels of communication .....	61
3.7.2	Coordination of reporting.....	61
3.7.3	Areas of information for reporting.....	61
3.7.4	Frequency of domestic reporting .....	61
3.7.5	Recommendations for the structuring of the National Report to the CBD.....	61
3.8	IMPLEMENTATION PLAN FOR EACH TARGET’S STRATEGIC ACTIONS.....	63
3.8.1	Strategic Actions for Target 1: By 2025, all people in Botswana appreciate how biodiversity contributes to their lives, and are aware of steps they can take to conserve and use it sustainably. ....	64
3.8.2	Strategic Actions for Target 2: By 2025, planning processes at all (district, urban and national) levels, and national accounting and reporting systems in Botswana contain explicit actions to promote biodiversity conservation. ....	66
3.8.3	Strategic Actions for Target 3: By 2025, incentives and subsidies across all sectors are revised, designed or introduced to improve support for sustainable consumption and production and promote biodiversity conservation. ....	68
3.8.4	Strategic Actions for Target 4: By 2025, at all levels, policy and regulatory instruments are in place to ensure production and consumption by government, industry and society are kept within sustainable levels and safe ecological limits.....	69

3.8.5	Strategic Actions for Target 5: By 2025, the rate of natural land conversion is at least halved, and degradation and fragmentation are significantly reduced.....	71
3.8.6	Strategic Actions for Target 6: By 2025, animal and plant resources in Botswana’s wetlands, woodlands and savannas are sustainably managed using the ecosystem approach, so that the impacts of harvesting remain within safe ecological limits.....	73
3.8.7	Strategic Actions for Target 7: By 2025, wetlands, woodlands and savannas, particularly where used for use for range or crops, are managed sustainably, ensuring conservation of biodiversity. ....	74
3.8.8	Strategic Actions for Target 8: By 2025, levels of air, water and soil pollution are maintained below levels that would threaten ecosystem functioning and biodiversity. ....	76
3.8.9	Strategic Actions for Target 9: By 2025, key invasive alien species are identified and controlled or eradicated, and pathways for their spread are managed to prevent further introduction and establishment.....	78
3.8.10	Strategic Actions for Target 10: By 2025, the anthropogenic pressures on wetlands, woodlands and savannas are minimised, so that the impacts of climate change and other external perturbations on their ecological integrity and functioning can be managed.....	79
3.8.11	Strategic Actions for Target 11: By 2025, at least 25 percent of all Botswana’s ecoregions, particularly the wetlands, rivers and pans in them, are effectively conserved through an ecosystem approach that integrates their management with that of the surrounding landscapes and involves resident communities.....	80
3.8.12	Strategic Actions for Target 12: By 2025, the conservation status of species in Botswana that are listed as threatened has been improved or sustained. ....	82
3.8.13	Strategic Actions for Target 13: By 2025, the genetic resources of traditional agricultural species and their wild relatives are protected, and strategies for minimizing genetic erosion and safeguarding their genetic diversity have been implemented.....	84
3.8.14	Strategic Actions for Target 14: By 2025, ecosystem services are identified and restored or maintained in all Botswana’s ecoregions, and contribute to livelihood improvement through strategies that enable equitable access by all vulnerable groups, including women, the poor and local communities. ....	86
3.8.15	Strategic Actions for Target 15: By 2025, ecosystem integrity in all Botswana’s ecoregions will be conserved through the adoption of ecosystem-level management approaches built around key ecological processes, so that they contribute to climate change mitigation and to combating desertification.....	88
3.8.16	Strategic Actions for Target 16: By 2025, the Nagoya Protocol is domesticated and operational, and specific actions that ensure fair and equitable access and benefit sharing are implemented. ....	89
3.8.17	Strategic Actions for Target 17: By 2015, Botswana’s revised NBSAP has commenced implementation with the full support of all sectors and levels of governance.....	90

3.8.18 Strategic Actions for Target 18: By 2025, the indigenous knowledge of Botswana’s various communities, as it relates to the conservation and sustainable use of biodiversity in all the country’s ecoregions, will be documented, assessed and legally protected, and - where relevant - integrated into programmes and projects supporting biodiversity conservation. ....	91
3.8.19 Strategic Actions for Target 19: By 2025, information and techniques relating to the biodiversity and its value in all Botswana’s ecoregions are efficiently documented, stored, shared, disseminated and used by all sectors and levels of society. ....	92
3.8.20 Strategic Actions for Target 20: By 2017, at least 80% of the required budget for the revised NBSAP, generated from diverse sources, is made available for its implementation. ....	94
APPENDIX 1: COMPARISON OF CBD AND NATIONAL GOALS, AND OF NATIONAL AND AICHI TARGETS .....	96
APPENDIX 2: PRINCIPLES OF THE ECOSYSTEM APPROACH .....	100
APPENDIX 3: NBSAP TARGETS AND STRATEGIC ACTIONS RELEVANT TO OTHER MEAS.....	103
APPENDIX 4: BIODIVERSITY INDICATORS .....	121
APPENDIX 5: EXAMPLES OF CHMS FROM OTHER COUNTRIES.....	<b>ERROR! BOOKMARK NOT DEFINED.</b>
APPENDIX 6: NBSAP UPDATE PROCESS .....	125

## List of Figures

FIGURE 1: ECOREGIONS OF BOTSWANA INDICATING RELATIONSHIP WITH THE PROTECTED AREA NETWORK (PARTIALLY AFTER WWF ECOREGIONS MAP OF THE WORLD) .....	2
FIGURE 2: MEWT RECURRENT EXPENDITURES BY DEPARTMENT (2000/01- 2012/13; BWP CONSTANT PRICES) SOURCE: ADAPTED FROM ANNUAL REPORTS ON PUBLIC EXPENDITURES FROM DEVELOPMENT AND CONSOLIDATED FUNDS. ....	15
FIGURE 3: ESTIMATED ANNUAL COSTS OF PROJECT IMPLEMENTATION BY NATIONAL TARGET (2014 PULA).....	37
FIGURE 4: ANNUAL ESTIMATED COSTS OF NBSAP ACTIVITIES IMPLEMENTATION (IN BWP 2014) .....	37
FIGURE 5: DISTRIBUTION OF ESTIMATED COSTS OVER NDP 10-12 PERIODS.....	38
FIGURE 6: OBJECTIVES, EXPECTED OUTCOMES AND IMPACTS OF THE COMMUNICATION STRATEGY .....	47
FIGURE 7: HOMEPAGE OF THE BOTSWANA ENVIRONMENTAL INFORMATION SYSTEM .....	54
FIGURE 8: BIODIVERSITY INDICATORS ON THE EIA.....	ERROR! BOOKMARK NOT DEFINED.
FIGURE 9: CHANGES REQUIRED TO THE EXISTING EIA HOME PAGE. ....	ERROR! BOOKMARK NOT DEFINED.
FIGURE 10: SUGGESTIONS FOR THE BIODIVERSITY CHM PAGE .....	ERROR! BOOKMARK NOT DEFINED.

## List of Tables

TABLE 1: REPRESENTATION AND PROTECTION STATUS OF ECOREGIONS IN BOTSWANA .....	3
TABLE 2: SUMMARY OF STAKEHOLDER-IDENTIFIED THREATS TO BIODIVERSITY, AND POTENTIAL CONSEQUENCES OF ITS LOSS IN BOTSWANA.....	8
TABLE 3: TOTAL ECONOMIC VALUE OF BIODIVERSITY.....	11
TABLE 4: EXPENDITURES AND REVENUES PER HA FOR DWNP AND DFRR (2012/13; BWP) .....	15
TABLE 5: ESTIMATED COSTS OF PROPOSED ACTIVITIES BY NATIONAL TARGET AND YEAR.....	39
TABLE 6: CATEGORIES OF STAKEHOLDERS AND TOOLS TO BE USED FOR COMMUNICATION .....	52
TABLE 7: MONITORING THE SUBMISSIONS OF LEAD IMPLEMENTING AGENCIES .....	57
TABLE 8: MONITORING STRATEGIC ACTIONS .....	58
TABLE 9: MONITORING TARGETS .....	59

## Abbreviations and Acronyms

AG	Attorney General
BALA	Botswana Association of Local Authorities
BCA	Botswana College of Agriculture
BEAPA	Botswana Environmental Assessment Practitioners Association
BIDPA	Botswana Institute of Development Policy Analysis
BLB	Birdlife Botswana
BOBS	Botswana Bureau of Standards
BOCCIM	Botswana Confederation of Commerce, Industry and Manpower
BPC	Botswana Power Corporation
BQA	Botswana Qualifications Authority
BURS	Botswana Unified Revenue Service
BWP	Botswana Pula
CBD	Convention on Biological Diversity
CBNRM	Community-based Natural Resources Management
CBO	Community-based Organisation
CESRIKI	Centre for Scientific Research Indigenous Knowledge and Innovation
CHA	Controlled Hunting Area
CHM	Clearing House Mechanism
DAP	Department of Animal Production
DAR	Department of Agricultural Research
DCDE	Department of Curriculum Development and Evaluation
DCP	Department of Crop Production
DEA	Department of Environmental Affairs
DFRR	Department of Forest Resources and Rangelands
DIA	Department of Industrial Affairs
DIT	Department of International Trade
DLGDP	Department of Local Government and Development Planning
DLUPU	District Land Use Planning Unit
DMLA	Department of Multilateral Agreements
DMS	Department of Meteorological Services
DNMM	Department of National Museum and Monuments
DoL	Department of Lands
DoM	Department of Mines
DoT	Department of Tourism
DSM	Department of Surveys and Mapping
DPH	Department of Public Health
DRST	Department of Research, Science and Technology
DTRP	Department of Town and Regional Planning
DVS	Department of Veterinary Services
DWA	Department of Water Affairs
DWMPC	Department of Waste Management and Pollution Control
DWNP	Department of Wildlife and National Parks
EAD	Energy Affairs Department
Ha	Hectare
HoD	Head of Department
HWC	Human wildlife conflict
KAZA	Kavango-Zambezi Transfrontier Conservation Area
KCS	Kalahari Conservation Society
LA	Local Authority
LED	Local Economic Development
MDG	Millennium Development Goals

MEA	Multilateral Environmental Agreement
MEWT	Ministry of Environment, Wildlife and Tourism
MEWT RDU	MEWT Research and Development Unit
MLG	Ministry of Local Government
NBDA	National Biological Diversity Authority
NBSAP	National Biodiversity Strategy Action Plan
NDMO	National Disaster Management Organisations
NFRTC	National Food Research Technology Center
NEEC	National Environmental Education Committee
NGO	Non-governmental Organisation
NSO	National Strategy Office
OKACOM	Permanent Okavango River Basin Water Commission
PEU	Poverty Eradication Unit
PRO	Public Relations Office
RI	Research Institute
ROCIP	Registrar of Companies and Intellectual Property
S&CD	Social and Community Development
SASSCAL	Southern African Science Service Centre for Climate Change and Adaptive Land Use
SEA	Strategic Environmental Assessment
TAC	Technical Advisory Committee
TEC	Tertiary Education Council
TAC	Technical Advisory Committee
TWGs	Thematic Working Groups
UB	University of Botswana
UNDP	United Nations Development Programme
VACC	Village Agricultural Conservation Committee
WMA	Wildlife Management Area
WUC	Water Utilities Corporation
WWF	World Wildlife Fund

# EXECUTIVE SUMMARY

---

## **Introduction**

Botswana has been party to the Convention on Biological Diversity (CBD) since 1995. The country submitted its first National Biodiversity Strategy and Action Plan (NBSAP) in 2004. The NBSAP was first revised in 2007, and is now revised again in order to update it and bring it in line with the CBD's own revised Strategic Plan and the Aichi Targets. Botswana also ratified the Cartagena Protocol in 2001 and acceded to the Nagoya Protocol in 2013.

As a signatory to the convention, Botswana supports the CBD's premise that "biological diversity underpins ecosystem functioning and the provision of ecosystem services essential for human well-being", and that its contribution to livelihoods gives it a key role in poverty reduction.

## **NBSAP Principles, Vision, Goals and Targets**

Botswana aims for a strategy that is strongly aligned to the CBD 2011- 2020 Strategy and the Aichi Targets, while being realistic to its circumstances. The NBSAP vision was developed based on the principles of Sustainable Development; Integrated Conservation and Development; Equity across generations; and Biodiversity as the Foundation of Life and Livelihoods.

## **Vision**

"By 2025, ecosystem, species and genetic diversity is valued, protected, and used sustainably and equitably, through the involvement of all sectors of society and the provision of sufficient resources for its sound management."

## **Goals**

- 1) Biodiversity is mainstreamed and valued across all sectors of society
- 2) The pressure on biodiversity is reduced and natural resources are used sustainably
- 3) Ecosystems, species and genetic resources are protected through sound management
- 4) Fair and equitable access to the benefits of biodiversity is secured
- 5) Participatory planning, knowledge management and capacity-building are in place to support NBSAP implementation

## **Summary of Key Components**

### **Status and Trends in Biodiversity**

Botswana encompasses seven of the global ecoregions; all, with the exception of the Southern African bushveld are reasonably well protected. Botswana's ecosystems support a variety and abundance of mammals (157 species), including many which are globally threatened. It contains one of the largest remaining populations of the African wild dog (*Lycaon pictus*) and the largest remaining population of African Elephant (*Loxodonta africana*). There are however, concerns over the status of several ungulates, whose populations appear to be in decline: eland, gemsbok, giraffe, hartebeest, lechwe, sable spring and wildebeest. Among the small mammals, four bat species may be threatened due to habitat loss or disturbance.

On the whole, the status of birds throughout the country is relatively good. Botswana hosts the largest number of breeding Lesser Flamingos. There is a significant threat to all vulture species which are in decline, with particular concern about the widespread use of poison on wildlife carcasses, causing large numbers of deaths.

The number of recorded fish species is 99, with 131 reptiles and 44 amphibians. The Okavango panhandle crocodile population appears to have declined significantly over the last 80 years.

In Botswana there are approximately 2800 plant species of which 13 are endemic plant species, 10 potentially endemic, 7 near endemic and 43 threatened plant species.

#### **Causes and Consequences of Biodiversity Loss**

There are a number of causes to biodiversity loss in Botswana, among them being habitat destruction, habitat conversion and disturbance, barriers to wildlife movement, high populations of elephant concentrated in an ecologically sensitive area, increase in poaching, disruption of natural fire regime, unsustainable use of wild plant species, alien invasive species, climate change and changes to hydrology and water quality of inflowing rivers. In addition, an important indirect threat is through policy and institutional arrangements that may undermine sound biodiversity management.

#### **Value of Biodiversity and Ecosystem Services in Botswana**

Biodiversity is valuable to the economy of Botswana as it provides goods and services. It is critical towards the sustenance of the agricultural and tourism sectors which are the main contributors to the economy at national and local levels. It further contributes directly to people's livelihoods, and Community Based Organisations through the Community-Based Natural Resources Management (CBNRM) programme.

#### **Financing for Biodiversity Conservation and Management in Botswana**

Botswana has made significant contribution towards biodiversity management through available financing mechanisms. The National Budget is mainly used to support biodiversity management in the areas of wildlife, forestry, and associated research. Furthermore, the government continues to support civil society movement involved in the domain of biodiversity management, and funding mechanisms (National Environment Fund, Forest Conservation Botswana, Community Conservation Fund, and Conservation Trust Fund) have been established in this regard.

External financial assistance for biodiversity management is estimated to be around US\$14.8 million. Some of the external funding institutions include the UNDP, World Bank, GEF, and UNEP among others. Several NGOs such as Kalahari Conservation Society and Birdlife Botswana are also actively involved with biodiversity conservation, management, and financing thereto.

#### **Policy and Institutional Framework Supporting Biodiversity Conservation**

Several key multilateral environmental agreements (MEAs), policies and strategies supportive to biodiversity conservation are in place. Furthermore, institutions have been established to ensure that they are effectively supported and implemented. For instance, the DWNP and DFRR were established to implement the Wildlife Conservation and National Parks Act and Forest Act respectively.

#### **Progress in Implementing the 2007 NBSAP**

The implementation of the 2007 NBSAP has been an ongoing process that involved a number of key stakeholders. A number of achievements were realised being some activities under Strategic Objectives 5 and 8. Successes are not limited only to those activities that have been completed, it is nevertheless important to note that there are activities that have been initiated, and which still have valuable contributions to make to biodiversity conservation.

In the implementation of the 2007 NBSAP, the following challenges were identified;

- Human resources - both in terms of sufficient staff and appropriate skills
- Financial resources
- Coordination and communication of actions and implementation
- Insufficient research capacity.

The following lessons were learned from the 2007 NBSAP:

- Implementation works best when responsibilities are assigned at the departmental level.
- Implementation and collaboration is best for those departments within MEWT, because of the clear environmental mandate.

- There is need for a full-time team responsible for NBSAP implementation.
- It is important to have in place a monitoring and evaluation plan, and personnel to ensure its implementation.
- It is always crucial to assign MEAs and/or protocols to relevant and appropriate Departments/institutions. The overlap between the objectives of the MEAs and/or protocol with the mandate of the relevant department must be aligned, and necessary resources should be in place.

## **Action Plan and Strategies for Implementation**

### **Coordination of Activities**

Institutional coordination of the NBSAP implementation is through the MEWT, NBDA and the MEA Coordinating Committee.

- The Ministry of Environment, Wildlife and Tourism (MEWT), which through the Policies and Programmes Division in the Department of Environmental Affairs (DEA), serves as the host agency for the NBSAP. DEA is the National Focal Point for the CBD, and is tasked with overseeing implementation on the NBSAP. The National Biological Diversity Authority (NBDA), a committee that comprises of experts from across all relevant government sectors, learning institutions as well as environmental NGOs. The NBDA has an advisory and guiding role for implementation of the NBSAP, and the CBD process in Botswana.
- The Multilateral Environmental Agreement (MEA) Coordinating Committee ensures that the overlapping objectives to all the MEAs that Botswana is party to, are coordinated, so that they can be implemented synergistically.

### **Resource Mobilisation Plan**

The total costs of the NBSAP activities are estimated at BWP 316.6 million (in 2014 Pula values) for the period 2014-2025; this corresponds to an average of BWP 26.3 million per annum. In terms of years, the annual costs are rapidly growing until 2018 when they peak at BWP 42 million and subsequently decline to BWP 20 to 25 million in the period 2021-2025.

As an upper middle income country, Botswana has become less eligible for official development assistance. Furthermore, there is growing competition for domestic public funding due to the growth of the economy, large expenditures on HIV/AIDS and government budgetary constraints as a result of global market conditions. In consideration of the foregoing, NBSAP activities need to be primarily funded from domestic sources as this would sustainably manage the country's biodiversity resources. Also, given government funding constraints, it is important to tap into opportunities for increased funding from the private sector and communities (e.g. through partnerships and private sector investments). The government also needs to strengthen its relationship with development partners to augment national resources earmarked for biodiversity management.

### **National Reporting Framework**

The national reporting framework will work with existing structures, with relationships and procedures being tightened. Critically, the framework will link to the monitoring and evaluation plan, so that reporting can be streamlined, and based on indicators and data.

### **Monitoring and Evaluation Plan**

In order to ensure that the implementation of the NBSAP stays on track, and reaches its fullest potential, it is important that it be monitored through a systematic process of continuous assessment. Both the strategic actions and the targets must have indicators against which progress can be charted. The monitoring and evaluation will track the resource mobilisation plan as well as the indicators relating to

the implementation of each of the strategic actions. Monitoring will be done by the lead departments at the strategic action level; these will then be collated by DEA who will summarise the data for each target to measure progress at target level.

**Clearing House Mechanism**

Botswana's CHM is embedded in its online Environmental Information Service (EIS). However this service is not fully functional, and needs to be improved in order for it to capture the required level and extent of biodiversity information.

**Implementation Plan**

The implementation plan is outlined through strategic actions per target. These actions are presented in tabular form, indicating players, resources, indicators and timing for each action. The strategic actions are ordered in terms of priority. The implementation of the strategic actions will assist in the realisation of the Vision of the NBSAP.

# 1. INTRODUCTION

---

Botswana has been party to the Convention on Biological Diversity (CBD) since 1995. The country submitted its first National Biodiversity Strategy and Action Plan (NBSAP) in 2004. The NBSAP was first revised in 2007, and is now revised again in order to update it and bring it in line with the CBD's own revised Strategic Plan and the Aichi Targets. Botswana also ratified the Cartagena Protocol in 2001 and acceded to the Nagoya Protocol in 2013, and these protocols form an integral part of this revised NBSAP.

The revised NBSAP is founded on the three original objectives of the CBD, which are: the conservation of biological diversity, the sustainable use of its components and the fair and equitable sharing of the benefits arising out of the utilization of genetic resources.

As a signatory to the convention, Botswana supports the CBD's premise that "biological diversity underpins ecosystem functioning and the provision of ecosystem services essential for human well-being", and that its contribution to livelihoods gives it a key role in poverty reduction.

This introductory section summarises the key findings of the comprehensive Stocktaking and Gap Analysis Report prepared as background material to the development of the revised NBSAP. The reader is therefore referred to that document for in-depth analysis.

## 1.1 STATUS AND TRENDS OF BIODIVERSITY IN BOTSWANA

---

Botswana encompasses seven of the global (WWF-defined) ecoregions (Figure 1). Much of the country is covered by Kalahari xeric savanna or Kalahari Acacia-Baikiaea savanna. However, the areas of greatest biodiversity are those to the north of the country – the Zambebian flooded grasslands, the Zambebian and Mopane woodlands, and the Zambebian Baikiaea woodlands. It is also to the north that most of the threats to biodiversity occur. All of the ecoregions, with the exception the Southern African bushveld (Table 1) are reasonably well protected.

As assessed in the Stocktaking and Gap Analysis Report, some general observations on the status of biodiversity knowledge in Botswana can be made:

- Taxonomic inventories are limited particularly for small mammals and invertebrates;
- Some of the inventories are regional (Southern African) rather than national such as butterflies, reptiles and amphibians;
- There are a number of *ex situ* collections of genetic material such as for indigenous breeds of livestock and local strains of arable plants (FAO/DAR), plants (RBG Kew/NPGRC);
- Since 2008 funding for taxonomic biodiversity studies and inventories has been drastically reduced;
- Monitoring of biodiversity status and trends is limited to indirect pressure, state and response indicators which are based on national data sets;
- National wildlife population surveys have re-commenced after a break of four years in which only area specific surveys were undertaken with the help of NGOs.

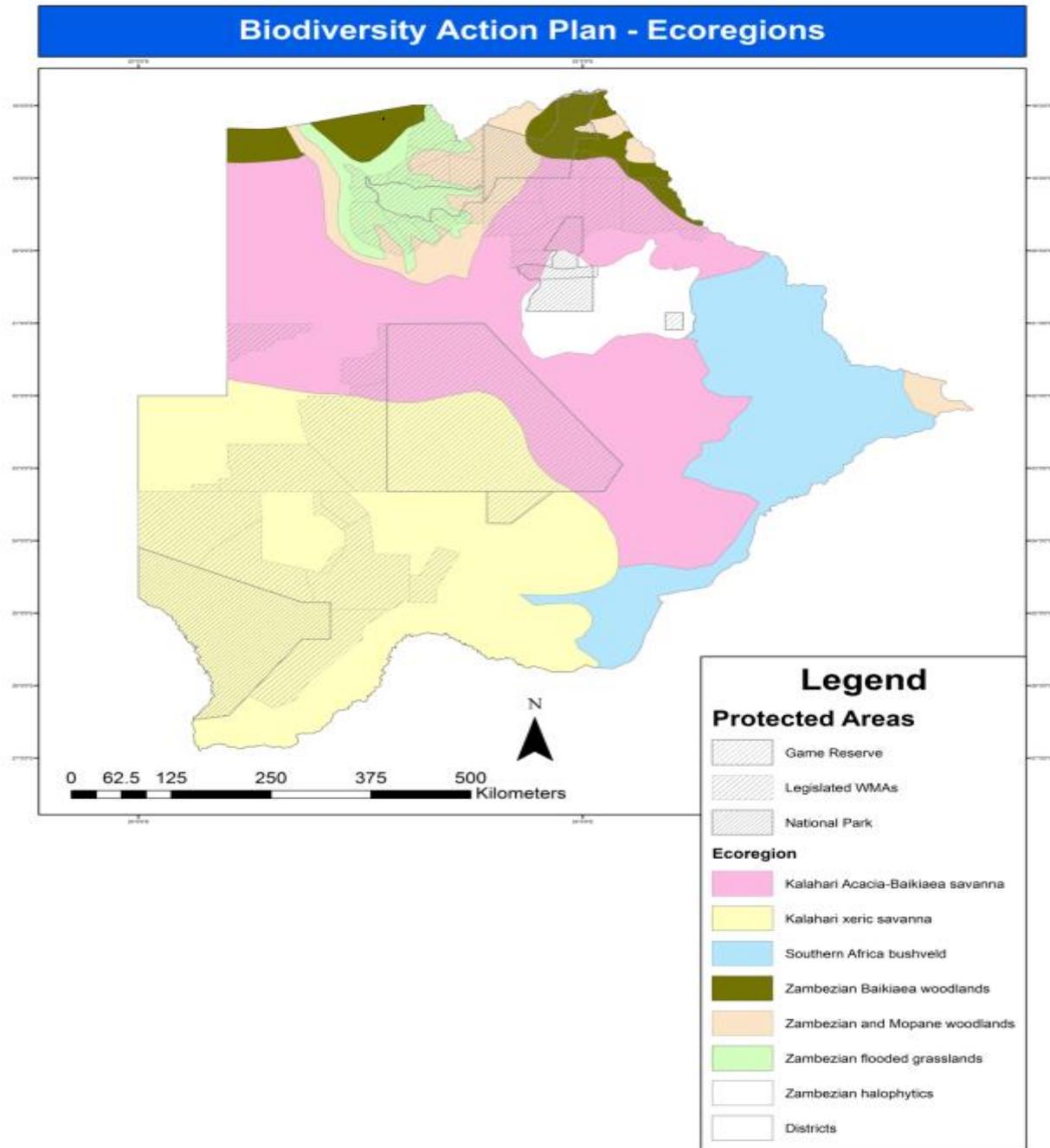


Figure 1: Ecoregions of Botswana indicating relationship with the protected area network (Partially after WWF Ecoregions Map of the World)

**Table 1: Representation and protection status of ecoregions in Botswana**

<b>Ecoregion</b>	<b>Global status</b>	<b>Area in Botswana (km<sup>2</sup>)</b>	<b>Ecoregion as % of Botswana</b>	<b>% of ecoregion in Botswana "protected"</b>	<b>Main types of protection</b>	<b>% of ecoregion in Botswana under formal protection (Game Reserve / National Park)</b>
Kalahari Acacia-Baikiaea savanna	Vulnerable	185522	32	43.1	Game Reserve, Legislated WMAs, Unlegislated WMAs	17.3
Kalahari xeric savanna	Relatively stable	216947	37	53.8	Legislated WMAs, Game Reserve, National Park	24.2
Southern African bushveld	Vulnerable	77371	13	3.5	Private Game Farms	0 (however, 3.5 % is conserved without legal protection under private game farms or community nature reserves)
Zambezian and Mopane woodlands	Stable	29913	5	49.8	Legislated WMAs, National Park, Game Reserve	19.3
Zambezian Baikiaea woodlands	Vulnerable	21598	4	47.4	Forest Reserve, National Park, Unlegislated WMAs, Legislated WMAs	19.9
Zambezian flooded grasslands	Relatively stable	22745	4	70.6	Legislated WMAs	18.2
Zambezian halophytics	Vulnerable	25189	4	24.8	National Park, Unlegislated WMAs	23.1

### 1.1.1 Large mammals

The mammal fauna of Botswana comprises a total of 157 species, 43 of which are large mammals (i.e., in excess of five kilograms). Botswana's ecosystems support a variety and abundance of mammals which are globally threatened. It harbours many threatened large mammal species and contains one of the largest remaining populations of the African wild dog (*Lycaon pictus*) and the largest remaining population of African Elephant (*Loxodonta africana*). Wildlife, by its nature of needing to disperse between wet and dry season resource areas, is easily threatened by habitat fragmentation and physical barriers. The arid systems (which are more reliant on movement) are very likely to experience a collapse of wildlife populations while the northern ones, particularly the Okavango – Linyanti and the Chobe are in reasonable condition.

The most recent aerial survey (DWNP 2012) has highlighted a number of concerns. These are:

- Declines of certain species within some of the protected areas even though the populations remain stable nationally; examples are:
  - Eland – a non-significant decline in populations in the CKGR;
  - Gemsbok – a non-significant decline in Mabuasehube, CKGR and Nxai Pans;
  - Giraffe – a non-significant decline in CNP, CKGR and Makgadikgadi Pans;
  - Hartebeest – a non-significant decline in CKGR;
  - Lechwe – a significant decline in populations in Moremi;
  - Ostrich – a non-significant decline in Moremi, CKGR Mabuasehube and Nxai Pans;
  - Sable – a non-significant decline in Moremi;
  - Springbok – a significant decline in in CKGR, non-significant declines in all other reserves except Khutse (where no declines were observed);
  - Wilbebeest – a non-significant decline in wilbebeest in CKGR, Khutse and Moremi;
- Significant national declines of lechwe, sitatunga (Okavango system), tsessebe and springbok populations;
- Significant increase in elephant numbers and range.

In general there are worrying declines in wildlife populations of the protected areas in arid systems (CKGR, Mabuasehube, Khutse) while populations appear to be increasing under the management of the Kalahari Trans-frontier Park (the transfrontier conservation area or TFCA). Full details are given in the Stocktaking and Gap Analysis Report.

### 1.1.2 Small mammals

Of Botswana's recorded mammal species, 114 can be classified as small mammals. Based on the numerical criterion of species richness, the dominant representatives among small mammals are the Rodentia, Insectivora (hedgehogs and shrews) and Chiroptera (bats). More detailed information can be found in the Stocktaking and Gap Analysis Report. The DWNP/EU (2007) survey of small mammals of protected areas found that a number of bat species may be threatened. These include:

- *Chaerephon shortridgei* (Long-crested free-tailed bat) – depletion or thinning of woodlands due to a combination of elephant damage and high fire frequencies within Botswana together with deforestation in Zambia and Zimbabwe.
- *Neoromicia rendalli*, *Laephotis botswanae*, *Hypsuugo anchietae* and two rodents *Mus setzeri* and *Mastomys shortridgei* – loss or disturbance of riparian woodlands particularly within the Pan Handle of the Okavango Delta,
- *Cloeotis percivali* (Short-eared trident bat) – absence of protection for cave roosting sites in eastern Botswana (Molepolole and Kanye).
- *Hipposideros vittatus* (Giant leaf-nosed bat) – the long term conservation of this species in its range hinges on maintaining the integrity of these relatively few roosts where it breeds. Gcwihaba Caves is the only known roost of *H. vittatus* in Botswana.

Woosnam's desert rat (*Zelotomys woosnami*), endemic to the arid areas of Botswana, has been recorded in the Gcwihaba caves. Since there is little information on the status of Rodentia and Insectivora, it is not possible to infer their status, and this should be noted as serious gap in information.

### 1.1.3 Avifauna

As of 2010, there are 587 bird species recorded in Botswana. There are 25 globally threatened bird species in Botswana, and a further eight species regarded as nationally threatened or Birds of Conservation Concern in Botswana. According to the Stocktaking and Gap Analysis Report, among the globally threatened species, it is significant to note that Botswana has no Critically Endangered bird species. There are only two Endangered species (both vagrants), nine Vulnerable (including the Wattled Crane) and fourteen Near Threatened species. On the whole, the status of birds throughout the country is relatively good. There are only two near-endemics: the Slaty Egret, which has approximately 85% of its global population in the Okavango Delta; and the Short-clawed Lark, which has more than 90% of its global population in South-eastern Botswana.

The presence of extensive seasonal pans in the Makgadikgadi makes it an important breeding area for several species that are of conservation significance. The area is a key breeding site for Lesser Flamingos (*Phoenicopterus minor*; Near-threatened), with the largest numbers of breeding birds in southern Africa recorded at Sua Pan - 80,000 pairs bred there in 2000 (Simmons 2005). This colony is threatened through lowering of the water table by a nearby soda-ash mine, and plans to dam the Moseitse River which floods onto the pan just north of the main breeding site. Further threats involve colony desertion resulting from disturbance by low-flying aircraft, and disruption of migration patterns through poorly aligned powerlines.

Vultures: Birdlife is particularly concerned about the widespread use of poison on carcasses killed by predators which is resulting in unprecedented levels of vulture deaths. The Director of Birdlife considers accidental poisoning are topmost threats to vultures in Botswana. In addition deliberate poisoning of illegally hunted animals may also be a way to reduce detection by anti-poaching units. In July 2013 at least 600 vultures were poisoned at a single elephant carcass in Bwabwata National Park just north of Botswana. As vultures are long lived and keystone species, it is possible that poisoning will severely deplete populations and result in some species of vulture becoming locally extinct. The knock on effect of depletion of vulture populations on other biota could be severe.

Birdlife Botswana is concerned that the critically important bird breeding areas, the ephemeral lakes of Ngami and Xau have no formal protection status and are not included in the Wildlife Management Areas.

#### 1.1.4 Fish

Of the 99 species of fish recorded in Botswana, two are globally threatened, *Oreochromis andersonii* (Three-spot Tilapia) and *O. macrochir* (Longfin Tilapia). *O. andersonii* is susceptible to fishing pressure while both species are potentially threatened by the occurrence of the alien and invasive species *O. niloticus* (Nile Tilapia), which is widely distributed in the Zambezi, Kafue and Limpopo systems. The Nile tilapia unfortunately hybridise with local *Oreochromis* species in Africa, causing a threat to local and indigenous tilapia. At present the most serious threat to fish is the potential for the *O. niloticus* to be introduced into the Okavango system either through people wanting to farm the species or via migration up the Selinda Spillway which links Zambezi system (where they are present) to the Okavango system.

#### 1.1.5 Reptiles and amphibians

The number of recorded reptiles is 131 and of amphibians, 44. The Okavango panhandle crocodile population appears to have declined significantly over the last 80 years. This is considered to be due to harvesting of adults and crocodile eggs, disturbance by boat motors fires and destruction of nests and eggs by fishermen, habitat loss, crocodile / human conflict and pollution.

Details of the endemic and near-endemic species are given in the Stocktaking and Gap Analysis Report. Very little is known of the status of other reptiles and amphibians in Botswana, and thus it is not possible to infer trends in their status. This represents a serious gap in information.

#### 1.1.6 Invertebrates

Of the 252 species of known butterflies, none are endangered, nor are there any known threats to this taxon. The dragonflies (127 species recorded) are considered to be sensitive to changes in water quality and have been identified as a potential indicator species for wetland health. Changes to the Okavango and other major wetlands would affect dragonflies.

There is insufficient information on other invertebrates, with very few inventories having been conducted. As noted in the Stocktaking and Gap Analysis Report, this represents a large gap in information.

#### 1.1.7 Vegetation

According to 2013 Botswana Environment Statistics, forest cover within the forest reserves of Botswana has declined from 23.6 % in 1990 to 19.7 % in 2010; the reasons identified are fuel wood harvesting and land clearing for human settlements and livelihoods. At the same time, outside of the different types of protected area, there is a reported increase in bush encroachment and consequent loss of grassland due to poor range management practices.

In Botswana there are 13 endemic species, 10 potentially endemic and 7 near endemic plant species. There are a number of threats; and 43 plant species are listed as threatened. Threats include: overharvesting of medicinal or economically valuable plants; alien invasive species of aquatic and terrestrial plants; development and land conversion and (in some) a combination of high frequency of fires together with high densities of elephant.

## 1.2 CAUSES OF BIODIVERSITY LOSS

---

This section summarises the findings of the Stocktaking and Gap Analysis Report with regard to the main direct threats identified and described as potentially leading to a reduction in levels of biodiversity in Botswana. Causes of, and contributing factors to, biodiversity loss can be largely broken down into those threats that are internal to Botswana, and those that are external to, or at a large scale than, the country.

Internal threats derive primarily from development expansion, but are also due to limited management of environment and natural resources. External threats are largely outside of Botswana's control. The major *direct* threats to Botswana's biodiversity, together with their causes, impacts and implications, are presented in Table 2. These direct threats are presented at national level, summarising conditions across all ecoregions and all forms of land use.

However, it is also important to talk about the potential *indirect* threat from policy and institutional arrangements that, while supporting national development, and even theoretically aimed at conservation, may in fact undermine sound biodiversity management. Chief in this regard, and described in depth in the Stocktaking and Gap Analysis Report, is the issue of the interplay between policy decisions surrounding legal hunting, and lack of institutional support for poaching control. There is a strong need to ensure all key policy decisions are based firmly on science, and that formal enforcement measures and resources are in place to adequately control direct social threats.

Table 2: Summary of stakeholder-identified threats to biodiversity, and potential consequences of its loss in Botswana\*

Threat	Underlying Causes	Main Impacts	Key Implications	Related Strategic Action
<b><i>Internal threats</i></b>				
Habitat destruction, habitat conversion and disturbance	Changes in land use (e.g., settlement expansion, agricultural expansion)	<ul style="list-style-type: none"> <li>• High levels of human-wildlife conflict (HWC) and predator depredations (problem animal control and poaching)</li> <li>• Prevention of seasonal wildlife movements (e.g., through the Schwelle)</li> <li>• Disturbance of communally nesting birds' nesting sites</li> <li>• Reduction in air and water quality</li> </ul>	<ul style="list-style-type: none"> <li>• Reduction in likelihood of some WMAs being legislated</li> <li>• Reduction in populations of migratory species</li> <li>• Implications for ecosystem services in both aquatic and terrestrial environments, especially for rural poor</li> </ul>	<ul style="list-style-type: none"> <li>• 5-1</li> <li>• 5-4</li> <li>• 5-9</li> <li>• 7-3</li> </ul>
Barriers to wildlife movement	Need to control veterinary diseases, EU subsidies, increased fencing of rangelands through ranch creation	<ul style="list-style-type: none"> <li>• Reduction in populations of migratory species</li> <li>• Isolation of protected areas (PAs)</li> <li>• Increased pressure on wildlife in PAs</li> </ul>	<ul style="list-style-type: none"> <li>• Further separation of direct benefits from natural resources by local communities, and increased HWC, reduction in quality of rural livelihoods.</li> <li>• With warming and erratic rainfall under climate change, links between dry and wet season wildlife ranges become even more important to maintain.</li> </ul>	<ul style="list-style-type: none"> <li>• 5-6</li> <li>• 5-7</li> <li>• 6-3</li> </ul>
High populations of elephant	Dispersal into new ranges, reduction of range in neighbouring countries	<ul style="list-style-type: none"> <li>• Habitat modification and disturbance</li> <li>• Reduction of biomass, and plant and animal species</li> </ul>	<ul style="list-style-type: none"> <li>• Loss of habitat diversity, loss of biodiversity, undermining of the ecotourism potential of the country</li> </ul>	<ul style="list-style-type: none"> <li>• 10-2</li> <li>• 15-6</li> </ul>

Threat	Underlying Causes	Main Impacts	Key Implications	Related Strategic Action
High poaching incidences	<ul style="list-style-type: none"> <li>• Loss of benefits from wildlife</li> <li>• Increased rural poverty</li> <li>• Penetration of illegal international wildlife trade</li> <li>• Loss of management presence in remote areas</li> </ul>	<ul style="list-style-type: none"> <li>• Decline in populations of large mammals, including some globally threatened species</li> <li>• Increased social conflict</li> </ul>	<ul style="list-style-type: none"> <li>• Breakdown of rural support for conservation</li> </ul>	<ul style="list-style-type: none"> <li>• 14-1</li> </ul>
Disruption of natural fire regime	<ul style="list-style-type: none"> <li>• Unmanaged use of fire, fire use pushed underground by legislation. (Fires used to stimulate sprouting for grazing, clear bush to improve visibility, etc.)</li> </ul>	<ul style="list-style-type: none"> <li>• Unseasonal fires, and in some areas too-frequent fires, affect recruitment of key tree species, and disturb bird breeding, especially in riparian zones</li> </ul>	<ul style="list-style-type: none"> <li>• Currently unknown, as insufficient research has been done.</li> </ul>	<ul style="list-style-type: none"> <li>• 15-5</li> </ul>
Unsustainable use of wild plant species	<ul style="list-style-type: none"> <li>• Poverty</li> <li>• Insufficient management and enforcement of legislation</li> </ul>	<ul style="list-style-type: none"> <li>• Localised impacts, pressure on certain valuable or medicinal species</li> </ul>	<ul style="list-style-type: none"> <li>• Potential loss of key species, but also ultimately reduction in availability of resources important to rural livelihoods</li> </ul>	<ul style="list-style-type: none"> <li>• 13-4</li> <li>• 14-5</li> <li>• 18-2</li> </ul>
Alien invasive species	<ul style="list-style-type: none"> <li>• Habitat degradation (e.g., overgrazing, nutrient loading in riparian systems)</li> </ul>	<ul style="list-style-type: none"> <li>• Displacement / replacement of indigenous species</li> <li>• Change in water quality</li> <li>• Reduction in range quality</li> </ul>	<ul style="list-style-type: none"> <li>• Potential loss of key species, but also ultimately reduction in availability of resources important to rural livelihoods</li> </ul>	<ul style="list-style-type: none"> <li>• 9-1</li> <li>• 9-2</li> </ul>
<b>External threats</b>				

Threat	Underlying Causes	Main Impacts	Key Implications	Related Strategic Action
Climate change	<ul style="list-style-type: none"> <li>• Global carbon emissions, overconsumption of fossil fuels</li> <li>• Greed and inequality</li> </ul>	<ul style="list-style-type: none"> <li>• Warming, particularly over the dryland ecoregions, especially the Kalahari xeric savannas. Increase in extreme weather events, and increasing weather unpredictability</li> </ul>	<ul style="list-style-type: none"> <li>• Reduction in ecosystem services and natural resource availability, with negative consequences for rural livelihoods</li> <li>• For biodiversity, linkages between wet and dry season ranges will become increasingly important, increasing the need to address barriers to movement</li> </ul>	<ul style="list-style-type: none"> <li>• 8-3</li> <li>• 8-4</li> <li>• 10-5</li> <li>• 10-4</li> <li>• 15-7</li> <li>•</li> </ul>
Changes to hydrology and water quality of inflowing rivers	<ul style="list-style-type: none"> <li>• Nutrient runoff in catchment in neighbouring countries</li> <li>• Increased development, industrialisation, mining and urbanisation</li> <li>• Land &amp; resource use practices (e.g. agriculture and water harvesting)</li> <li>• Leaching of soil salts and nutrients due to poor irrigation practices</li> <li>• Deforestation and proliferation of alien plant and animal species</li> <li>• Dams</li> </ul>	<ul style="list-style-type: none"> <li>• Decreasing variability in flow, cessation of low season flow, eutrophication, decreasing water quality, decrease in sediment inputs, decrease in sediment carrying capacity</li> <li>• Change in the timing, duration, quality and extent of annual floods</li> <li>• Algal blooms &amp; proliferation of alien aquatic plant species</li> </ul>	<ul style="list-style-type: none"> <li>• Loss of floodpulse would likely convert the deltaic systems to a single course river channel, losing extensive seasonally flooded floodplains</li> <li>• Change to the character and functioning of Botswana's primary biodiversity hotspot – the Okavango, leading to loss of ecosystem services and natural resources for both rural livelihoods and the national tourism industry.</li> <li>• Change from fresh water to more saline conditions</li> </ul>	<ul style="list-style-type: none"> <li>• 5-8</li> <li>• 8-2</li> <li>• 8-3</li> <li>• 11-4</li> <li>• 11-5</li> </ul>

## 1.3 VALUE OF BIODIVERSITY AND ECOSYSTEM SERVICES IN BOTSWANA

Biodiversity and ecosystem services are central to the economy and development of Botswana and therefore their value cannot be overemphasised. Unfortunately, the value is often ignored and only realised when the provision of ecosystem services is impaired. Biodiversity boosts ecosystem productivity and provides a number of goods and services essential for survival on earth. These resources are important both for subsistence and commercial purposes. Using the framework of Total Economic Value (TEV), the benefits or value components of biodiversity in Botswana can be summarised (Table 3).

**Table 3: Total economic value of biodiversity**

Direct use value	Indirect use value	Option value	Existence value
<ul style="list-style-type: none"> <li>• Food</li> <li>• Medicinal resources and drugs</li> <li>• Wood products and ornamental plants</li> <li>• Tourism</li> <li>• Breeding stocks, population reservoirs</li> <li>• Livestock pasturage</li> <li>• Genetic resources</li> </ul>	<ul style="list-style-type: none"> <li>• Water purification</li> <li>• Groundwater recharge</li> <li>• Soils formation and protection</li> <li>• Carbon sequestration</li> <li>• Nutrient storage and recycling</li> <li>• Pollution breakdown and absorption</li> <li>• Wildlife refuge</li> </ul>	<ul style="list-style-type: none"> <li>• Value placed on maintaining ecosystems or resources for possible future uses</li> <li>• Bio-prospecting</li> </ul>	<ul style="list-style-type: none"> <li>• Research, education and monitoring</li> <li>• Recreation/aesthetics</li> <li>• Cultural values</li> </ul>

Botswana's biodiversity is used to directly support people's livelihoods (e.g. agricultural production, hunting and gathering of veld products) and for commercial purposes such as game ranching, fishing, hunting and eco-tourism. Biological resources are further used by community-based organisations (CBOs) through community-based natural resources management (CBNRM) projects for subsistence and commercial purposes (hunting, tourism, gathering and processing of veld products such as morula fruits, devil's claw and hoodia). Below, the main direct uses are briefly discussed by sector before a discussion of the indirect use values. Because plant resources tend to be used primarily at the household level, while animal resources are now used at the community level through CBNRM, discussion on these two types of natural resources are separated out below.

An emerging area of importance due to increasing interactions between humans, domestic animals and wildlife is that of the link between the environment and human health. Climate change, reduced ecosystem services and reduced genetic diversity are all factors increasing the vulnerability of populations to disease threats. Approaches such as the One World, One Health initiative launched globally in 2004 represent an opportunity for promoting biodiversity conservation through maintaining ecosystem functioning.

### 1.3.1 Agriculture

Despite the overall stagnation of the agricultural sector, livestock production still supports a significant proportion of Botswana's rural population and crop production remains the most common subsistence activity in rural areas (despite the low and highly variable returns). Agricultural stagnation has hampered poverty reduction efforts. Livestock provides cash income, meat, milk, draught power and is also a source of social status and a way of saving. In the dryland ecosystems, livestock production supports 50% of the Kgalagadi north population while in south western Kgalagadi, it accounts for about 70% of the direct use value. The overall value of cattle in the Zambezi halophytics is estimated to be about BWP 15.4 million in terms of net

private income and has a gross value added of about BW P10.7 million. Cattle farming is however significant in the Okavango Ramsar site where this generates a net value of BWP 29 million and a direct economic value of some BWP 34 million per annum. However the contribution of livestock farming in the Delta is minimal where natural resource use, wildlife and tourism are more important.

Crop production is commonly practised in the eastern and northern parts of the country due to better climatic and soil conditions compared with the south-western part of the country where the conditions are unfavourable. However in the dry lands of Zambebian halophytics, crop production generates a net private value of about BWP 19 million and a direct economic value of about BWP15 million whereas in the Okavango Ramsar site, crop farming generates a net income of BW 9.1 million to households and an economic value of BWP 6 million. Overall, the total net private values of agricultural activities in the Okavango area amount to BWP 68 million, but only 3% of these are attributable to the wetland area. Their contribution to the gross national product is about BWP 43 million. The economic value of agricultural activities in the Chobe area has not been investigated.

### 1.3.2 Veld products use

Veld products (wild plants and insects) are central to the livelihoods of rural communities in Botswana, particularly the dry land areas as well as the wet ecoregions of Zambebian flooded grasslands and woodlands. These resources provide raw materials and food such as grasses, clay, reeds, papyrus, medicinal plants, firewood wild foods, fish, honey and timber among others. These are processed into crafts, wood products, food products, building materials and others for trade and subsistence use. Firewood is the most commonly utilised resource in the Okavango Ramsar site, while grass and wild fruits are more commonly used in the Zambebian halophytics. The overall use of these resources in the Zambebian flooded grasslands generates a direct net value of BWP 27 million and gross value added of BWP 29 million. In the dryland ecosystems, Devil's Claw is the most important commercially exploited medicinal plant and is rated as having the highest priority for the livelihoods of rural communities in Kgalagadi South. It is estimated that around three quarters of the harvesting and dealers permits are issued in the districts associated with dryland ecosystems, particularly in Central and North-East Districts. All exports originate from the dryland ecosystems, mostly eastern Botswana. For the period 2010-2013, on average 788 harvesting permits were issued per annum, 216 dealers permits and 23 export permits.

### 1.3.3 CBNRM

Biodiversity also provides opportunities for communities to generate income through utilisation and management of biological resources in their proximity. This is usually implemented through the CBNRM programme which is mostly centred on hunting and tourism with the more active projects in the northern part of the country. Overall CBO revenues grew rapidly from around BWP1 million in 1997 to over BWP 20 million in 2008. Since 2008, revenues have stagnated in current terms and declined in real terms – meaning that while the actual amount may suggest an increase, in terms of purchasing value there has been a decrease. In 2011, the average monthly gross revenue per person was BWP28 (for CBOs with data) and therefore it can be concluded that CBNRM contributes little to poverty reduction, especially considering that the greater majority of villages do not have such programmes in their community. CBO revenues in the dryland ecosystems are particularly low: only BWP 5.2 million reported in 2011, of which BWP 4 million was generated by the Khama Rhino Sanctuary alone. This reflects the limited income-generating potential of the dryland ecosystems in terms of hunting and ecotourism. In contrast, Ngamiland and Chobe have fewer CBOs than the districts containing the dryland ecosystems, but generate much more income (combined revenues of BWP 19 million). Even here however, few CBO generate gross revenues exceeding BWP500/person/month (mostly those on the edge of National Parks).

### 1.3.4 Wildlife

Wildlife resources are key to Botswana's tourism industry and their utilisation is also important for the hunting and game ranching industries as well as for CBNRM. These resources are valuable throughout the country, but most valuable in the northern ecoregions. The total value of game stock is estimated at about BWP 3 billion of which 60% is contributed by the Zambezi flooded grassland ecoregion. The stock value is also high for dryland ecosystems (34%) reflecting the potential of wildlife outside the wet ecoregions. On average, the value of wildlife has increased twofold between 2001 and 2012.

In the management of her wildlife resources, Botswana has established national parks and game reserves. This include the CKGR; Khutse Game reserve; Moremi Game Reserve; Chobe National Park; KTP; and Makgadikgadi Nxai Pan National Park. Management plans have been developed and implemented for all the protected areas.

### 1.3.5 Tourism

Tourism is one of the most important contributors to Botswana's economic growth and is also a potential for economic diversification and employment creation. The sector is largely dependent upon biological resources particularly, wildlife and much of these resources are within State protected areas. Parks and reserves in the wet ecoregions are more valuable in terms of the revenues generated compared to those located in dry ecoregions. Public funds are required to maintain and manage parks in the dry lands as they are not financially sustainable. Overall, tourism revenues from the parks have fluctuated between BWP 15 million and BWP25 million between 2000 and 2012.

### 1.3.6 Ecosystem services (indirect use)

Indirect use values of biodiversity are important as they maintain and protect human systems through the various functions they perform and therefore form a strong justification for their integrated management. However, currently these values are generally not known for Botswana. Indirect uses have been estimated for the Okavango and Makgadikgadi areas, and the studies show that these values are significant and generate direct gross value added of BWP 379 million and BWP 155 million for the two areas respectively. The estimates were based on assumptions and require further and comprehensive investigations. This should also be undertaken for other ecoregions, particularly the dryland ecosystems.

### 1.3.7 Option and existence values

These values have not been measured in detail, as they are difficult to determine. Generally, they are considered to be significant. For example, maintaining genetic diversity provides future productive opportunities, as shown by examples such as traditional melons and hoodia. Moreover, international fame of the Okavango and Chobe ecosystems show the existence value of these ecosystems. The global community, many of which may never visit these ecosystems, value their conservation.

## 1.4 FINANCING FOR BIODIVERSITY CONSERVATION AND MANAGEMENT IN BOTSWANA

---

Sufficient financing for biodiversity management and utilisation is a necessity for the successful implementation of the NBSAP. A first step would be to review the actual biodiversity related

expenditures and revenues in government, the private sector and civil society. This is currently impossible to do in Botswana.

Published data on public expenditures and revenues are not sufficiently itemised to identify and select the biodiversity related expenditures and revenues. Moreover, no data exist for private sector expenditures on biodiversity expenditures and revenues, and data for civil society are fragmented and incomplete. Clearly, there is need to better record biodiversity expenditures and revenues.

For the NBSAP review, the revenues and expenditures of the Ministry of Environment, Wildlife and Tourism (MEWT) departments are analysed, as these are closest to biodiversity conservation. It needs to be noted however that:

- Not all MEWT expenditures are related to biodiversity management; and
- Other ministries also incur expenditures that relate to biodiversity conservation. Aquatic weed control is an example; the northern Botswana Human Wildlife Co-existence Project (DWNP-based) and Bio-Chobe (DWNP-based) are other examples

A more detailed review of public expenditures and revenues of MEWT departments is given in the Stocktaking and Gap Analysis Report, with key points highlighted here.

### 1.4.1 MEWT expenditures and revenues

Expenditures are sub-divided into recurrent expenditures (e.g. wages, salaries, costs of transport etc.) and development expenditures (e.g. investments, equipment and development projects). Costs and revenues are provided in current prices or nominal terms (e.g. for specific years) and constant prices or in real terms (in BWP 2006). The analysis focusses on the six MEWT departments, being the principal 'biodiversity' departments of DFRR and DWNP as well as DEA, DWMPD and, DNMM and Department of Tourism (DoT).

Murali (2013) found that the annual MEWT expenditures in the period 2006 – 2013 are less than 2% of the national budget or 0.7 % of GDP; the recurrent expenditures are less than 1% while the development expenditures are around 5% (mostly wastewater and sanitation infrastructure<sup>1</sup>). Figure 2 shows overall recurrent expenditures for MEWT by department in constant terms for the period 2000/01-2012/13 (BWP 2006). In terms of expenditures by individual departments, the trend shows fluctuations in expenditures between 2006/07 and 2012/13. Apart from headquarters, the two key departments for biodiversity management (DWNP and DFRR) account together for two thirds of MEWT's recurrent expenditures.

MEWT development expenditures grew from BWP73 million in 2005/06 to BWP255 million (in constant BWP2006), but over three quarters was spent on sanitation and wastewater infrastructure. DWNP (the next largest recipient) only got 9% of the development expenditures.

MEWT's revenues originate from various sources and activities particularly taxes, royalties and resource user fees. Revenues have been growing, but much slower (8% in period 2006/07 - 2012/13) than the increase in expenditures. Ninety two percent of revenues is generated by DWNP (2012/13). For the departments, which are at the core of biodiversity management (DWNP and DFRR), annual revenues are on average 14.3% of recurrent expenditures (period 2005-2012). A comparison of the expenditures and revenues per land unit for two key departments (DWNP and DFRR; Murali, 2013) shows that the recurrent expenditures / ha are more than ten times higher for DFRR than for DWNP (Table 4). The DFRR recurrent expenditures are very high if they only relate to the Forest Reserves. It may be attributed to the need to fight veld fires, which occur country wide. Table 4 further shows that development expenditures/ha are considerably higher for DWNP but very low for DFRR, probably due to infrastructural

---

<sup>1</sup> It is noted that sanitation and waste water management has recently been shifted to the Ministry of Minerals, Energy and Water Resources, which will show as a sharp reduction in expenditure in the next assessment.

development in National Parks and Game Reserves. The modest recurrent and low development expenditures impede biodiversity conservation and utilisation and show the need for greater participation and investments of the private sector and communities.

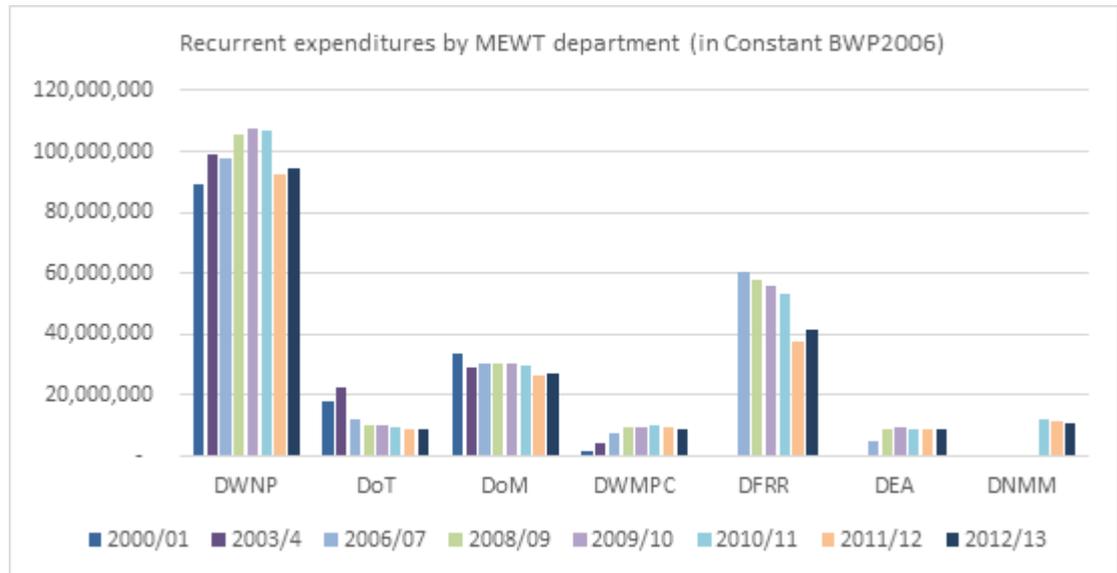


Figure 2: MEWT recurrent expenditures by department (2000/01- 2012/13; BWP constant prices) Source: adapted from annual reports on Public expenditures from development and consolidated funds.

Table 4: Expenditures and revenues per ha for DWNP and DFRR (2012/13; BWP)

	Size in km <sup>2</sup>	Recurrent Expenditures/ha	Development Expenditures/ha	Annual revenues/ha
DWNP Parks & Reserves	106 089	14.77	0.89	4.69
DFRR – Forest Reserves	4 150	166.75	0	0.24

Source: adapted from Murali, 2013.

## 1.4.2 External funding and civil society funding

There is no complete list of biodiversity spending of international cooperating partners. Murali (2013) estimates that external financial assistance for biodiversity management is likely to be around US\$14.8 million. Sources of funding include: World Bank-GEF), UNEP-PEI, UN funding for climate change policy and sustainable development strategy, World Bank (e.g. policy notes and WAVES programme) and JICA (support for forestry and waste management). External funding amounts to around 15% of the total annual MEWT expenditures but around a third (32.6%) of the development expenditures (2012/13). Examples of biodiversity relevant recent projects include:

- The Northern Botswana Human-Wildlife Co-Existence Project, coordinated by DWNP and implemented with NGOs such as CARACAL. The GEF funding through the World Bank is US\$ 5.5 over a 5 year period with a Botswana government contribution of BWP 15 million; this project is highly relevant for biodiversity conservation;

- Poverty-Environment Initiative Programme (UNEP) 2010-2014: the programme's budget was US\$1.5 million, some of which was relevant to BD;
- Environmental Support Programme (UNDP-GoB) funded environmental activities, including CBNRM support from 2005-2010. The budget was US\$4.6 million. Currently, UNDP has a UN Development Assistance Programme (UNDAP) with an environmental component.
- Transboundary programmes such as Southern African Environmental Programme (SAREP; USAID), RESILIM project (Resilience to climate change in the Limpopo basin; USAID) and KAZA have major biodiversity components, including spending.
- The implementation of the BioChobe programme is expected to start soon (GEF funded).

Civil society receives external as well as public funding. Several NGOs are actively involved with biodiversity conservation and management, including the Kalahari Conservation Society, Forest Conservation Botswana (FCB), Birdlife Botswana, Kalahari Namib project by EC, UNDP/GEF/USAID, USAID/IUCN Programme on Applying Ecosystem Approach in the Orange-Senqu River Basin and CARACAL. KCS data suggest that they have spent around BWP30 million on eight biodiversity related projects in recent years. FCB manages a trust fund aimed at forest conservation and management. FCB has funded 25 forest related projects, including research and community forest management. The fund resulted from a debt-for nature swap between the governments of Botswana and the USA and awarded BWP7.2 million to CBO, NGO and research projects in the period 2010-14. The fund amounts to around BWP 40 million in 2013 (Annual report 2012-13).

### 1.4.3 Financial challenges and the way forward

The Botswana government has rapidly increased funding of the key biodiversity departments (DWNP and DFRR) in nominal and real terms over the period 2006/07 – 2012/13. However, MEWT development expenditures are low and are mostly destined for wastewater and sanitation infrastructure. Revenues are much lower than the expenditures and have hardly grown. Therefore, public funding is currently critical for biodiversity conservation and management. A note of caution must be added. No data on private sector financing of biodiversity conservation are available. Moreover, the public sector analysis is at the level of departments and not of specific biodiversity expenditures. Specific points to note are:

- MEWT recurrent and development expenditures are a small portion (1 to 5%) of the national public expenditures;
- MEWT revenues are much lower than recurrent expenditures (14% in period 2006/07 – 2012/13). DWNP raises over 90% of MEWT revenues, mostly through CNP and MGR (other Parks are net recipient of public funds);
- DWNP and DFRR account for two-thirds of the recurrent expenditures; and
- On a per ha basis, DFRR recurrent expenditures are higher than DWNP (assuming that DFRR is 'only' responsible for Forest Reserves and DWNP for Parks and Game Reserves).

As Botswana moves toward being a middle-income country, external sources of funding for biodiversity conservation and management will dry up. Botswana's adherence to the African Ministers commitment that all participating countries should set aside 5 % of their national budget for environmental management would be a critically important step to replacing external funding. In addition, there is a need to ensure that funds, incentives and opportunities are increasingly put in place to facilitate the role of civil society in biodiversity management.

## 1.5 POLICY AND INSTITUTIONAL FRAMEWORK SUPPORTING BIODIVERSITY CONSERVATION

---

Several key multilateral environmental agreements (MEAs), policies and strategies supportive to biodiversity conservation are in place. What is needed is to ensure that they are effectively implemented, and where necessary enforced. These include:

- MEAs
  - Ramsar Convention on Wetlands of International Importance
  - Convention on International Trade in Endangered Species
  - UN Framework Convention on Climate Change
  - UN Convention to Combat Desertification
  - Convention Concerning the Protection of World Cultural and Natural Heritage (World Heritage Convention)
  - Gaborone Declaration on Commitment to Implement all Conventions that Promote Sustainable Development
  - Vienna Convention for the Protection of the Ozone Layer
  - Basel Convention on the Control of Transboundary Movement of Hazardous Waste and Other Wastes
  - Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade
  - Stockholm Convention on Persistent Organic Pollutants
  - Rio Declaration on Environment and Development (Agenda 21), Johannesburg Declaration on Sustainable Development and Rio +20 Statement on "The Future We Want"
  - African Convention on the Conservation of Nature and Natural Resources
  - Libreville Declaration on Health and Environment
  - SADC Regional Biodiversity Strategy
  - SADC Protocol on Wildlife Conservation and Law Enforcement
  - SADC Protocol on Forestry
  - Agreement on the Establishment of a Permanent Commission on the Okavango River Basin (OKACOM)
  - Kavango-Zambezi Transfrontier Conservation Area
  - Kgalagadi Transfrontier Park
- National Policies and Strategies

- National Biodiversity Strategy and Action Plan (this and earlier versions)
- Vision 2016
- National Conservation Strategy (1990)
- Wildlife Policy (Draft of 2012 – although still a draft, it is included here as an existing policy is in place which this will replace)
- National Forest Policy (2007)
- Botswana Threatened Species Management Action Policy, Implementation Strategy and Action Plan (2007)
- Predator Management Strategy (Draft of 2013)
- Community Based Natural Resources Management Policy (2007)
- Waste Management Strategy (1998)
- Climate Change Adaptation Policy (Currently a working draft, but may be adopted during the lifespan of this NBSAP)
- Water Policy (Draft currently before Parliament)
- National Action Plan for ORASECOM
- Strategic Action Plan for OKACOM

The following agreements and policies should be actively pursued in order to increase Botswana's ability to implement this NBSAP:

- Convention on the Conservation of Migratory Species of Wild Animals
- International Treaty on Plant Genetic Resources for Food and Agriculture
- Agreement on the Conservation of African Eurasian Migratory Waterbirds (accession currently being actively pursued)
- National Strategy for Sustainable Development
- Botswana Wetlands Policy and Strategy (Draft of 2007)
- Indigenous Knowledge Systems Policy (Final Draft of 2013)
- Environmental Research Strategy (Draft of 2010)

Policies from other sectors that have, in their current form, the potential to conflict with biodiversity conservation objectives include:

- National Policy on Agricultural Development (1991)
- Strategy for Economic Diversification and Sustainable Growth (2006)
- National Settlement Policy (1998)
- Revised National Policy for Rural Development (2002).

Key national, regional and district level plans and projects that present opportunities for supporting and mainstreaming biodiversity conservation are:

- National Development Plan 10 (2009-2015)
- Okavango Delta Management Plan (2008)
- Okavango Delta Ramsar Site Strategic Environmental Management Plan (Draft of 2012)
- Elephant Management Plan (Draft of 2013)
- Integrated District Land Use Plans
- Biokavango Project
- Biochobe Project
- Biofin Project
- Sustainable Land Management Project
- Local Economic Development Strategy

## 1.6 CAPACITY BUILDING

---

Capacity is the ability of people, organization's and society as a whole to manage their affairs successfully. Capacity is an attribute of people, individual organization's and groups of organizations. Capacity is shaped by, adapting to and reacting to external factors and actors, but it is not something external — it is internal to people, organizations and groups or systems of organizations. Capacity building can entail change of knowledge, skills, work processes, tools, systems, management style, etc.

This strategy focuses on addressing the capacity needs necessary for the successful delivery of the NBSAP. Capacity needs addressed here are organizational but mainly technical. Organisational capacity needs are those that relate to the institutional arrangements and processes thereto. Technical capacity needs refer to the key skills necessary for the individual's ability to contribute towards the implementation of the NBSAP. The capacity-building plan is presented in Section 3.3 below, with detailed actions appended to the action tables for each of the targets in Section 3.7.

National processes relating to the delivery of the CBD objectives are mainly anchored in the DEA (national focal department), DFRR (flora), DWNP (fauna), DNMM (taxonomy), and DAR (Biosafety). Other government departments provide support in various ways for the realisation of our CBD obligations. NGOs also contribute to the realization of these objectives. A case in point is Birdlife Botswana, which has continued to contribute to the national CBD process on the thematic area of birds. Research institutes, such as the ORI, provide knowledge support. It is in these critical institutions that adequate capacity in the management of biodiversity is a necessity.

### 1.6.1 Objectives

- To build/ facilitate capacity of key stakeholders in the implementation and reporting of the NBSAP
- To build capacity of decision makers and politicians on the importance of conserving biodiversity for peoples livelihoods
- To build capacity of resource users in sustainable management of biodiversity

- To enhance capacity of key institutions to facilitate mainstreaming/integration of biodiversity into policy and national development planning processes.

### 1.6.2 Challenges

- Limited Funding
- Small pool of experts
- Non-state actor's capacity challenges which are mainly resource limitations in the form of finance and personnel
- Inability to utilize the existing political willingness to address strategic capacity issues
- Staff Deployment that does not consider the capacity needs of the job and those of the individual
- Absence of an overarching legislation
- Inadequate Training Plan

### 1.6.3 Opportunities

- Broadening/Diversifying the BWTI Programmes/Courses
- Partnerships with international institutions
- Utilizing the existing political will for purposes of ensuring funding of biodiversity initiatives, an in mainstreaming biodiversity into policy and other processes.
- Utilizing the existing regional incentives and programmes such as the KAZA in order to enhance biodiversity management capacities

### 1.6.4 Key capacity enhancement areas and activities

- National MEA Coordinating Committee to be formally constituted and operationalized.
- An MEA Coordinating Unit, within DEA's P&P Division, should be formally established, appropriately staffed and funded to manage and report on countrywide MEA implementation
- DFRR & DWNP should formally establish MEA Implementing Units (MIUs) within their departments manned with at least 2 Desk officers per MEA pegged at C1 or higher
- Build capacity for MEA negotiations, position building processes/methodology, project management, budgeting and financial management, environmental law, policy formulation, review and mainstreaming within Departments and NGOs.
- Periodic High level breakfast meetings/briefings on key biodiversity issues

- Enactment of an overarching environmental management law
- Annual Financial grants to specialized NGOs.
- Develop traditional knowledge (TK) inventories & ABS mechanisms, and develop ABS legislation.
- Train CBOs on biodiversity management processes at the local level
- Development of Forestry and Wildlife Resource Accounts

## 1.7 COMMUNICATION

---

The communication strategy focuses on outlining the objectives of the communication strategy in cognizance of the set biodiversity targets. The need for an effective NBSAP communication strategy is crucial in lobbying for support to implement activities in the NBSAP as well as that of the CBD. The NBSAP communication strategy provides guidance towards effective communication to improve the flow of information between all identified stakeholders involved in management of biodiversity.

There are existing initiatives within DEA and Ministry of Environment, Wildlife and Tourism geared towards improved communication and environmental public awareness. The NBSAP communication strategy will also be aligned with the DEA organisational objectives and its key deliverables with an aim of contributing to the achievement of DEA mandate.

The NBSAP communication strategy identifies different target groups/stakeholders involved at different levels affected by a common biodiversity issues and provide the best possible methods for effective communication with that particular target group. Dissemination and creating awareness of the NBSAP will largely be driven by the CDB Focal Point, being the DEA. The DEA will do this through its Environmental Education and Awareness Division. It will utilize existing communication channels, tools and methods. Where there are gaps or capacity challenges this strategy will propose actions that will address them. This is to ensure capacities necessary for efficient communication are present and effectively utilized. The Communication Plan is given in Section 3.4 below.

### 1.7.1 Overall aim

- To ensure effective communication, dialogue and information exchange between stakeholders across different levels of NBSAP implementation from local, national, regional and international stakeholders

### 1.7.2 Objectives

- To improve awareness of the CBD, biodiversity strategy and action plan
- To enhance implementation of NBSAP and reporting
- To improve management of biodiversity resources based on lessons learned
- To enhance decision making and policy outcomes on biodiversity issues across all levels
- To strengthen the linkages between DEA, MEWT and other biodiversity related actors

### 1.7.3 Challenges

- Uncoordinated communication on biodiversity
- Lack of stakeholder engagement Strategy
- Staffing limitations
- Financial limitations
- Knowledge gaps due to weaker processes of information sharing among key stakeholders being DEA; DFRR; DWNP; MEWT PR Office, research institutes and NGOs.

### 1.7.4 Opportunities

- Partnership with training institutes and the media
- The drive for mainstreaming
- Funding; there is a general willingness to fund biodiversity related activities among development partners, and most importantly local companies

### 1.7.5 Stakeholders and communication tools

Stakeholder category	Example	Tools for communication
Local Community Groups	Representatives of communities (Community Based Organisations, CBOs) and local communities	Film/documentaries, special interest meetings with resource users, kgotla meetings, Radio, Road shows, meetings with community representatives, drama, pamphlets
Businesses and their associations	BOCCIM, Lodges, tour and safari operators; and extractive industries	Internet, Trade fairs, newsletters, brochures and Promotional material, meetings, compiled Information and policy material
Schools and other educational institutions	National and international schools	Newsletters, Fact sheets, Internet, Research publications, targeted meetings
Research Institutions	University of Botswana, Okavango Research Institute, Botswana College of Agriculture	Targeted meetings, workshops, Internet, fact sheets, briefs, radio, research publications, reports, brochures, seminars
NGOs and NGOs	Kalahari Conservation Society, BirdLife Botswana, Somarelang Tikologo	Targeted meetings, workshops, Internet, fact sheets, briefs, radio, research publications, brochures, seminars, project reports
Local Government	The District and Tribal administration, the Land Board and District Council	Meetings, Internet, workshops, reports, fact sheets, workshops
Public Authorities (parastatals)	Water utilities, CEDA, LEA	Meetings, Internet, workshops, reports, fact sheets.
National Government	Parliament and line ministries	Meetings, Internet, workshops, reports, fact sheets.
Regional institutions	KAZA, ZAMCOM, OKACOM, SADC,	Consultation, meetings, email, Internet, International seminars
Partnership bodies	CBNRM, BOCOBONET, BOCONGO	Meetings, Internet, workshops, reports, joint planning, fact sheets.
International Organisations	CBD, UN Agencies, Development Partners, International NGOs	Internet, email, Publications, posters, Print and electronic media /scientific articles, Seminars, e-Newsletters, IUCN Knowledge Network, brochures, meetings.
Media	National, Regional and international media	Press releases, Media tours/visits, website, Internet/email, media events and relations, Media briefings, coverage in magazines, producing press releases

## 1.8 LESSONS LEARNT FROM THE 2007 NBSAP

---

Soon after preparing the previous (2007) NBSAP, Botswana's economy was hit hard by the 2008 global recession. With cutbacks in place, Government had to prioritise activities that were more immediate and urgent, with the result that some of the less direct activities were not as keenly pursued. Thus, as is discussed below, objectives that do not speak directly to conservation, such as monitoring, institutional arrangement, valuation, or issues of access, lagged behind those that were directly related to conservation management, such as responding to environmental threats and development of plans to support sustainable land management.

### 1.8.1 Progress in implementation

Although the findings of the Stocktaking and Gap Analysis Report indicate that there were major challenges (such as the 2008 global financial recession) to implementation, there are nonetheless some important successes with regard to the 2007 NBSAP activities. Noting these achievements provides the opportunity to understand where there is strong overlap with the existing mandate of different sectors, and where immediate pressures exist. Two key areas of success for Botswana include 2007 Strategic Objective 5: "Coping with Environmental Change and Threats to Biodiversity", and 2007 Strategic Objective 8: "Safe Industrial and Technological Development and Other Services Based on National Biodiversity Resources for Future Prosperity". Analysis suggests that the immediacy and pressing needs expressed in Objective 5 were strong enough to ensure its implementation, whereas less immediate or direct activities such as research, data collection and monitoring, fell to the side. Objective 8's success can be largely attributed to the strong overlap with the mandate of the main responsible party (the Department of Agricultural Research).

Successes are not limited only to those activities that have been completed, especially given the financial constraints attributed to the global recession. Although behind schedule, it is nevertheless important to note those activities that have been initiated, and which still have valuable contributions to make to biodiversity conservation. In this regard, the underlying research and monitoring necessary to understanding the status of biodiversity (2007 Strategic Objective 1) has been started, and will need to be continued in order for decisions to be properly informed. These include the vegetation mapping exercises by DFRR, and the systematic species counts by both government (e.g., DWNP) and non-government (e.g., BirdLife Botswana) organisations.

Other activities are by nature long-term, such as the development of Integrated Land Use Plans, and other land management practices, such as range and fire management. The steady progress on sustainable use (2007 Strategic Objective 3) is important to note, as it opens a critical pathway to mainstreaming biodiversity into broader development initiatives.

### 1.8.2 Gaps in information

The section highlights the key gaps in information as identified during the review of the 2007 NBSAP as relating to biodiversity and its economic valuation.

#### **Biodiversity**

There are relatively few national taxonomic surveys undertaken in Botswana. Fortunately international collaboration in collecting and preserving ex situ plant genetic material (Millennium Seed Bank with the RBG Kew) and the FAO initiative with Agricultural research to collect indigenous strains of agricultural genetic material have been ongoing.

Botswana is reliant on regional taxonomic information for many of the taxa particularly the invertebrates, small mammals, reptiles and amphibians. As a result, location specific information is limited.

In terms of biodiversity monitoring, the DWNP undertakes aerial surveys to monitor wildlife and, fish resources, the DFRR in conjunction with the JICA have undertaken forest resources inventory

and monitoring project, and Birdlife Botswana has been monitoring bird species across the country. However, there is need for the strengthening of these institutions in order to enable them to cover a wider area and scope in terms of monitoring, as some aspects are still limited thereto.

One of the bigger challenges facing the management of biodiversity information is the issue of scale. The mismatch between socio-political and ecological boundaries means that data are not collected at the ecosystem level, and it is therefore hard to develop accurate assessments of the health of each ecoregion. This has implications for both district level data collection, but also for aggregation to the national level, since some districts will need to combine information to cover the entire ecoregion.

Plant, mammal, and bird species richness data are not broken down according to ecoregion, so it is not possible to assess total richness for each category. This is a data concern that must be addressed if the ecosystem approach is to be adopted.

### **Economic valuation**

The largest gap, in terms of biodiversity, is that economic data are not aligned to ecological boundaries such as the ecoregions used for the NBSAP biodiversity analyses. Instead data are collected by political boundaries such as districts, and it is hard to accurately quantify the proportional contribution of the different ecosystem types, and the biodiversity housed in each, to the national economy.

Furthermore, economic valuation in the south and south-west of the country has not been done, despite the fact that it is in the dryland ecosystems that much of the game and livestock ranching, of considerable commercial value, takes place.

In terms of mainstreaming biodiversity into national accounts, little progress has been made, and the present national accounts do not provide any relevant insights into the contribution of Botswana's biodiversity to the national economy, or to its future-use or offset value for evaluating against development opportunities.

Specific data gaps include:

- 1) Actual hunting data or success rates of available hunting quota;
- 2) Harvesting, trade and export of veld products; and
- 3) Identification and quantification of ecosystem services by ecoregions.

## **1.8.3 Main resource constraints**

In the stocktaking and gap-analysis phase of preparing this NBSAP, the following constraints to implementation were identified:

- Human resources - both in terms of sufficient staff and appropriate skills
- Alignment and coordination policy and institutional mandates / arrangements
- Communication of actions and implementation
- Financial resources
- Insufficient research capacity.

## **1.8.4 Key lessons learnt**

Key lessons learned are summarised below:

- Implementation works best when responsibilities are assigned at the departmental level not at Ministerial level.
-

- There is need for a full-time team responsible for NBSAP implementation. Without such a team, resource mobilization, communication, awareness-raising, reporting, and ongoing support to other departments (especially those outside MEWT or with a non-environmental core mandate) will not be effective, and will continue to undermine biodiversity initiatives.
- It is important to have in place a monitoring and evaluation plan, and personnel to ensure its implementation.
- It is always crucial to assign MEAs and/or protocols to relevant and appropriate Departments/institutions. The overlap between the objectives of the MEAs and/or protocol with the mandate of the relevant department must be aligned, and necessary resources should be in place. A key success story, in this regard, is the housing of the Cartagena Protocol with the Department of Agricultural Research.
- The MEA Coordination Committee has not been fully operational hence the need to be strengthened, to ensure that strategic activities are effectively implemented and reported accordingly.
- Capacity is limited in terms of both human and financial resources. This affected the implementation of the 2007 NBSAP. Therefore, it is imperative for Botswana to invest in these resources in order to meet the CBD obligations.

## 1.9 PRECONDITIONS FOR SUCCESS - THE ENABLING ENVIRONMENT

---

Success in implementing the NBSAP requires a multiple-prong approach. Not only is it important to actively promote conservation activities, but it is also necessary to ensure that support for such conservation is widespread, and that it is given a tangible value at the national level.

### 1.9.1 Preconditions relating directly to biodiversity conservation

Before biodiversity can be actively managed and protected, it needs to be understood. In this regard, the following preconditions are vital:

- Identification of species, habitats and ecological processes that are under threat (this is largely available from the updated stocktake)
- Improve understanding of the species diversity, population dynamics and threats so that management to protect biodiversity improves. This should follow an adaptive management approach and effective monitoring so that theories can be tested and solutions identified on small components of a population.
- Monitor biodiversity and provide feedback into adaptive management of resources.

At the same time, a commitment to radical changes in management style is also needed. Specifically, the following actions are needed:

- Implement an adaptive management approach to biodiversity by assigning roles and responsibilities and through effective monitoring of action plan implementation.

- Institute reporting on the basis of ecoregions, not solely on district boundaries.
- Allow effective and open distribution of biodiversity data and information.

### 1.9.2 Preconditions for mainstreaming biodiversity

One of the findings of the Fourth National Report was that future iterations of the NBSAP should be simplified in order to facilitate dissemination and uptake. As noted above, coordination is a key precondition, and both funding and institutional arrangements must be put in place to facilitate this process.

In order for biodiversity to be mainstreamed, it first has to be valued. In this regard awareness programmes need to be given priority, but so are tighter, more explicit links between revenues from wildlife-based tourism and what such revenue is spent on. Public and CBO support is critical.

It is also critical to establish cooperation between stakeholders. Most of the threats to biodiversity are due to cross sector-impacts or cumulative impacts. Cooperation between ministries and departments to allow for sustainable development is necessary.

### 1.9.3 Preconditions for valuing biodiversity

#### **Economic valuation**

The importance of biodiversity in a resource dependent economy like Botswana is obvious (e.g. tourism and agriculture) but nonetheless, the value of biodiversity is often not recognised in development planning. While government has carried out several valuation studies of specific ecosystems, the value of biodiversity at the national level is not yet fully appreciated.

Ecosystems and most environmental goods do not have monetary value as they are not marketed nor sold and are often freely available (e.g. fuel wood, veld products and communal land). Economic valuation therefore addresses this shortfall by assigning values to these goods by measuring the society's preference for environmental goods and services. Economic valuation of biodiversity in Botswana is confined to the northern ecoregions Zambebian flooded grasslands and Zambebian halophytics).

Comprehensive valuation studies need to focus on the dryland ecosystems and the woodlands. Existing valuation exercises have largely focused on the direct use values of biodiversity while indirect and non-use values are limited. Understanding and valuation of other ecosystems goods and services is critical while the option and existence values also need to be explored to further enhance sustainable use and conservation of biodiversity.

There are data inadequacies in the biodiversity sector and thus this impedes proper valuation of the resources. There is need to improve data collection, analysis, access, storage and management especially in relation to veld products harvesting, processing and trade, hunting, CBO statistics as well quantified ecosystems' services. Furthermore, data should be collected and organised by specific ecoregion.

Biodiversity is the lifeline of most rural communities and therefore important for poverty alleviation and improved livelihoods. Linkages between natural resources dependency and use as well as income and livelihoods need to be explored and captured in the Botswana core welfare indicator surveys. This would help in verifying and interpreting the role and dependency of communities on biodiversity in economic terms and inform poverty eradication and welfare initiatives. It is only through a clear understanding of the contribution of biodiversity to rural livelihoods that its value can be mainstreamed and appreciated throughout the nation.

CBNRM generates significant socio-economic and environmental benefits and over the years the programme has benefited northern ecoregions as opposed to those in the dryland areas. There is need to review the performance of CBOs in the country and assess their contribution to biodiversity management.

### **Biodiversity and national accounting**

Biodiversity currently does not adequately feature in the national accounts. Botswana has experienced with natural resources (capital) accounting since the 1990s. Further accounts are however required for ecosystems and these should be constructed by ecoregion. Tourism satellite accounts exist but need regular updating and analysis to inform policy and decision making. The 'natural resources' category needs to be re-introduced in the national accounts. Currently natural resources are subsumed within the agricultural sector and perhaps other sectors as it is not clear in the statistics.

However, it is anticipated that the Wealth Accounting and Valuation of Ecosystem Services (WAVES) initiative by the World Bank and the Government of Botswana will escalate the previous work on the valuation of Ecosystems that was done in northern Botswana by constructing ecosystem accounts. This initiative will go further to contribute to the on-going reforms to improve the country's System of National Accounts to incorporate the values for natural capital under the guidance of the UN Statistical body.

### **Biodiversity funding**

It is currently impossible to identify in more detail how much the Government of Botswana is spending on biodiversity conservation. It is recommended that a detailed analysis of DWNP and DFRR annual expenditures is conducted and that possible biodiversity expenditures and revenues of other departments (also outside MEWT) are identified and included. Furthermore, biodiversity expenditures and revenues of the private sector need to be documented with the assistance of the private sector (e.g. Botswana Wildlife Management Association, Botswana Wildlife Producers Association, HATAB and BOCCIM). Opportunities for increased private sector investments in biodiversity management need to be explored and utilised (e.g. co-management of Parks). The NEF needs to have a dedicated window for biodiversity, and to provide finance to non-state parties for biodiversity-related activities. CBNRM revenues have been stagnating for some time now and adequate funding for CBNRM is necessary. This could include payment for ecosystem services provided by communities, but also abolishment of the measure that 65% of CBO revenues should go to government<sup>2</sup>, and compensation for lost hunting revenues. The Biofin project that Botswana is participating in represents an opportunity to address some of these issues.

### **Biodiversity incentives and dis-incentives**

The current structure for incentives/dis-incentives for biodiversity is fragmented and ineffective. Environmental economic instruments are hardly utilised. In Botswana, the CBNRM programme is the most prominent and legally sanctioned biodiversity related incentive mechanism. The following are necessary to improve the incentive structure for better and sustainable access, utilisation and management of biodiversity:

- Assessment and application of Payment for Ecosystem Services (PES) in Botswana. This is a market based approach for creating incentive measures for biodiversity management, addressing livelihood issues particularly for poverty eradication, and also provides sustainable funding for conservation efforts and protected areas. It is therefore based on the notion that those who conserve biodiversity or environmental services should be compensated by the beneficiaries of this service. The choice of PES scheme needs to be carefully discussed and agreed upon by the relevant stakeholders.

---

<sup>2</sup> Conditional on effective, representative, accountable and legal CBO management.

- Review of incentives for CBOs to manage biodiversity in their areas. The NEF has potential to encourage and finance conservation efforts and provide financial incentive for sustainable use of natural resources.
- Biodiversity impact assessment of perverse subsidies with the view of phasing out biodiversity damaging subsidies.
- Review the performance of current user charges for biodiversity and where possible adjust to reflect the real value of biodiversity.
- Acknowledge and encourage participation of the private sector in terms of funding for conservation of biodiversity and sustainable utilisation of resources.

## 2. NBSAP PRINCIPLES, VISION, GOALS AND TARGETS

---

Botswana aims for a strategy that is strongly aligned to that of the CBD and the Aichi Targets, while still being realistic to its specific circumstances.

### **Consideration of timing**

In this regard, the most important variation is that of the timeline. The current CBD Strategy has its Global Vision set to 2050, and the Aichi Targets set to 2020. For this NBSAP, the vision and most of the national targets are set for 2025. This is based on an assessment of what would work best for Botswana. 2025 sets a vision time frame that is within the planning horizon of, and hence is more tangible to, most stakeholders – especially those working towards it. 2025 also represents two cycles off the NBSAP, so that the next review can be seen as a mid-term review, where the goals and targets remain unchanged, but the strategic actions required to meet those targets can be adjusted as needed to keep progress on course.

Setting the national targets to 2025 also allows for the incorporation of the targets' strategic actions into the next iteration of the nation's development plan, which means that the next two years would be needed to ensure that resources are mobilised and secured. Finally, the sequential nature of several activities means it will take more than five years for them to be fully operationalised.

### **Ownership and engagement**

While it is clear that the ultimate authority for this NBSAP lies with Government, as a national plan, it also needs to involve all of civil society, both the private sector and NGOs. This is in part to do with mainstreaming biodiversity so that it is widely valued across the nation, but also largely related to actively engaging the broader public in as many aspects of implementation as possible. Ideally, there should be a platform for regular interaction where all stakeholders can make meaningful contributions. Such opportunities include data-sharing, such as by researchers who have much to add on the state of the environment, or community-based environmental monitoring, or NGO-led bird population surveys. Collaboration with non-state institutes for information dissemination is another way in which ownership can be spread across the whole nation.

## 2.1 PRINCIPLES

---

Botswana's Vision 2016 has an extensive section addressing its aims with regard to the environment. As stated in this document, the nation strives for sustainable development and economic growth. By the year 2016, there 'will be a fully integrated approach towards conservation and development'. According to this vision, key natural resources will be distributed equitably, and communities will 'benefit directly from exploiting and preserving their environmental assets'. Poverty eradication is seen as a critical step in reducing pressure on the environment. This statement highlights key principles and values held by the nation:

- Sustainable development
- Integrated conservation and development
- Equity across generations
- Biodiversity as the foundation of life and livelihoods

Another key national principle is that of "*Botho*". This is a Tswana word referring to one's role in society – mutual respect, responsibility and accountability. This concept is a vital one because it highlights the fact that all members of society have a part to play in looking after society's best

interests – in this context, that is, all members of society need to become involved in looking after the environment that underpins the nation’s future.

## 2.2 VISION

---

**By 2025, ecosystem, species and genetic diversity is valued, protected, and used sustainably and equitably, through the involvement of all sectors of society and the provision of sufficient resources for its sound management.**

This vision follows that of the CBD. It encapsulates the key points that give rise to the five goals that Botswana aims to achieve with this iteration of the NBSAP. It also embodies the principles and core values listed above that guide the nation in terms of sustainable development.

The vision shows what to strive for, and gives a timeframe for achievement. It captures the idea of mainstreaming through emphasising the involvement of all, while highlighting the need to create an enabling environment for the plan’s successful implementation.

## 2.3 GOALS

---

The Botswana goals are aligned to those of the CBD strategy in terms of their focus (see Appendix 1 for side-by-side comparison). As with the CBD strategy, these goals will provide the framework for the 20 national targets, which in turn are aligned with the Aichi targets. In order to ensure that action is galvanised, the goals are set for a realistic 10 year period. This assumes that the next revision of the NBSAP could be considered a mid-term assessment of these goals and their related targets.

- 4) Biodiversity is mainstreamed and valued across all sectors of society**
- 5) The pressure on biodiversity is reduced and natural resources are used sustainably**
- 6) Ecosystems, species and genetic resources are protected through sound management**
- 7) Fair and equitable access to the benefits of biodiversity is secured**
- 8) Participatory planning, knowledge management and capacity-building are in place to support NBSAP implementation.**

## 2.4 NATIONAL TARGETS

---

As with the Aichi Targets<sup>3</sup> with which they are aligned, the 20 Botswana National Targets are grouped under the 5 national goals so that these can guide and direct appropriate strategies. The Botswana targets are strong but realistic statements of what must be achieved in order for the 5 goals to be realised. These are presented below (as well as given in tabular form with the Aichi Targets for comparison, in Appendix 1).

---

<sup>3</sup> The official CBD Aichi Target icons are shown next to each related national target.

### 2.4.1 Targets under Goal 1: Biodiversity is mainstreamed and valued across all sectors of society



By 2025, all people in Botswana appreciate how biodiversity contributes to their lives, and are aware of steps they can take to conserve and use it sustainably.



By 2025, planning processes at all (district, urban and national) levels, and national accounting and reporting systems in Botswana contain explicit actions to promote biodiversity conservation.



By 2025, incentives and subsidies across all sectors are revised, designed or introduced to improve support for sustainable consumption and production and promote biodiversity conservation.



By 2025, at all levels, policy and regulatory instruments are in place to ensure production and consumption by government, industry and society are kept within sustainable levels and safe ecological limits.

### 2.4.2 Targets under Goal 2: The pressure on biodiversity is reduced and natural resources are used sustainably



By 2025, the rate of natural land conversion is at least halved, and degradation and fragmentation are significantly reduced.



By 2025, animal and plant resources in Botswana's wetlands, woodlands and savannas are sustainably managed using the ecosystem approach, so that the impacts of harvesting remain within safe ecological limits.



By 2025, wetlands, woodlands and savannas, particularly where used for range or crops, are managed sustainably, ensuring conservation of biodiversity.



By 2025, levels of air, water and soil pollution are maintained below levels that would threaten ecosystem functioning and biodiversity.



By 2025, key invasive alien species are identified and controlled or eradicated, and pathways for their spread are managed to prevent further introduction and establishment.



By 2025, the anthropogenic pressures on wetlands, woodlands and savannas are minimised, so that the impacts of climate change and other external perturbations on their ecological integrity and functioning can be managed.

### 2.4.3 Targets under Goal 3: Ecosystems, species and genetic resources are protected through sound management



By 2025, at least 25 percent of all Botswana's ecoregions, particularly the wetlands, rivers and pans in them, are effectively conserved through an ecosystem approach that integrates their management with that of the surrounding landscapes and involves resident communities.



By 2025, the conservation status of species in Botswana that are listed as threatened has been improved or sustained.



By 2025, the genetic resources of traditional agricultural species and their wild relatives are protected, and strategies for minimizing genetic erosion and safeguarding their genetic diversity have been implemented.

#### 2.4.4 Targets under Goal 4: Fair and equitable access to the benefits of biodiversity is secured



By 2025, ecosystem services are identified and restored or maintained in all Botswana's ecoregions, and contribute to livelihood improvement through strategies that enable equitable access by all vulnerable groups, including women, the poor and local communities.



By 2025, ecosystem integrity in all Botswana's ecoregions will be conserved through the adoption of ecosystem-level management approaches built around key ecological processes, so that they contribute to climate change mitigation and to combating desertification.



By 2025, the Nagoya Protocol is domesticated and operational, and specific actions that ensure fair and equitable access and benefit sharing are implemented.

#### 2.4.5 Targets under Goal 5: Participatory planning, knowledge management and capacity-building are in place to support NBSAP implementation



By 2015, Botswana's revised NBSAP has commenced implementation with the full support of all sectors and levels of governance.



By 2025, the indigenous knowledge of Botswana's various communities, as it relates to the conservation and sustainable use of biodiversity in all the country's ecoregions, will be documented, assessed and legally protected, and - where relevant - integrated into programmes and projects supporting biodiversity conservation.



By 2025, information and techniques relating to the biodiversity and its value in all Botswana's ecoregions are efficiently documented, stored, shared, disseminated and used by all sectors and levels of society.



By 2017, at least 80% of the required budget for the revised NBSAP, generated from diverse sources, is made available for its implementation.

## 3. ACTION PLAN AND STRATEGIES FOR IMPLEMENTATION

---

This section presents the specific plans and activities required for reaching the NBSAP goals and targets. It includes sections on the coordination of activities, the resource mobilisation plan, the clearing house mechanism (CHM), the monitoring and evaluation plan, and the national reporting framework. It outlines the strategic actions and identifies the implementing agencies for each national target. Opportunities for synergies with other multilateral environmental agreements (MEAs) are addressed separately in Appendix 3, where relevant strategic actions are linked to each MEA.

### 3.1 COORDINATION OF ACTIVITIES

---

Currently in Botswana, there are three institutional bodies engaged in the ongoing coordination of biodiversity-related activities. The first is the Ministry of Environment, Wildlife and Tourism (MEWT), which through the Policies and Programmes Division in the Department of Environmental Affairs (DEA), serves as the host agency for the NBSAP. DEA is the National Focal Point for the CBD, and is tasked with overseeing implementation on the NBSAP. Currently, as is noted in the Lessons Learned section above, the status of DEA in the hierarchy of government presents a challenge to its ability to ensure the implementation of strategic actions by departments or other agencies other than itself, since it has no legal authority over these other parties. Currently, the mechanisms for such an authority to oversee all legal and policy environmental obligations are met are actively being explored. However, the nature of this authority has yet to be finalised.

In the meantime, the participation of DEA in each and every Strategic Action should be seen as a given. Even where actual implementation may fall primarily to another department, DEA's active collaboration, negotiation, monitoring and ultimate oversight is required for the successful attainment of the NBSAP targets. This implicit participation is made explicit through the addition of a strategic action requiring ongoing monitoring and reporting (see Strategic Action 17-3).

The second structure is the National Biological Diversity Authority (NBDA), a committee comprise of experts: senior, mainly technical, officers from across all relevant government sectors as well as from major environmental NGOs. The NBDA has an advisory and guiding role for implementation. The role of the NBDA members is also to ensure that the strategic actions assigned below to their own departments are a) in line with the departmental mandates, and b) taken on board during each department's preparations for their national development planning inputs.

The third body that has a key role to play in coordinating implementation is the Multilateral Environmental Agreement (MEA) committee. This inter-ministerial committee ensures that the overlapping objectives to all the MEAs that Botswana is party to, are coordinated, so that they can be implemented synergistically. In this regard, the NBSAP strategic actions presented under each MEA represent specific opportunities for the MEA committee to align their MEAs' activities.

The role of local government is also critical to the successful initiation and maintenance of projects – particularly those targeted at the community level. If rural communities, which are heavily dependent on natural resources and ecosystems services, are not formally brought into the broader biodiversity conservation agenda, there is a strong likelihood that short-term economic or livelihood gains will be given precedence over long-term environmental sustainability. The Botswana Association of Local Authorities (BALA) therefore has a key role to play in ensuring that local authorities and other community level institutions are informed and engaged in implementing the NBSAP strategic actions.

## 3.2 RESOURCE MOBILISATION PLAN

---

The resource mobilisation strategy is based on the funding needs associated with the NBSAP activities and on Botswana's socio-economic conditions and status as an upper middle income country.

### 3.2.1 Factors influencing resource mobilisation

In terms of the socio-economic context, two factors are key to the funding strategy. As an upper middle income country, Botswana has become less eligible for development assistance. Few, if any, bilateral funding programmes are operational in Botswana. Access to international funding is mostly realised through participation in global thematic initiatives with national implementation programmes (e.g. WAVES, PEI, TEEB, UN Development Assistance Framework UNDAF and various UN Global Conventions) as well as regional programmes (e.g. through SADC such as RESILIM and SAREP). Being certified under globally recognised programmes such as Ramsar and UNESCO World Heritage Sites enhances opportunities for funding. Furthermore, Development partners such as UNDP, UNICEF, UNEP, GEF, EU, JICA, and USAID among others offer opportunities for international financial assistance which can be tapped into for the implementation of the NBSAP.

There is growing competition for domestic public funding due to the growth of the economy, large expenditures on health, education and government budgetary constraints as a result of global market conditions. This necessitates government to prioritise public projects. Ipso facto, national funding mechanisms have been established to address biodiversity management. This includes the Forest Conservation Botswana, National Environment Fund, Community Conservation Fund, and the Community Trust Fund. In the longer term, NBSAP activities need to be primarily funded from domestic sources as this is the only way to sustainably manage the country's biodiversity resources. Government funding needs to be fully integrated in the NDPs and annual budgets for Ministries. Government funding is guided by the National Development Plans (NDP) and annual budgets. For the NBSAP implementation, NDP 10-12 will be relevant<sup>4</sup>, and therefore it is important that the lead agencies incorporate funding needs for the implementation of these activities in the NDPs and their annual budgets.

However, given government funding constraints, it is recommended to tap into opportunities for increased funding from the private sector and communities (e.g. through partnerships and private sector investments). Several companies have sustainable development strategies and reports that could include support for NBSAP activities, for example through support for the Makgadikgadi Framework Management Plan and the Okavango Delta Management Plan. Shared funding through public-private sector partnerships and private or public/ community partnerships need to be actively explored. In the short term, external funding will remain important to support NBSAP implementation. It is recommended that Botswana fully utilises multilateral funding opportunities and programmes, including the Green Fund and other funding opportunities under UN Conventions). Other key opportunities are discussed below.

### 3.2.2 Resource opportunities

*The Economics of Ecosystems and Biodiversity (TEEB; [www.teebweb.org](http://www.teebweb.org))* is hosted by the United Nations Environment Programme and supported by the European Commission, the German Federal Environment Ministry and the UK government's Department for Environment, Food and Rural Affairs, recently joined by Norway's Ministry for Foreign Affairs and The Netherlands' Ministry of Housing, Spatial Planning and the Environment. Its aim is to guide practical policy responses to the growing evidence of the impacts of ongoing losses of biodiversity and ecosystem services. Botswana has not yet directly benefited from this Programme but could benefit through funding of a national TEEB study.

*Wealth Accounting and Valuation of Ecosystem Services, known as WAVES*, is a partnership between the World Bank and a growing number of countries ([www.wavespartnership.org](http://www.wavespartnership.org)). Implementing partner countries include Botswana, Colombia, Costa Rica, Madagascar and the

---

<sup>4</sup>NDP10 = 2009/10-2015/16; NDP11 = 2016/17-2021/22; NDP12 = 2022/3-2025/26

Philippines. Other supporting countries include Australia, Canada, Japan, Norway, Spain and the UK. WAVES supports natural capital accounting and environmental valuation activities. The capital accounting activities can be supported and government needs to ensure funding once the resource accounts have been fully institutionalised.

It is further recommended that Botswana nominates more critical ecosystems for global certification under different schemes. This will enhance the chance of bilateral funding as such certification schemes are supported by many donor countries. These schemes include:

- **Ramsar Sites** are recognised ‘wetlands of international importance’. Over 2 000 Ramsar sites exist globally. The Okavango Delta is one of the largest Ramsar sites.
- **World Heritage Sites (WHS)** are exceptional sites of outstanding universal value. Around 80% of the WHS sites are selected because of their cultural value (e.g. Tsodilo Hills) but some 20% have been certified because of their natural value which needs to be conserved. The Okavango Delta has been nominated for World Heritage site status.
- **Biosphere Reserves** are sites established by countries and recognised under UNESCO's Man and the Biosphere Programme to promote sustainable development based on local community efforts and sound science. The “World Network of Biosphere Reserves” under the Man and Biosphere Programme has 621 sites. A prefeasibility study of the nomination of the Makgadikgadi Wetlands and surroundings is done in 2014, and is likely to lead to the application of the Makgadikgadi Wetlands for Biosphere Reserve status. That study identified other areas which are suitable for Biosphere Reserve nomination at a later stage.

### 3.2.3 Funding requirements

To identify the funding requirements, strategic actions were first identified. Specific costs for each strategic action is therefore reflected in the tables associated with the strategic action implementation plan in Section 3.8. Costs were identified through a process of consultations with stakeholders. Subsequently, a template for costing of the activities was developed.. During consultations with stakeholders, overall costs were estimated for each activity together with their duration. The total costs of the NBSAP activities were estimated at BWP 319.3 million (in 2014 Pula values) for the period 2014-2025; this corresponds to an average of BWP 26.6 million per annum. This is modest in comparison with MEWT's 2012-13 recurrent and development expenditures of BWP 427 and 385 million respectively (Murali, 2013).

The estimated costs are unevenly distributed over the national targets (Figure 3). Activities related to Targets 11 and 15 are around BWP 40 million each, and are the most costly to achieve. Activities related to Targets 2 and 12 require BWP 20 to 30 million while Targets 4, 5, 7, 8 and 10 require BWP 10 to 20 million each. The other targets can be achieved with less than BWP 10 million (Figure 3).

In terms of years, the annual costs are rapidly growing until 2018 when they peak at BWP 42 million and subsequently decline to BWP 28 million in the period 2021-2025 (Figure 4). In terms of government funding, this means that the bulk of the costs (61%) will be made during the NDP11 period and the annual budgets during that period (Figure 5) and therefore, lead agencies need to incorporate NBSAP activities in their submissions for NDP11, a process that starts in July 2014.

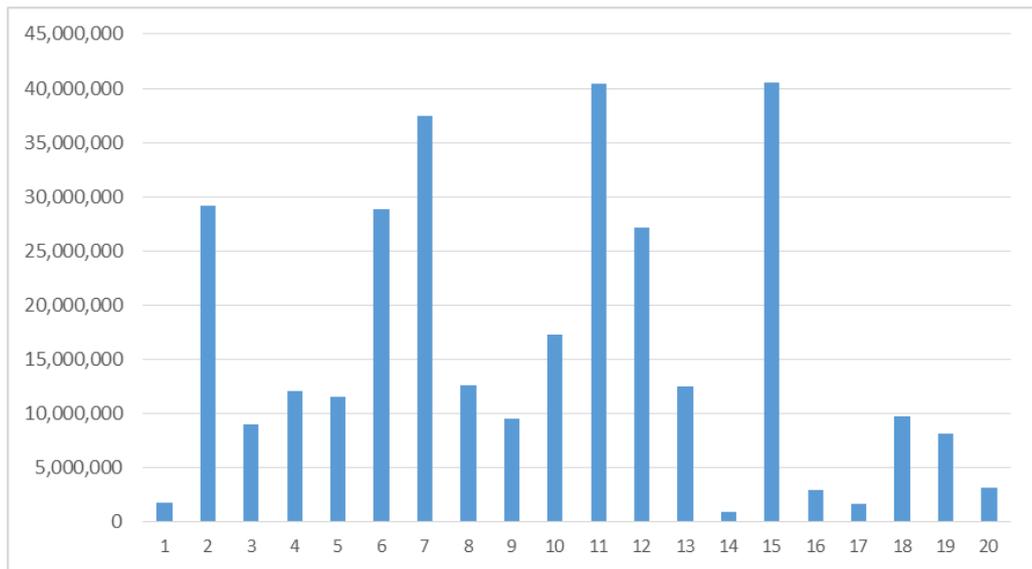


Figure 3: Estimated annual costs of project implementation by national target (2014 Pula)

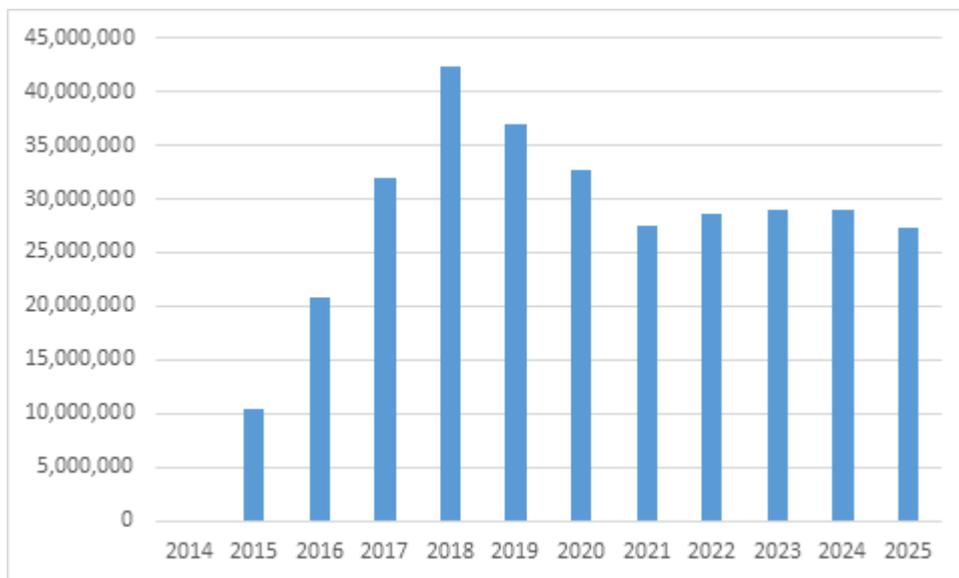


Figure 4: Annual estimated costs of NBSAP activities implementation (in BWP 2014)

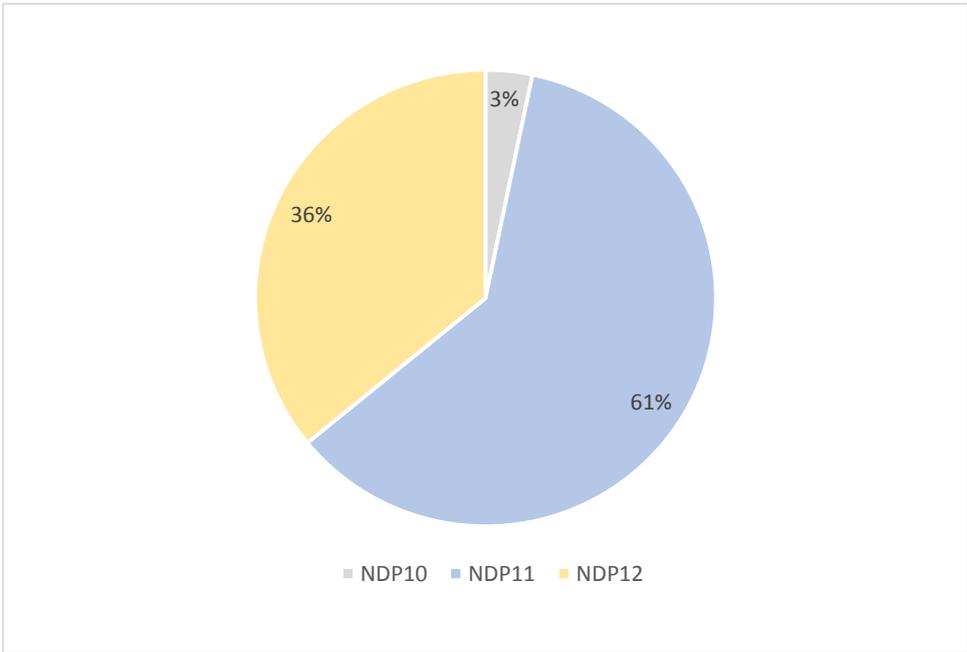


Figure 5: Distribution of estimated costs over NDP 10-12 periods

Table 5: Estimated costs of proposed activities by national target and year

Target	est. costs	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
1	1,740,000	0	100,000	156,000	156,000	216,000	216,000	176,000	176,000	176,000	176,000	176,000	16,000
2	29,180,000	0	256,667	268,667	268,667	1,812,000	1,812,000	4,145,333	4,123,333	4,123,333	4,123,333	4,123,333	4,123,333
3	9,000,000	0	1,000,000	1,000,000	1,222,222	2,222,222	1,222,222	1,222,222	222,222	222,222	222,222	222,222	222,222
4	12,060,000	0	20,000	895,000	3,728,333	3,708,333	3,708,333	0	0	0	0	0	0
5	11,510,000	0	0	1,358,333	2,691,667	3,040,833	2,540,833	1,374,167	207,500	207,500	40,833	40,833	7,500
6	28,850,000	0	750,000	2,050,000	3,605,556	3,886,806	2,536,806	2,670,139	2,670,139	2,670,139	2,670,139	2,670,139	2,670,139
7	37,500,000	0	2,200,000	2,220,000	4,220,000	4,595,000	4,595,000	2,695,000	2,675,000	3,800,000	3,500,000	3,500,000	3,500,000
8	15,300,000	0	254,545	254,545	3,587,879	3,587,879	3,587,879	2,754,545	254,545	254,545	254,545	254,545	254,545
9	9,500,000	0	500,000	500,000	500,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000
10	17,280,000	0	16,667	40,667	40,667	4,850,667	1,790,667	1,790,667	1,750,000	1,750,000	1,750,000	1,750,000	1,750,000
11	40,460,000	0	1,725,000	3,035,000	3,120,000	4,580,000	4,000,000	4,000,000	4,000,000	4,000,000	4,000,000	4,000,000	4,000,000
12	27,160,000	0	812,727	1,646,061	1,606,061	2,053,561	3,363,084	3,363,084	2,863,084	2,863,084	2,863,084	2,863,084	2,863,084
13	12,500,000	0	0	900,000	900,000	900,000	900,000	900,000	900,000	900,000	2,066,667	2,066,667	2,066,667
14	920,000	0	0	350,000	0	40,000	461,429	11,429	11,429	11,429	11,429	11,429	11,429
15	40,540,000	0	40,000	3,450,000	3,919,444	3,919,444	3,694,444	4,494,444	4,494,444	4,494,444	4,494,444	4,494,444	3,044,444
16	3,000,000	0	1,000,000	1,000,000	1,000,000	0	0	0	0	0	0	0	0
17	1,690,000	0	190,000	150,000	150,000	150,000	150,000	150,000	150,000	150,000	150,000	150,000	150,000
18	9,750,000	0	763,636	763,636	763,636	1,063,636	913,636	913,636	913,636	913,636	913,636	913,636	913,636
19	8,190,000	0	690,909	804,242	804,242	1,054,242	690,909	690,909	690,909	690,909	690,909	690,909	690,909
20	3,140,000	0	307,273	307,273	27,273	27,273	27,273	607,273	607,273	607,273	207,273	207,273	207,273
total	319,270,000	0	10,627,424	21,149,424	32,311,646	42,707,896	37,210,516	32,958,849	27,709,516	28,834,516	29,134,516	29,134,516	27,491,182

Note: NDP 10 in grey; NDP 11 in gold and NDP12 in blue

## 3.3 CAPACITY BUILDING PLAN

---

Capacity is the ability of people, organization's and society as a whole to manage their affairs successfully. Capacity is an attribute of people, individual organization's and groups of organizations. Capacity is shaped by, adapting to and reacting to external factors and actors, but it is not something external — it is internal to people, organizations and groups or systems of organizations. Capacity building can entail change of knowledge, skills, work processes, tools, systems, management style, etc.

At the organizational level, capacity building is carried out for a variety of different purposes. Broadly, these can be divided into two;

- General capacity building, on the other hand, is provided to help organization's develop their own capacity to better fulfil their core functions, and achieve their own mission. This type of capacity development can be slow, complex and continuous, and can require in-depth reflection on an organization's culture, values and vision. The ultimate goal of such work is to improve the organization's overall performance and its ability to adapt itself within a changing context.
- Technical capacity building is aimed at addressing a specific issue concerning an organisation's activities. Technical capacity building would not normally be expected to involve an organisation in a fundamental process of change, and would be unlikely to touch on the culture, vision, values or other core elements of that organisation. Technical capacity building is often carried out in the context of a specific project or programme with which an organisation is involved. It is imperative to note that if carried out well the technical capacity building can significantly contribute to the general capacity of the organisation.

Put simply, if capacity building is being done then organisation's need to know why it is being done, what it involves, how change is expected to occur, and how changes at individual or organisational level might contribute to any desired wider changes.

This strategy focuses on addressing the capacity needs necessary for the successful delivery of the NBSAP. Capacity needs addressed here are organizational but mainly technical. Organisational capacity needs are those that relate to the institutional arrangements and processes thereto. Technical capacity needs refer to the key skills necessary for the individual's ability to contribute towards the implementation of the NBSAP.

National processes relating to the delivery of the CBD objectives are mainly anchored in the DEA (national focal department), DFRR (flora), DWNP (fauna), DNMM (taxonomy), and DAR (Biosafety). Other government departments provide support in various ways for the realisation of our CBD obligations. NGOs also contribute to the realisation of these objectives. A case in point is Birdlife Botswana, which has continued to contribute to the national CBD process on the thematic area of birds. Research institutes, such as the ORI, provide knowledge support.

Technical capacity development in the above stated government departments mainly occurs through what is known as a Training Plan. This is a tool which is agreed at ministry level on the number of staff members who are to be trained on specific courses. This can be short or long term courses. These trainings are mainly funded by government and in other cases by development partners. Technical capacity development in NGOs and research institutes is mainly self-funded and by development partners.

### 3.3.1 Objectives

- To build/ facilitate capacity of key stakeholders in the implementation and reporting of the NBSAP

- To build capacity of decision makers and politicians on the importance of conserving biodiversity for peoples livelihoods
- To build capacity of resource users in sustainable management of biodiversity
- To enhance capacity of key institutions to facilitate mainstreaming/ integration of biodiversity into policy and national development planning processes.

### 3.3.2 Capacity development activities and efforts

The MEWT has made commendable strides in developing and enhancing capacities on biodiversity. This has involved the enhancement of individual and institutional capacities. The MEWT has availed/committed resources, developed training plans, built partnerships, and institutions.

Capacity building has been an ongoing process in the MEWT. Training Plans are developed annually. This is an instrument through which the MEWT identifies individual capacity needs and develops a list of courses/trainings to be undertaken and the number of personnel thereto. This process has enabled for the development of a significant number of individuals to be capacitated on different aspects of biodiversity.

In addition to training plans, the MEWT participated in an NCSA study that assessed capacities (individual, institutional, and systemic) in all MEAs that Botswana is party to. This study assessed the capacity needs, and developed an action plan (NCSA Report). The action plan has been developed to address capacity challenges at all levels. The NCSA Report has not been adopted/ used to guide capacity developed in the MEWT for MEA related activities.

In the efforts towards ensuring greater involvement in capacitating it members of staff, the MEWT developed the Botswana Wildlife Training Institute (BWTI). This also provides capacity building to other stakeholders involved in environmental management. The institution provides training that is mainly focused on the wildlife aspect of biodiversity.

### 3.3.3 Capacity challenges

**Limited Funding:** MEWT continues to experience funding challenges in building and enhancing capacity on biodiversity management. As a result, only a small number of staff members benefit. This lack of funds further affects the ability of MEWT in providing training opportunities to its partners such as civil society organizations. Limitations in funding also extend to the acquisition of equipment and research, which will enable for the effective management of biodiversity across sectors.

**Reduced/small pool of experts:** Biodiversity management is a broad area which requires a pool of experts to deliver on specific thematic areas. In Botswana, there are few experts in specific areas of biodiversity. The experts are mostly in research institutes. A few of them are in the MEWT and some civil society organisations while the majority does not specialize. Also, the few experts that are in the MEWT are at times deployed in areas that are not of their specialization. This affects the focus that is given to a specific biodiversity issue. Also, MEWT is experiencing staff turn-over, especially of the few experts that they had trained/capacitated.

**Inadequate training plan:** The process of developing the ministry training plan is not, in the main, informed by studies. The NCSA Report, which was developed to assist in guiding capacity development on MEAs, has not being integrated into the process of developing the ministry training plan. Therefore, because it is not linked to any studies/researches, most beneficiaries are trained in courses which are necessary for biodiversity management but are not needed/required as many staff members have such qualifications. Key courses that will enhance the biodiversity management processes are mostly overlooked. There is a need to develop training plans based on studies that have been done, and also in consideration of the needs of the institution as per its mandate.

**Non-state actor's capacity challenges:** the biodiversity agenda in Botswana has largely been successful due to the active participation of non-state actors, mainly environmental NGOs such as Birdlife Botswana and KCS. They are involved in projects and activities that have positive impacts towards the sustainability of biodiversity in Botswana. However, NGOs face a number of capacity challenges. Key among this is the issue of resource limitations in the form of finance and personnel. As a result, this compromises the extent to which they engage on biodiversity management issues. There is therefore a need for the MEWT, as the focal ministry, to issue key/active NGOs with annual grants to assist in the management of biodiversity. This should also extend to including members of the NGOs in the Training Plan and other training opportunities, as they also contribute to the MEWT mandate.

**Inability to utilize the existing political willingness:** biodiversity has been recognized as a key component towards the national economic diversification drive. This comes in the form of the tourism industry and exploitation/commercialization of veldt products and other resources. Despite such political will, the MEWT and DEA, have not explored and implemented ways through which the political leadership will further appreciate other aspects of biodiversity management thus enhancing their decision making processes. This can be done by hosting periodic briefings for legislatures on fundamental and practical aspects of biodiversity management and how they relate to local and national economic sustenance. This has the added advantage of ensuring support for biodiversity friendly policy developments and funding for the NBSAP recommendations.

**Overarching legislation:** the continued absence of an overarching legislation continues to impact negatively on the coordinating role of the DEA as the focal department. The proposed EMA, will accord the DEA the opportunity to adequately coordinate all processes relating to biodiversity management. As a result, the EMA will improve the institutional capacity of the DEA. At present, the DEA does not have the legal mandate to augment its coordinating objectives.

**Staff deployment:** successful implementation of the NBSAP requires a pool of skills in different departments. The deployment of staff has over the years not considered the kind of skills that are required for the implementation of activities. In many cases, staff is deployed to roles that are not related to their skills. Therefore, the deployment of staff in a manner that is not considerate to the needs of the job impacts negatively on the overall delivery of biodiversity management plans. There is need to deploy staff to roles that relate to their skills. In the event of shortage of relevant skills, a deliberate plan should be put in place to augment the officer's skills.

### 3.3.4 Opportunities

**Broadening and diversifying the BWTI programmes and courses:** the BWTI has been in operation for a number of years. It has, over the years, acquired the necessary experience on all facets of academic institutional management. As a result, the curriculum/programmes of the BWTI can be increased. This will, in addition to wildlife courses, provide training on other biodiversity thematic areas. As a result, the institution will benefit the training needs of the MEWT and non-state actors.

**Partnerships with international institutions:** Botswana is home to ecologically important sites such the Okavango Delta and the Chobe National Park among others. It is also home to threatened and endangered species. Therefore, national biodiversity management practices are also important in the global environmental frameworks. As a result of Botswana's contribution to biodiversity management practices, it is important for the MEWT to build partnerships with international educational institutes. These institutes will assist in capacity development at all levels.

**Political will:** the existing political will remains an opportunity to be fully considered for purposes of mainstreaming biodiversity into national policy processes and resource mobilization.

**Regional incentives and programmes:** there are a number of regional programmes that are focused on biodiversity management. An example of this is the KAZA and the OKACOM. These programmes can be utilized to build capacity of institutions and stakeholders across sectors on biodiversity management.

**Establish a DEA office in other districts:** the institutional capacity of the DEA, as the focal department, can be further strengthened by establishing an office in prime biodiversity areas such as Kasane.

### 3.3.5 Enabling action items

Action	Indicator	Lead Institution	Associated Institution
Strengthen the NBDA, and formally constitute and operationalize the National MEA Coordinating Committee	Strengthen NBDA Fully operational MEA Coordinating Committee (no. of meetings held & minutes)	MEWT DPS	DEA
The CBD Desk within to be formally established, appropriately staffed and funded to implement, manage and report on countrywide NBSAP implementation	Adequately resourced CBD Desk	DEA	MEWT Economic Planning Unit
DFRR & DWNP should formally establish MEA Implementing Units (MIUs) within their departments manned with at least 2 Desk officers per MEA pegged at middle management or higher	MEA Implementation Units established	DFRR DWNP	MEA Coordinating Committee
Build capacity for MEA negotiations, position building processes/methodology, project management, budgeting and financial management, environmental law, policy formulation, review and mainstreaming within Departments and NGOs	Number of Officers and NGO members trained	DEA	MEWT Training Unit
Establishment of environmental liaison officers in other ministries/departments	Number of departments/ministries with environmental liaison officers	DEA	MEWT Corporate Services
Periodic High level breakfast meetings/briefings on key biodiversity issues	Number of high level breakfast meetings/briefings	DEA	MEWT R & D (PR)
Enactment of an overarching environmental management law	Enactment of the EMA	MEWT Executive	AGs
Annual Financial grants to specialized NGOs	Number of NGOs issued with grants for administration and operational purposes	MEWT Executive	Economic Planning Unit
Develop ABS legislation	ABS Legislation in place	MEWT Executive	AGs
Development of Forest resources and Wildlife (all the species/or specific species) Accounts	Number of natural resources accounts undertaken during the	DFRR; DWNP	DEA; MFDP

## 3.4 COMMUNICATION PLAN

---

The Revised National Biodiversity Strategy and Action Plan defines a pathway through which a collection of actions will be implemented in a systematic, collaborative and coordinated manner in order to secure the long-term conservation of Botswana's biological resources and secure its contribution to local, district and national economy thereby leading to improved livelihoods. The revised NBSAP has a number guiding principles one of which is stakeholder participation. Stakeholder participation can be achieved when all the stakeholders have access to information, knowledge and are willing to share information related to biodiversity conservation. Communication is important in ensuring that the objectives of NBSAP are realized.

In a bid to ensure wider stakeholder participation and awareness, this NBSAP shall have a communication chapter. This will focus on outlining the objectives of the communication strategy in cognizance of the set biodiversity targets. The need for an effective NBSAP communication strategy is crucial in lobbying for support to implement activities in the NBSAP as well as that of the CBD. The NBSAP communication strategy provides guidance towards effective communication to improve the flow of information between all identified stakeholders involved in management of biodiversity. There are existing initiatives within DEA and Ministry of Environment, Wildlife and Tourism geared towards improved communication and environmental public awareness. The NBSAP communication strategy will also be aligned with the DEA organisational objectives and its key deliverables with an aim of contributing to the achievement of DEA mandate. The NBSAP communication strategy will identify different target groups/stakeholders involved at different levels affected by a common biodiversity issues and provide the best possible methods for effective communication with that particular target group.

Dissemination and creating awareness of the NBSAP will largely be driven by the CDB Focal Point, being the DEA. The DEA will do this through its Environmental Education and Awareness Division. It will utilize existing communication channels, tools and methods. Where there are gaps or capacity challenges this strategy will propose actions that will address them. This is to ensure capacities necessary for efficient communication are present and effectively utilized.

The primary purpose of the NBSAP Communication Strategy is to provide direction for those responsible for making strategic decisions in line with the established channels and protocols of communication within government and outside government. The overall objective of the NBSAP communication strategy is that of effective communication, dialogue and information exchange between stakeholders across different levels of NBSAP implementation from local, national, regional and international stakeholders and laterally between stakeholders themselves which directly support the implementation of the Revised NBSAP.

### 3.4.1 Approach

The development of this strategy is informed by various sources and processes including the Stocktaking Report which documents the level of implementation of the previous NBSAP, establishes the challenges, lessons and the status of biodiversity and its conservation in the country. In addition the strategy is informed by stakeholder interviews and focus group discussions carried out as part of the NBSAP review process.

### 3.4.2 Overall aim

To ensure effective communication, dialogue and information exchange between stakeholders across different levels of NBSAP implementation from local, national, regional and international stakeholders.

### 3.4.3 Objectives

**To improve awareness of the CBD, biodiversity strategy and action plan**

Education and awareness within and across all levels of stakeholders at the political, central & local government, civil society, private sector and grassroots level should be improved in order to cultivate and improve understanding about biodiversity resources and the importance of its conservation to the economy.

**To enhance implementation of NBSAP and reporting**

An effective information dissemination and feedback mechanism for the NBSAP will empower all relevant stakeholders to effectively mobilize and commit the resources necessary for implementation of the Strategy, including but not limited to human resource, infrastructure, financial, research and development etc. Improved awareness and information sharing, particularly within MEWT, and especially at the district level, will be necessary to bridge the gap between delivery of the mandate of the relevant actors and the fulfillment of the activities embodied in the NBSAP. DEA, particularly at the districts, should foster and coordinate biodiversity management and resource valuation by all the relevant stakeholders, particularly other MEWT departments through an effective communication vehicle.

By improving communication within and between the stakeholders, this also facilitates effective and efficient reporting of progress on implementation in terms of challenges, opportunities and lessons learned. This would facilitate a holistic and systematic review of the strategy (M&E) and also fosters realistic reporting to stakeholders (non-state actors) and to the convention.

**To improve management of biodiversity resources based on lessons learned**

The experiences from the implementation of the NBSAP should be documented and shared to continuously improve the communication process and consequently improve how the biodiversity resources are managed.

**To enhance decision making and policy outcomes on biodiversity issues across all levels**

Appropriate and timely communication will ensure that stakeholders across all sectors are involved thus contributing to their decision making processes in their areas of engagement. This involves decisions on community resources uses, technical and political decisions affecting biodiversity management.

**To strengthen the linkages between DEA, MEWT and other biodiversity related actors**

The appropriate communication protocols and processes will assist to strengthen relations between DEA, MEWT and other partners in the biodiversity sector. This will consequently improve knowledge and information sharing, and stimulate opportunities for collaborations and partnerships among the stakeholders.

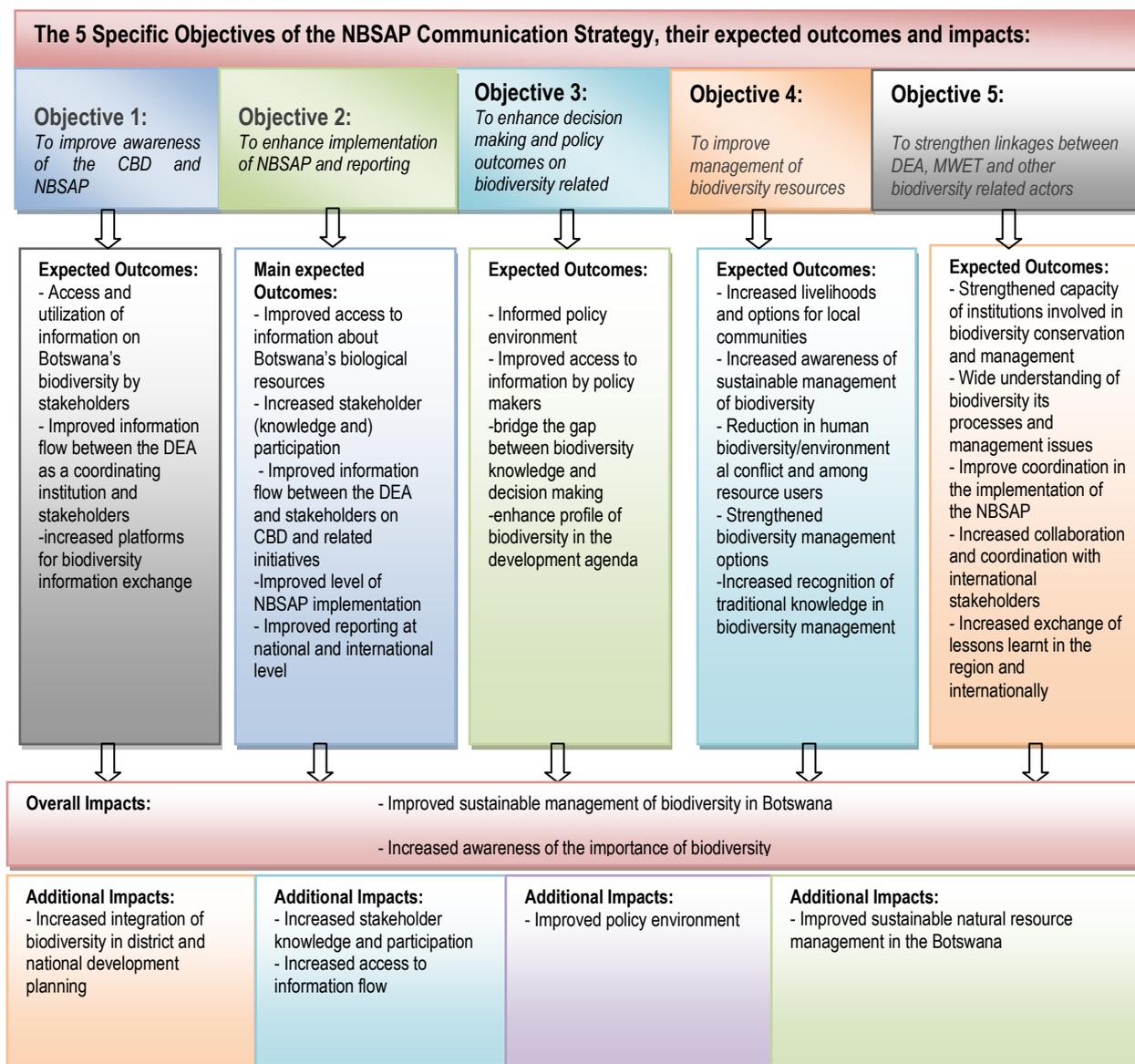


Figure 6: Objectives, expected outcomes and impacts of the communication strategy

### 3.4.4 Communication situation

#### Communication policy

The Government of Botswana has been at the center of communication on a number of environmental and other developmental issues. This has been undertaken through the establishment of necessary institutions, policies and availing resources to enable communication. The Department of Government Communications and Information Systems (DGCIS) was established in 2009 with the mandate of coordinating national communication processes. In line with its objectives/obligations, the DGCIS established a Communication Strategy, which has informed Communication Strategies of line ministries and departments thereto.

In line with the GGCIS national strategy for communication and national expectations, MEWT developed a Communication Strategy with the intent to focus and translate the DGCIS Communication Strategy into a subject specific communication of issues related to the mandate of the ministry. The MEWT Communication Strategy focuses on ensuring that the ministry and its departments continuously engage with internal and external stakeholders in a more systematic and transparent manner. Following the MEWT Communications Strategy, the DEA is in the process of developing a strategy that will ensure a coordinated process in communicating aspects/activities that relate to the mandate of the department.

In the past within the DEA itself, there have been project specific communication strategies such as Makgadikgadi Framework Management Plan and Okavango Delta Management Plan. Furthermore there are other regional initiatives that also assist in biodiversity related communication such as Kavango Zambezi Transfrontier Conservation Area which the DEA and MEWT have utilized.

### **Existing communication infrastructures**

Botswana has over the years made considerable strides in ensuring that communication infrastructure is widely available for all citizens. As a result, all villages, towns and cities, even in remote areas, have access to radio, especially Radio Botswana. Other private radio stations are still increasing their coverage nationwide. Botswana's telecommunication coverage has improved significantly in recent times. The network providers being Be-mobile, Orange, BTC, and Mascom have collectively 95% coverage. Furthermore, newspapers are also widely accessible. The Daily Newspaper is the most widely distributed and accessible newspaper. Other newspapers such as Mmegi, Sunday Standard and Botswana Guardian among others are mainly available in urban centers and villages that have access to major road networks. However, they continue to increase their availability in other villages that are not connected to the major road networks.

### **Communication of environmental issues within DEA**

The DEA, which is the national focal institution for the UNCBD, does not have a communication strategy. The process of developing the DEA Communication Strategy is ongoing and is due for completion by end of 201. It will act as an overall framework for which the NBSAP communication strategy will be anchored on. The lack of such a tool within the focal department has presented challenges with regard to communicating biodiversity issues to and from stakeholders.

Despite the absence of a communication strategy, the DEA has established an Environmental Education and Awareness Division. Part of the EEAD's objectives is to engage with stakeholders and communicate all activities of the DEA in various relevant platforms. In relation to the CBD, the EEAD's function is to communicate all convention related matters to stakeholders, in conjunction with the CBD National Desk officer. The EEAD is being guided the National Environmental Education Strategy and Action Plan (NEESAP).

The NEESAP implementation is supported by a multi-stakeholder committee known as the National Environmental Education Committee. The Communication Strategy on the NBSAP will further be a sub-section of activities that the EEAD and NEEC are undertaking. It will strengthen its interface with biodiversity management issues.

### **Structures/institutions/divisions of communication**

Communication on biodiversity related matters is the responsibility of the focal department, being the DEA, with the assistance of the MEWT Public Relations Office. There are also similar structures at various departments within MEWT which communicate with stakeholders on issues specific to their mandates. The Department of Forestry and Range Resources (DFRR) and the Department of Wildlife and National Parks (DWNP) also assist on communicating biodiversity issues to stakeholders. The DFRR communicates on flora while the DWNP is on fauna. These departments are important in the overall communication aspects of biodiversity. They both have Publicity and Outreach Units. These Units are important is communicating specific biodiversity (flora and fauna) issues to stakeholders across sectors. Importantly, most of their activities target the local communities and the youth, who are often, omitted on critical biodiversity management issues.

### **Communication capacities of individuals**

The MEWT has eight departments and one parastatal. From these eight organizations, only the Department of Corporate Services has members of staff who are adequately trained on the subject of communication. The DEA, which coordinates the implementation of the NBSAP, does not have any member of staff who has a first degree or any other qualification on communication. The closest qualification that some members of staff have is on the subject of education. The DEA & other departments in the ministry need to improve the number of staff with qualifications or even functional

skills on communication. These opportunities should also be extended to civil society organizations that are involved in communicating on biodiversity management issues.

#### **Current communication efforts and medium of communication**

The DEA and other departments in the MEWT have over the years undertaken activities geared towards biodiversity communication. In particular, the DEA; DFRR; DWNP; and the MEWT PR Office have been playing a key role in this regard. The DEA and the MEWT PR Office have been communicating on all biodiversity issues and related matters. On the other hand, the DFRR has been communicating on flora specific issues such as invasive alien species; fire management; tree conservation; while the DWNP has been communicating on fauna specific issues such as human-wildlife conflicts; human-wildlife co-existence; and threatened and endangered species among others.

Communication in the MEWT on Biodiversity has been through the following;

- Newsletter; brochures; pamphlets
- Radio and Television programs; adverts; and insets
- Workshops
- Kgotla meetings
- Dialogues
- Youth rallies
- School debates
- Commemorations
- Websites (i.e. [www.eis.gov.bw](http://www.eis.gov.bw))

The above forms of communications have been used inter-changeably in the past, depending on the message being relayed and the target audience. Despite these efforts, there is still a need to strengthen coordination and cooperation mechanisms and build synergies among MEWT Departments in terms of communicating to stakeholders. This is in light of the fact that for the past years, each department has been communicating with stakeholders on its own, without engaging others, as they are also targeting the same audience. Also, the MEWT PR Office needs to be strengthened in terms of coordinating the communication processes and outputs of departments in the MEWT. Furthermore, resources need to be committed to ensure consistency in communicating with stakeholders. These resources will further be important in the delivery/implementation of the MEWT Communication Strategy, which will translate into enhanced communication on biodiversity matters/issues.

### **3.4.5 Challenges**

Biodiversity, as has been discussed in the previous sections, is an integral part of Botswana's economy. This is especially the case in rural economies, and the tourism sector. In light of this, the Government of Botswana has prioritized sustainable management practices on such important resources. A number of policies, programmes and projects have been developed and implemented in this regard. Despite the widely documented efforts of Botswana in ensuring biodiversity management, a number of challenges still exist in the realm of communications. The following are some of the challenges that relate to biodiversity communication in Botswana.

#### **Uncoordinated communication**

Communication on biodiversity issues/matters is mainly done by the DEA, DWNP, DFRR, and NGOs/CBOs. They communicate without any guidance from a central point of coordination which is in the form of a strategy and unit. In most cases, each department or NGO/CBO engages in its communication activities without engaging/partnering with other entities. These uncoordinated efforts have an impact on the overall delivery of the message, and the available resources. There is need to ensure that there is synergy in terms of communicating on biodiversity as this will lead to optimal utilization of financial resources. Coordinated efforts will further reduce stakeholder fatigue as the same are targeted by all departments and NGOs.

#### **Lack of stakeholder engagement Strategy**

It is important to have a list that inform the primary focal point, as to which stakeholders are supposed to be involved and why they need to be involved and the methods through which they will be engaged. It will further indicate the methods or mediums through which the listed stakeholders are supposed to be engaged. This will improve communication processes, and enhance the decision making frameworks.

#### **Staffing limitations**

The process of communication requires for a dedicated team that will be readily available to engage in all communication efforts. Currently, the MEWT has a dedicated unit that is focused on communicating on the broader issues relating to the mandate of the ministry. The unit, however, is faced with staffing challenges as it has fewer unit members. As a result, it tends to prioritize activities in which it engages in. This therefore affects the level with which it could communicate on all biodiversity management issues. Departments in the MEWT also have units which complement the work of the communication unit at the ministry. At the CBD focal department, the EEAD assist is communicating biodiversity related issues. It is also faced with staffing challenges as it has fewer members. Of note is that members in the division are not trained on communication. This, together with the fewer number of members, has further impacted on the overall delivery of biodiversity messages to stakeholders across sectors.

#### **Knowledge gaps**

As a result of the uncoordinated communication activities, information sharing among key stakeholders being DEA; DFRR; DWNP; MEWT PR Office, research institutes and NGOs is limited. This is especially prominent in terms of information flow to the district offices. The process of information sharing between stakeholders needs to be strengthened as this will enhance the overall communication objective on biodiversity matters.

### **3.4.6 Opportunities**

#### **Willingness for partnerships**

Biodiversity management, especially through the Gaborone Declaration on Africa' Sustainability, has gained momentum. This has presented an opportunity to partner with a number of key stakeholders in communicating on biodiversity management through platforms available to them. Such partnerships have the benefit of ensuring the pooling of resources. As a result, wider coverage is realized, and more targeted messages are easily developed and implemented. The following are some of the partnership which can be fostered to ensure effective communication on biodiversity:

- Partnerships with the media; this can relay packaged messages to targeted audiences and in many instances to wider stakeholders even those that were not directly targeted. It provides a cost-effective way of communicating with a range of stakeholders.
- Partnerships with training institutions such as tertiary schools and research institutes have the added advantages of ensuring that they communicate on biodiversity messages to their students. Also, research finding can be communicated with other stakeholders, especially the CBD focal department. This will also address the current challenge of lack of biodiversity information sharing.

#### **Funding**

There is a general willingness to fund biodiversity related activities among development partners, and most importantly local companies. This presents an opening for resource mobilization, and partnerships to be developed with local private establishments with the objective of communicating on biodiversity issues and in projects thereto.

#### **The drive for mainstreaming**

The current efforts by the MEWT and the government in mainstreaming environment across sectors presents an opportunity for communicating key biodiversity messages to stakeholders across sectors.

### **3.4.7 Elements for communication with stakeholders**

This strategy recognizes that biodiversity management is an aspect that is important to stakeholders. It further recognizes that in communicating biodiversity messages, there is need to identify your stakeholders and the tools/mediums of communication that are appropriate for them. The following is a table indicating the categories of stakeholders and the tools that will be used in communicating key biodiversity messages.

**Table 6: Categories of stakeholders and tools to be used for communication**

<b>Stakeholder category</b>	<b>Example</b>	<b>Tools for communication</b>
Local Community Groups	Representatives of communities (Community Based Organisations, CBOs) and local communities	Film/documentaries, special interest meetings with resource users, Kgotla meetings, Radio, Road shows, meetings with community representatives, drama, pamphlets
Businesses and their associations	BOCCIM, Lodges, tour and safari operators; and extractive industries	Internet, Trade fairs, newsletters, brochures and Promotional material, meetings, compiled Information and policy material
Schools and other educational institutions	National and international schools	Newsletters, Fact sheets, Internet, Research publications, targeted meetings
Research Institutions	University of Botswana, Okavango Research Institute, Botswana College of Agriculture	Targeted meetings, workshops, Internet, fact sheets, briefs, radio, research publications, reports, brochures, seminars
NGOs and iNGOs	Kalahari Conservation Society, BirdLife Botswana, Somareleng Tikologo	Targeted meetings, workshops, Internet, fact sheets, briefs, radio, research publications, brochures, seminars, project reports
Local Government	The District and Tribal administration, the Land Board and District Council	Meetings, Internet, workshops, reports, fact sheets, workshops
Public Authorities (parastatals)	Water utilities, CEDA, LEA	Meetings, Internet, workshops, reports, fact sheets.
National Government	Parliament and line ministries	Meetings, Internet, workshops, reports, fact sheets.
Regional institutions	KAZA, ZAMCOM, OKACOM, SADC,	Consultation, meetings, email, Internet, International seminars
Partnership bodies	CBNRM, BOCOBONET, BOCONGO	Meetings, Internet, workshops, reports, joint planning, fact sheets.
International Organisations	CBD, UN Agencies, Donors, IUCN, Ramsar	Internet, email, Publications, posters, Print and electronic media /scientific articles, Seminars, e-Newsletters, IUCN Knowledge Network, brochures, meetings.
Media	National, Regional and international media	Press releases, Media tours/visits, website, Internet/email, media events and relations, Media briefings, coverage in magazines, producing press releases

### 3.4.8 Conclusions

Communication is an integral tool towards the successful implementation of the NBSAP. It ensures that stakeholders across sectors are fully engaged on all biodiversity management processes, and also ensures that partnerships are built and strengthened. It builds awareness on the strategy; enhances implementation; improves management of biodiversity resources; enhances decision making and policy outcomes; and strengthens linkages with other sectors. It is a necessary tool, which can further contribute towards mainstreaming of the environmental issues across sectors.

## 3.5 CLEARING HOUSE MECHANISM

---

Botswana's Clearing House Mechanism is within the Environmental Information System (EIS) that serves as the data platform for CBD. The EIS ([www.eis.gov.bw](http://www.eis.gov.bw)) is operational and globally accessible. It should be noted that there has been considerable development in providing a CHM for environmental data by DEA. The existence of the Botswana Environmental Information System (EIS) website has provided a platform for the biodiversity CHM which will serve as the data management system for the country.

### 3.5.1 Requirements and mission under the Convention

The Convention calls for a CHM that provides for a "biodiversity knowledge network for scientific and technical cooperation". It has a clearly stated mission for the CHM:

"To contribute significantly to the implementation of the Convention on Biological Diversity and its Strategic Plan for Biodiversity 2011-2020, through effective information services and other appropriate means in order to promote and facilitate scientific and technical cooperation, knowledge sharing and information exchange, and to establish a fully operational network of Parties and partners."

This mission is articulated around three major goals:

- The central clearing-house mechanism provides effective global information services to facilitate the implementation of the Strategic Plan for Biodiversity 2011-2020.
- **National clearing-house mechanisms provide effective information services to facilitate the implementation of the national biodiversity strategies and action plans.**
- Partners significantly expand the clearing-house mechanism network and services.

### 3.5.2 Existing CHM located on the Botswana Environmental Information System

The EIS focuses on providing metadata and key policy documents on environmental indicators, State of the Environment Reporting (SOER), Millennium Development Goals (MDGs). The homepage allows for information to be provided by district or theme (Figure 7).

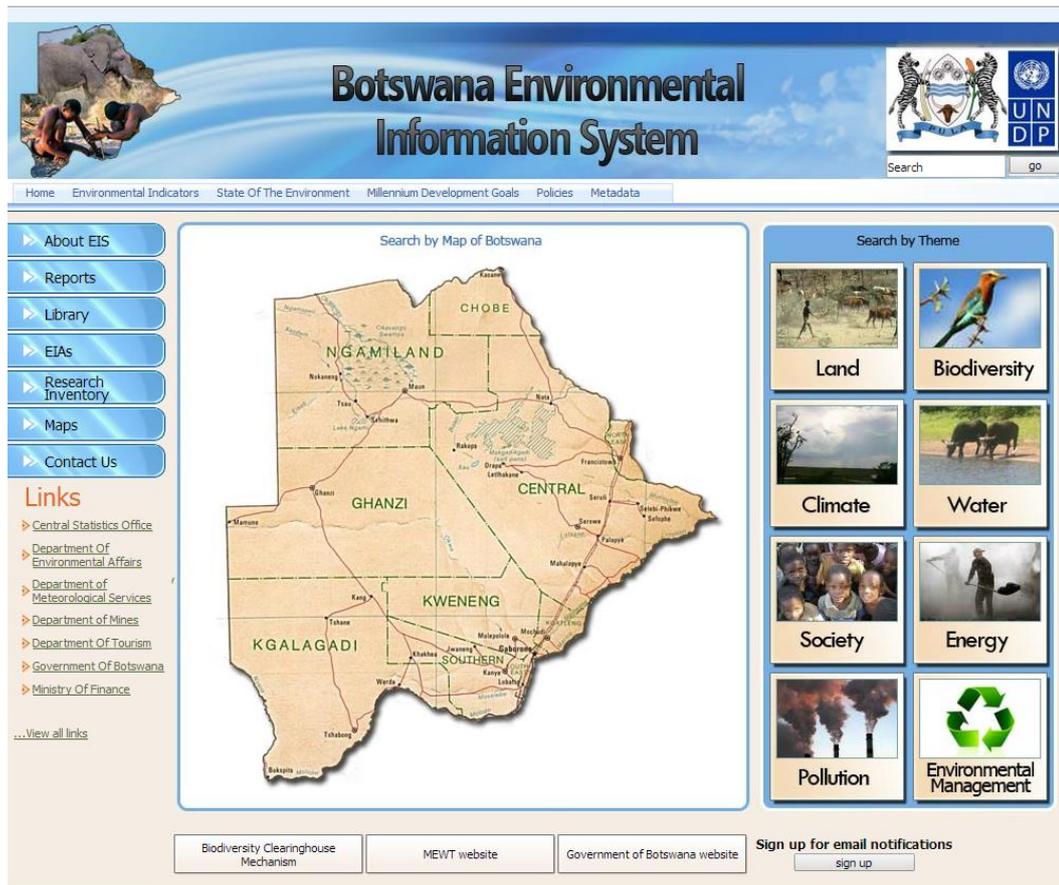


Figure 7: Homepage of the Botswana Environmental Information System

### 3.5.3 Proposed changes to content of the EIS

The Botswana EIS has become a recognised site used by environmental professionals. It is proposed that the existing site is upgraded to allow for a direct link to the biodiversity page.

The biodiversity page would then lead into the following information areas:

- Species lists (National species lists for taxa to be downloadable so that researches can provide updated lists);
- R&E species (National lists of endemic, near endemic, Red Data List species);
- Threats (Key threats both general and by ecoregion);
- Alien invasive species (species list, A&I species by ecoregion, feedback forms to allow academic and general public to provide distribution data);
- Key documents (Key CBD documents, all national reports and the action plan, case studies, best practices and guidelines (e.g. for Biodiversity in EIA), videos and photos);

- Research and Initiatives (List of experts, research, monitoring and new biodiversity information including links to people and researches in the field);
- Action Plan (and progress) (responsibilities, deadlines, targets, outputs and results of implementation);
- The EIS to have linkages with partners
- Contact us (biodiversity national focal points, email, telephone and background).

## 3.6 MONITORING AND EVALUATION PLAN

---

In order to ensure that the implementation of the NBSAP stays on track, and reaches its fullest potential, it is important that it be monitored through a systematic process of continuous assessment. Monitoring ultimately needs to relate back to each target: it is the targets that need to be reached, and the strategic actions are the means by which the targets are reached.

This means that both the strategic actions and the targets themselves must have indicators against which progress can be charted. At the same time, the monitoring system must be well structured, so that monitoring and evaluation of the strategic actions themselves feed into monitoring and evaluation of the targets.

To a large extent, the monitoring and evaluation will track the resource mobilisation plan, measuring whether the earmarked funds are made available on time, and at the level stated. Without these funds, implementation of most strategic actions will not be possible. It is however anticipated that stakeholders would develop and implement a monitoring and evaluation plan for each activity, including milestones thereof.

The effectiveness of implementation will then be measured in terms of how far each of the strategic actions has reached completion (or 'full establishment', for those activities that are permanent – such as biological monitoring or running the CHM), with key indicators identified as tangible outcomes against which success can be measured.

Importantly, standardisation of format and structure will be critical for efficient coordination and assessment. When used correctly, the regular monitoring activities will also form the basis for the national reporting framework (discussed separately below).

### 3.6.1 Monitoring

Monitoring will comprise a two-tiered approach. Firstly, the various lead departments will be responsible for keeping track of progress on each of the strategic actions for which they are responsible. Secondly, the DEA NBSAP team will collate these regularly, and then summarise the overall data for each target's set of strategic actions, in order to monitor progress toward each target.

#### **Database**

Standardised databases or spreadsheets should be prepared, where all the strategic actions are compiled where the DEA NBSAP team will collate the submissions of each lead department. Each lead department will be given a version of the database containing those strategic actions for which it is

responsible for coordination implementation (see table 7 to 9). In this way, monitoring will be done on the basis of common indicators and format. Examples of such databases are given in Evaluation

Every 6 months, the DEA NBSAP team will collate the submissions from the lead implementers for updating the monitoring database. A short report, analysing current status and trends in implementation, and detailing areas of success or challenge, should then be submitted to the NBDA. Every year, these evaluation reports will also include the findings of the lead implementer reports, particularly regarding factors affecting implementation, and make recommendations for different approaches for the year ahead.

Table 7

### **Indicators**

As noted above, several levels of indicators are required. Regular assessments of the following are recommended:

- Indicators relating to the regular submissions by lead implementers
- Indicators relating to the targets
  - Proportion of Strategic Actions on track
  - Proportion of required funds on track
- Indicators relating to the strategic actions
  - Status of each strategic action
  - Proportion of funds available for each strategic action
  - Specific outcomes arising from the action.

### **Frequency**

The need to stay current with the status of implementation must be balanced against the time costs of the monitoring activities. It is therefore proposed that the indicator forms be completed every six months by each lead implementing department and submitted to the DEA NBSAP team. Each lead implementer will then annually submit a full report, for which a standardised template should be prepared to minimise the time required to prepare the report. These annual reports will provide qualitative information on factors influencing implementation (especially delays), but will also form part of the national reporting to the NBDA.

### 3.6.2 Evaluation

Every 6 months, the DEA NBSAP team will collate the submissions from the lead implementers for updating the monitoring database. A short report, analysing current status and trends in implementation, and detailing areas of success or challenge, should then be submitted to the NBDA. Every year, these evaluation reports will also include the findings of the lead implementer reports, particularly regarding factors affecting implementation, and make recommendations for different approaches for the year ahead.

**Table 7: Monitoring the submissions of lead implementing agencies**

Lead institutions	No. of SAs	June 2014 data submitted (1 = yes, 2 = no)	Dec 2014 data submitted (1 = yes, 2 = no)	Dec 2014 report submitted (1 = yes, 2 = no)	June 2015 data submitted (1 = yes, 2 = no)	Dec 2015 data submitted (1 = yes, 2 = no)	Dec 2015 report submitted (1 = yes, 2 = no)	June 2016 data submitted (1 = yes, 2 = no)	Dec 2016 data submitted (1 = yes, 2 = no)	Dec 2016 report submitted (1 = yes, 2 = no)	June 2017 data submitted (1 = yes, 2 = no)	Dec 2017 data submitted (1 = yes, 2 = no)
DLGDP	2											
Botswana Agricultural Hub	1											
DAR	4											
DBES	1											
DCDE	1											
DCP	2											
DEA	27											
Department of Trade [confirm]	3											
DFRR	20											
DIA	1											
DMS	1											
DNMM	2											
DRST	2											
DTRP	4											
DWA	1											
DWMPC	3											
DWNP	19											
EAD	1											
MEWT legal advisor	1											
MEWT RDU	4											
EFPD	2											
NSO	3											
OKACOM national reps	1											
Statistics Botswana	1											

**Table 8: Monitoring Strategic Actions**

Rank	Strategic Actions	Lead institutions	Indicators	Anticipated Start	Anticipated Completion / Full Establishment	Actual Start	Actual Completion / Full Establishment	Estimated Cost (BWP)	Status (0 = no action, 1 = initiated, 2 = under way, 3 = established/completed) Dec 2014	% of required cost available Dec 2014	Status (0 = no action, 1 = initiated, 2 = under way, 3 = established/completed) Jun 2015	% of required cost available Jun 2015	% of required cost available Jun 2020	Status (0 = no action, 1 = initiated, 2 = under way, 3 = established/completed) Dec 2020	% of required cost available Dec 2020	% of indicators achieved by Dec 2020
1	existing environmental education and awareness campaigns under the NEESAP include biodiversity components.	DEA	No. of environmental education campaigns with biodiversity components	2015	2025											
2	To ensure that by 2020, biodiversity is included as a core topic in environmental studies in primary and secondary school curricula and that at tertiary level, biodiversity is a core subject for those doing environmental studies.	DCDE	Environmental Studies curriculum with biodiversity as a core topic  Course manual developed	2016	2020											
3	public seminar series in all major centres to disseminate information on different aspects of biodiversity and the environment.	DEA	No of public seminars	2018	2025											
4	By 2025, implement the project on Greening the urban areas (i.e. using open spaces to grow trees (fruit trees and indigenous trees) such as Francistown; Maun; Gantsi; Hukuntsi; Serowe; Molepolole; Lethakane and Palapye.	DFRR	No. of Greening Projects	2016	2025											

**Table 9: Monitoring Targets**

Goal	Target No.	Target	Total no. of strategic actions	Total budget for target	No. of SA due for full establishment or completion by 2020	No. of SAs implemented Dec 2014	Total funds mobilised by Dec 2014	No. of SAs implemented Jun 2015	Total funds mobilised by Jun 2015	No. of SAs implemented Dec 2015	Total funds mobilised by Dec 2015	No. of SAs implemented Jun 2020	Total funds mobilised by Jun 2020	No. of SAs implemented Dec 2020	Total funds mobilised by Dec 2020	No. of SAs fully established or completed by 2020
1	1	By 2025, all people in Botswana appreciate how biodiversity contributes to their lives, and are aware of steps they can take to														
1	2	By 2025, planning processes at all (district, urban and national) levels, and national accounting and reporting systems in Botswana contain explicit actions to promote biodiversity conservation.														
1	3	By 2025, incentives and subsidies across all sectors are revised, designed or introduced to improve support for sustainable consumption and production and promote biodiversity														
1	4	By 2025, at all levels, policy and regulatory instruments are in place to ensure production and consumption by government, industry and society are kept within sustainable levels and safe														
2	5	By 2025, the rate of natural land conversion is at least halved, and degradation and fragmentation are significantly reduced.														
2	6	By 2025, animal and plant resources in Botswana's wetlands, woodlands and savannas are sustainably managed using the ecosystem approach, so that the impacts of harvesting remain														
2	7	By 2025, wetlands, woodlands and savannas, particularly where used for use for range or crops, are managed sustainably, ensuring														
2	8	By 2025, levels of air, water and soil pollution are maintained below levels that would threaten ecosystem functioning and														
2	9	By 2025, key invasive alien species are identified and controlled or eradicated, and pathways for their spread are managed to prevent further introduction and establishment.														
2	10	By 2025, the anthropogenic pressures on wetlands, woodlands and savannas are minimised, so that the impacts of climate change and other external perturbations on their ecological integrity and														
3	11	By 2025, at least 25 percent of all Botswana's ecoregions, particularly the wetlands, rivers and pans in them, are effectively conserved through an ecosystem approach that integrates their management with that of the surrounding landscapes and involves														
3	12	By 2025, the conservation status of species in Botswana that are listed as threatened has been improved or sustained.														
3	13	By 2025, the genetic resources of traditional agricultural species and their wild relatives are protected, and strategies for minimizing genetic erosion and safeguarding their genetic diversity														
4	14	By 2025, ecosystem services are identified and restored or maintained in all Botswana's ecoregions, and contribute to livelihood improvement through strategies that enable equitable access by all vulnerable groups, including women, the poor and														
4	15	By 2025, ecosystem integrity in all Botswana's ecoregions will be conserved through the adoption of ecosystem-level management approaches built around key ecological processes, so that they contribute to climate change mitigation and to combating														
4	16	By 2025, the Nagoya Protocol is domesticated and operational, and specific actions that ensure fair and equitable access and benefit														
5	17	By 2015, Botswana's revised NBSAP has commenced implementation with the full support of all sectors and levels of														
5	18	By 2025, the indigenous knowledge of Botswana's various communities, as it relates to the conservation and sustainable use of biodiversity in all the country's ecoregions, will be documented, assessed and legally protected, and - where relevant - integrated														
5	19	By 2025, information and techniques relating to the biodiversity and its value in all Botswana's ecoregions are efficiently documented, stored, shared, disseminated and used by all sectors and levels of society.														
5	20	By 2017, at least 80% of the required budget for the revised NBSAP, generated from diverse sources, is made available for its implementation.														



## 3.7 NATIONAL REPORTING FRAMEWORK

---

As noted above, the national reporting framework and the monitoring and evaluation plan are closely linked. Systematic reporting of progress not only provides the basic information used for monitoring, it also forms the basis for the national reporting framework. At the same time, the national reporting of the CBD focal point to the Convention will draw heavily on the analyses arising from regular and systematic evaluation of the monitoring data.

### 3.7.1 Channels of communication

The NBDA represents the main channel of communication for exchange of information, and is fully operational. Channels of communication are well-established, and regular meetings held to share information.

Membership of the NBDA should therefore be revised subsequent to the adoption of the NBSAP, to ensure that sufficient representation, of not only the lead implementers, but also other key parties and stakeholders (as presented in the strategic action tables below), is provided for. A list of the NBDA should be made available through the CHM/EIS, so that access to the focal points is facilitated.

### 3.7.2 Coordination of reporting

As with the monitoring and evaluation, and given DEA's role as the main CBD focal point, it is envisaged that the DEA NBSAP will take on this responsibility. Initially the team will need to provide each lead implementer with a list for the strategic actions for which they are responsible, as well as the templates for recording data and for submitting their annual reports.

The lead implementers will need to maintain contacts with all of the other parties engaged in each strategic action they lead.

### 3.7.3 Areas of information for reporting

Each lead implementing department will keep records of the following information for each strategic action they are leading:

- Total funds required
- Amount currently acquired, indicating sources for each amount
- Senior staff assigned to the task
- Tracking of synergies with other MEAs

### 3.7.4 Frequency of domestic reporting

In so far as domestic reporting includes submission of data for monitoring NBSAP progress, this should be done 6-monthly. This also links in to the update period required for maintaining the CHM (and EIS) current. The more detailed reports should be submitted annually.

### 3.7.5 Recommendations for the structuring of the National Report to the CBD

Guidelines for the Fifth National Report recommend a three-part structure:

- 1) An update on biodiversity status, trends, and threats and implications for well-being;
- 2) The NBSAP, its implementation, and mainstreaming of biodiversity; and

- 3) Progress toward the 2015 Targets and the 2020 Aichi Targets, and contributions to relevant Targets of the Millennium Development Goals.

While the Fifth National Report will be submitted before the implementation of the NBSAP, nevertheless, these three components will remain key factors for future National Reports.

In addition, they also suggest that reports use indicators, and restrict information to developments subsequent to the previous national report. The use of figures, charts and tables is also recommended, adding additional motivation to implement the monitoring and evaluation plan. The Fifth National Report will use data collected during the Stocktaking and Gap Analysis phase; however future National Reports should follow the following outline, based on the guidelines of the CBD:

#### **Update on biodiversity status, trends, and threats and implications for well-being**

This section should include sub-sections addressing the following points:

- Value of biodiversity to the nation (economic, social, cultural, etc. values). Where possible this should include real economic values (such as provided by TEEB or WAVES type studies), as well as other indicators such as % of people aware, or valuing biodiversity; descriptions of key ecosystem and biodiversity characteristics in the country.
- Major changes in status and trends (since submission of last report) highlighting key issues for each of the ecoregions, in order to inform decision-makers. As far as possible, this should be based on biodiversity data as monitored regularly by relevant stakeholders (see strategic actions).
- Main threats – that is, the main causes of negative change, reported for each of the ecoregions. This should include both direct and indirect threats, and include detailed analysis.
- Consequences of change for ecosystem services. This would include also the socio-economic, livelihood and cultural impacts of any of the drivers or threats described.

#### **Presentation of the NBSAP, its implementation and mainstreaming**

Here, the following highlights of the document would be presented:

- National goals and targets
- Changes to the NBSAP in order to accommodate Aichi Targets. Essentially, this would be a summary of the NBSAP, and include a description of how the actions will contribute to achieving the national targets, as well as addressing the contribution to the CBD Strategic Plan.
- Additional steps taken since the last report to implement the CBD.
- Effectiveness of biodiversity mainstreaming. This would include a policy assessment, looking at where biodiversity is captured (e.g. with regard to poverty reduction, economics, etc.). It would also detail awareness-raising campaigns, and integration of biodiversity concepts into education and daily life.
- Extent to which the then-current NBSAP has been implemented – considering progress towards the goals and targets for the period being reported on. Lessons learned, challenges, and recommendations for changes can also be highlighted.

**Progress toward the 2015 Targets and the 2020 Aichi Targets, and contributions to relevant Targets of the Millennium Development Goals**

- *Progress toward the CBD Strategic Plan and Aichi Targets.* This section will be relevant for future reports, but not for the Fifth Report, beyond acknowledging the domestication process.
- *Contributions of the national activities to the broader CBD Goals and MDG Goals.* An evaluation of activities against relevant and appropriate goals is envisaged.
- *Lessons Learned.* This would address not only the lessons about national implementation activities, but also about aligning activities to the CBD, and to other national planning cycles.

### **3.8 IMPLEMENTATION PLAN FOR EACH TARGET'S STRATEGIC ACTIONS**

---

The strategies for implementation of each target are put forward as a set of strategic actions. These actions are presented in tabular form, indicating players, resources, indicators and timing for each action. These tables comprise the core of the implementation plan. The strategic actions are ordered in terms of priority. For each action, a lead department is identified, and other departments or governmental agencies that will need to participate and provide resources are indicated. In addition, those civil society agents (listed as non-government participants) which have potential to contribute significantly to the action are noted.

The actions also contain an indication of the estimated cost of the activity, indicators for tracking progress and for use in the NBSAP monitoring and evaluation plan, as well as the expected start and completion dates. Where activities may be considered ongoing, 2025 is given as the completion date, as this is the date for reaching the national vision, goals and targets.

### 3.8.1 Strategic Actions for Target 1: By 2025, all people in Botswana appreciate how biodiversity contributes to their lives, and are aware of steps they can take to conserve and use it sustainably.

	Strategic Actions	Lead institutions	Implementing Partners	Non-Govt Participants	Estimated Cost (BWP)	Indicators	Start	Completion
1-1	Starting in 2016, to ensure that existing environmental education and awareness campaigns under the NEESAP include biodiversity components.	DEA	NEEC DWNP DFRR DWMPC	KCS BLB CBOs RIs BALA	1, 000, 000 (100, 000 / year)	No. of environmental education campaigns with biodiversity components	2016	2025
1-2	To ensure that by 2020, biodiversity is included as a core topic in environmental studies in primary and secondary school curricula and that at tertiary level, biodiversity is a core subject for those doing environmental studies.	DCDE	TEC NEEC DWNP DFRR BQA	Relevant HoDs for tertiary institutions RIs	160, 000	Environmental Studies curriculum with biodiversity as a core topic  Course manual developed	2016	2020
1-3	To establish, by 2018, a regular public seminar series in all major centres to disseminate information on different aspects of biodiversity and the environment.	DEA	DWNP DFRR DWMPC	NGOs RIs Environmental experts			2018	2025
1-4	By 2025, implement the project on Greening the urban areas (i.e. using open spaces to grow trees (fruit trees and indigenous trees) such as Francistown; Maun; Gantsi; Hukunsi; Serowe; Molepolole; Lethakane and Palapye.	DFRR		LAs CBOs BALA			2016	2025

Capacity Building Actions for Target 1						
Focal Institution	Capacity issues	Required solutions/ actions	Indicators	Responsibility	Resource implications	Time frame
- MOESD - EE Division (under MEWT)	lack of access to funding by NGOs	Improve accessibility to established funding mechanisms for NGOs e.g. NEF, FCB	Improved access to funding mechanisms	MEWT Executive		
		Increase government funding for NGOs Issue grants to NGOs	Number of NGOs funded/ grants disbursed by funding mechanisms/ bodies/ institutions			
	limited number of trained personnel on Environmental Economics	Improve resource allocations to Environmental Education units	Percentage increase in funding/human resources to EE units	MEWT Executive		
		Train more environmental economists	Number of environmental economists produced/trained	DEA		

<b>Capacity Building Actions for Target 1</b>						
<b>Focal Institution</b>	<b>Capacity issues</b>	<b>Required solutions/ actions</b>	<b>Indicators</b>	<b>Responsibility</b>	<b>Resource implications</b>	<b>Time frame</b>
	lack of capacity to package information for the targeted audiences	Appropriately Packaged information delivered	Number of available target specific material	MEWT (Communications Office/EE Divisions)		
	lack of environmental economic programmes in local tertiary institution	Introduce Environmental Economics Programmes and short courses	Number of tertiary institutions with EE programs/ short courses	Tertiary Institutions		

### 3.8.2 Strategic Actions for Target 2: By 2025, planning processes at all (district, urban and national) levels, and national accounting and reporting systems in Botswana contain explicit actions to promote biodiversity conservation.

	Strategic Actions	Lead institutions	Implementing Partners	Non-Govt Participants	Estimated Cost (BWP)	Indicators	Start	Completion
2-1	To undertake, by 2016, biodiversity mainstreaming and ecoregion workshops for thematic groups at district level	DEA	TWGs DLGDP	BALA	420, 000	No of workshops  Biodiversity integrated into Thematic components	2016	2017
2-2	Starting in 2016, all MEWT departments report both ecological and socio-economic data according to ecoregions.	MEWT RDU	DEA DWNP DFRR DMS DNMM DoT DWMPC	RIs NGOs	20, 000	Ecoregion based reporting	2016	2025
2-3	To ensure that by 2020, preparation guidelines for all national, district and urban plans are inclusive of elements of the ecosystem approach.	NSO	DLGDP DEA		420, 000	Ecosystem approach based plans	2016	2020
2-4	To adopt fully and permanently, by 2020, a natural capital accounting system (such as the Wealth Accounting and Valuation of Ecosystem Services (WAVES) programme) into the national planning processes.	EFPD	DEA		60, 000	Natural Capital Accounting System adopted	2016	2020
2-5	To ensure that by 2016, the Environmental Assessment Act Guidelines specify that all SEAs must use an ecosystem approach, and that EIAs and SEAs in sensitive areas include a biodiversity assessment.	DEA		BEAPA		Biodiversity assessments undertaken	2016	2016
2-6	To develop, by 2017, SEA guidelines for all sectoral and land use plans	DEA	DTRP	BEAPA	120, 000	SEA Guidelines	2016	2017
2-7	To carry out, by 2018, a country-level 'The Economics of Ecosystems and Biodiversity' (TEEB) assessment, that captures the ecosystem services values, and the total economic values, of all Botswana's ecoregions.	EFPD	DEA		14, 000,000	National TEEB Assessment based on eco-regions	2018	2025

	<b>Strategic Actions</b>	<b>Lead institutions</b>	<b>Implementing Partners</b>	<b>Non-Govt Participants</b>	<b>Estimated Cost (BWP)</b>	<b>Indicators</b>	<b>Start</b>	<b>Completion</b>
2-8	To ensure that by 2025, Government has constructed natural resource accounts for Botswana's ecoregions, and that these ecoregion values are incorporated into the national accounts.	DEA	EFPD		14, 000, 000	No. of natural resource accounts developed	2020	2025
2-9	To ensure that by 2017, all government and parastatal sectors specifically address biodiversity conservation in their components of district, urban and national development plans.	NSO	DEA DLGDP		80, 000	Biodiversity mainstreamed	2016	2017
2-10	To adopt, by 2020, Local Economic Development Strategies that reflect natural capital and biodiversity as drivers of the local economy and poverty eradication.	DLGDP	DEA PEU	BALA	60, 000	Local Economic Development Strategies reflective of natural capital	2016	2020

<b>Capacity Building Actions for Target 2</b>						
<b>Focal Institution</b>	<b>Capacity issues</b>	<b>Required solutions/ actions</b>	<b>Indicators</b>	<b>Responsibility</b>	<b>Resource implications</b>	<b>Time frame</b>
<ul style="list-style-type: none"> <li>- DEA</li> <li>- MFDP</li> <li>- OP [GICO]</li> <li>- MLGRD</li> </ul> [Economic Planning] [Dept of Rural Development]	Limited number of experts on Environmental Economics	Train more Environmental Economics experts	Number of trained Environmental Economics experts [practicing]	MEWT (Training Office) DEA		
	Limited understanding on importance of Valuation, Values of biodiversity by key stakeholders	Develop a briefing/training programme for key stakeholders [hold workshops with key stakeholders]	Training program developed	MEWT (Communications Office, DEA)		
	MFDP budgeting, accounting and planning frameworks are not inclusive of Environmental Economic Instruments	Integrate Environmental Economic instrument's into the budgeting, accounting and planning frameworks	National Economic Planning Frameworks & budget inclusive of environment economic instruments	NSO, DEA, MFDP		
	NDP/DDP/UDP frameworks not inclusive of EE [bio values]	Integrate Environmental Economics into the national development planning frameworks	National planning frameworks inclusive of environment economic instruments	NSO, DEA, MFDP, MLG		

### 3.8.3 Strategic Actions for Target 3: By 2025, incentives and subsidies across all sectors are revised, designed or introduced to improve support for sustainable consumption and production and promote biodiversity conservation.

	Strategic Actions	Lead institutions	Implementing Partners	Non-Govt Participants	Estimated Cost (BWP)	Indicators	Start	Completion
3-1	To conduct, by 2017, a SEA of taxes and subsidies used to promote development in key sectors	Dept of Trade	DEA DCP DVS DAP DIT BURS	BOCCIM	2, 000, 000	SEAs undertaken	2017	2025
3-2	To establish, by 2020, a system of incentives for sustainable natural resources use and biodiversity conservation.	Dept of Trade	DEA Each subsidy-hosting department		3, 000, 000	System of incentives established	2018	2020
3-3	To revise, by 2018, all existing subsidies to ensure they support biodiversity conservation and sustainable development, and where appropriate, introduce new ones.	Dept of Trade	Each subsidy-hosting department		4, 000, 000	Subsidies revised	2016	2018

Capacity Building Actions for Target 3						
Focal Institution	Capacity issues	Required solutions/ actions	Indicators	Responsibility	Resource implications	Time frame
Ministry of Finance and development planning	Lack collaboration in development of subsidies	Development of environmentally considerate subsidies, developed through a consultative process	Number of sectors involved in developing subsidies	MFDP MEWT Sector Ministries		
	Lack of comprehensive cost benefit studies on impacts of subsidies	Comprehensive cost benefit studies of the existing subsidies	Number of cost benefit studies carried out on impact of subsidies  Number of subsidies projects revised to incorporate the recommendations	MFDP MEWT Sector Ministries		
	Lack of stakeholder participation in development of subsidies	Engagement of stakeholders in the development of subsidies	Number of stakeholders engaged in developing subsidies	-		

Capacity Building Actions for Target 3						
Focal Institution	Capacity issues	Required solutions/ actions	Indicators	Responsibility	Resource implications	Time frame
	Lack of positive incentives for biodiversity conservation by non-state actors	Develop strategies for reducing negative incentives to biodiversity  Review existing policies to ensure that there are no negative incentives  Develop and pilot incentives for biodiversity conservation	Number of strategies developed  Policies reviewed  Number of incentives	Dept of Trade		

### 3.8.4 Strategic Actions for Target 4: By 2025, at all levels, policy and regulatory instruments are in place to ensure production and consumption by government, industry and society are kept within sustainable levels and safe ecological limits.

	Strategic Actions	Lead institutions	Implementing Partners	Non-Govt Participants	Estimated Cost (BWP)	Indicators	Start	Completion
4-1	To ensure that by 2017, the Environmental Management Act and its Regulations is legislated.	DEA	MEWT legal advisor AG's Chambers DWNP DFRR DMS DoT DWMPC DNMM DWA	Ris CSOs	60, 000	EMA legislated	2016	2017
4-3	To conduct, by 2016, an assessment of the viability of Payment of Ecosystem Services (PES) and other tax reduction and rebate options potentially applicable to ranch and WMA lease-holders.	DEA	DAP DWNP EFPD BIDPA		3, 500, 000	PES Piloted	2016	2019
4-4	By 2017, to undertake, and implement recommendations of, a study on consumption patterns of consumers in order to minimise impacts on biodiversity.	DIA	NEEC DWMPC LAs	Ris Private sector	8, 500, 000	Completed study  No. of recommendations implemented	2017	2019

	<b>Strategic Actions</b>	<b>Lead institutions</b>	<b>Implementing Partners</b>	<b>Non-Govt Participants</b>	<b>Estimated Cost (BWP)</b>	<b>Indicators</b>	<b>Start</b>	<b>Completion</b>
4-5	By 2020, building regulations are amended to ensure that residential properties and industries have water harvesting tanks	DBES	AGs Chambers DWA WUC	Las BALA	60,000	Amended building regulations	2016	2020

<b>Capacity Building Actions for Target 4</b>						
<b>Focal Institution</b>	<b>Capacity issues</b>	<b>Required solutions/ actions</b>	<b>Indicators</b>	<b>Responsibility</b>	<b>Resource implications</b>	<b>Time frame</b>
<ul style="list-style-type: none"> <li>- Ministry of Finance and development planning</li> <li>- DEA</li> </ul>	Lack of incentives for private sector and individuals to pursue sustainable production and consumption	Create incentives for green projects	Number of green projects incentivized	MFDP private sector		
	Lack of legislation and regulations to encourage sustainable consumption and production	Promote the application of tools such as SEA and EIA	Number of sustainable production projects subjected to EIA/ SEA	DEA		
	Lack of recognition and promotion of green innovation within the public sector, private and general public	Create platforms for sharing ideas and lessons  Establish mechanisms for rewarding green innovation within the various sectors	Number of platforms created	DEA MEWT R & D Unit		
	Lack of well-structured platforms for exchange of ideas between government, public and private sector	Create platforms for exchange of ideas	Number of platforms created	DEA MEWT R & D Unit		

### 3.8.5 Strategic Actions for Target 5: By 2025, the rate of natural land conversion is at least halved, and degradation and fragmentation are significantly reduced.

	Strategic Actions	Lead institutions	Implementing Partners	Non-Govt Participants	Estimated Cost (BWP)	Indicators	Start	Completion
5-1	To conduct, by 2018, a study of current rates of natural land conversion in each ecoregion	DTRP	DFRR DoL DSM	Pula Institute of Town Planners	3, 500, 000	Study completed	2018	2020
5-2	To conduct, by 2017, a strategic environmental assessments (SEAs) of a) all the veterinary and game fences, b) the national road networks, and c) the national powerline grid in terms of their impact on wildlife (including birds), and to adopt the assessment recommendations.	DWNP	DVS Roads Dept BPC	BLB	4, 000 000	SEA Undertaken  No. of recommendations implemented	2017	2019
5-3	To implement, by 2018, Sustainable Land Management (SLM) practices on all tribal grazing land.	DFRR	DEA DAP	VACCs Ris BALA	60, 000	SLM practices adopted	2018	2025
5-4	To commission, by 2016, ecological and policy studies into the interacting causes and potential consequences of a) loss of trees and b) habitat fragmentation in the northern ecoregions, and implement the study recommendations.	DFRR	DWNP	Ris KCS BLB	1, 500, 000	Study completed  No. of recommendations implemented	2016	2018
5-5	By 2020, to identify;map; and quantify the critical linkages between the Okavango Delta and wet season habitats in adjacent ecosystems, and to bring these linkages into land use planning and halt, and where possible, reverse the isolation of the Panhandle region	DEA	DoL DWNP DCP DAP DTRP Tawana Land Board		500, 000	Linkages integrated into land use planning	2020	2022
5-6	To identify and protect, by 2017, migratory routes between Gcwihaba and Tsodilo WMAs, and the Okavango Delta and Lake Ngami.	DWNP	DoL DTRP DCP DAP	BLB Ris KAZA KCS	450, 000	Migratory routes protected	2016	2017

	Strategic Actions	Lead institutions	Implementing Partners	Non-Govt Participants	Estimated Cost (BWP)	Indicators	Start	Completion
5-7	To conduct, by 2016, a SEA of the SW Kalahari Conservation Corridor, and implement the assessment recommendations.	DWNP	DoL Kgalagadi Land Board Ghanzi Land Board DWNP DAP	KCS	1, 200, 000	SEA undertaken	2016	2017
5-8	To rehabilitate, by 2024, the Ntshe, Tati, and Mahalapye rivers	DFRR	DEA Ipelegeng Coordinating Unit (S&CD)	Las BALA	300, 000 (Ipelegeng Programme to assist)	Rehabilitated river	2016	2024
5-9	To undertake, by 2017, restoration projects (tree planting in degraded villages; clearing of bush-encroachment and invasive weeds) in 6 identified and prioritised areas.	DFRR	DEA	CBOs Village Farmers Committees	1,800,000 (300,000 / area; and labour from Ipelegeng Programme)	No of restoration projects completed	2017	2025

#### Capacity Building Actions for Target 5

Focal Institution	Capacity issues	Required solutions/ actions	Indicators	Responsibility	Resource implications	Time frame
- DFRR - DWNP - DEA - DAR	Monitoring Limitations	Establish/develop a Monitoring system	Monitoring system developed	MEWT Executive (Research & Development Division)		
		Build skills/Train personnel on monitoring processes	Number of trained personnel [for monitoring system]	MEWT (Training Unit)		
	Research limitations	Train officers on biodiversity research, and avail funding for research	Percentage increase in funds availed for research	MEWT (Training Unit)		
	Coordination/Collaboration limitations	Establish/strengthen institutional cooperation mechanism (a MEWT Project management committee)	MEWT PMC established and functioning	MEWT Executive (Planning Unit; R & D Division)		
	Limitations in resource mobilization (funding capabilities a challenge)	Develop resource mobilization strategies and train personnel on the same.	Resource mobilization strategies established and implemented	DEA MEWT Training Unit, R & D Unit		

### 3.8.6 Strategic Actions for Target 6: By 2025, animal and plant resources in Botswana’s wetlands, woodlands and savannas are sustainably managed using the ecosystem approach, so that the impacts of harvesting remain within safe ecological limits.

	Strategic Actions	Lead institutions	Implementing Partners	Non-Govt Participants	Estimated Cost (BWP)	Indicators	Start	Completion
6-1	To establish, by 2016, and develop monitoring mechanisms for, by 2018, the list of key plant, insect, fish and animal resources in each ecoregion for which offtake limits should be set, and add these as guidelines to the relevant legal acts	DWNP	DFRR DNMM DAP	BLB RIs	3, 000, 000	Offtake limits established  Monitoring mechanisms developed  Amended guidelines	2016	2018
6-2	To commission, by 2016, a study of key ecosystem processes (including breeding areas) under wet and dry scenarios for Botswana’s more vulnerable ecoregions.	DWNP	DFRR DWA	RIs BLB KCS	1, 800, 000	Study completed	2016	2018
6-3	To implement, by 2016, the Management Effectiveness Tracking Tool in all Botswana’s national parks and game reserves.	DWNP		KCS RIs	4, 000, 000	Management Effectiveness Tracking Tool implemented	2016	2025
6-4	Establish, by 2025, mokolwane farms for the communities of Shorobe, Mosu and Gweta	DFRR		CBOs BALA	2, 250, 000 (750, 000 / community)	Mokolwane Farms established	2018	2025
6-6	Establish and operationalize, by 2024, Veldt Products multiplication and commercialisation projects (morula, morama, sour plum (moretologa); moretwa; mmilo; mogwana; motshibi; kgengwe, serowa) in each ecoregion	DFRR	DAR PEU	CESRIKI LAs RIs CBOs BALA	14, 000, 000 (2, 000, 000 / project)	No of operational projects	2017	2024
6-7	Establish, by 2025, Indigenous Tree Plantations for Logging in 6 identified areas	DFRR	DEA Land Boards	CBOs	3, 000, 000 (500, 000 / plantation)	No of operational plantations	2016	2025

Capacity Building Actions for Target 6						
Focal Institution	Capacity issues	Required solutions/ actions	Indicators	Responsibility	Resource implications	Time frame
MEWT DFRR DNMM DWNP Research Institutions	Unsustainable harvesting levels of fish and invertebrate resources	Reduce harvesting intensity through collaborative partnerships with local communities and fishery organizations	Sustainable consumption/ harvesting practices adopted	DWNP		
	Lack of management plans for fish and invertebrate stocks	Code of Conduct for Responsible Fisheries	Code of conduct established	DWNP		
	Lack of institutional responsibilities and mandates related to invertebrates	Enact legislation that limits harvesting and trade on fish and invertebrates	Legislation that limits harvesting and trade on fish and invertebrates enacted	MEWT Executive DWNP		
	Lack of capacity to establish stocks of fish and invertebrates	Train people on monitoring of fish and invertebrates	Number of trained people	DWNP		

### 3.8.7 Strategic Actions for Target 7: By 2025, wetlands, woodlands and savannas, particularly where used for use for range or crops, are managed sustainably, ensuring conservation of biodiversity.

	Strategic Actions	Lead institutions	Implementing Partners	Non-Govt Participants	Estimated Cost (BWP)	Indicators	Start	Completion
7-1	To develop, by 2020, an integrated land use framework that includes the SEA process.	DTRP	DoL DWNP DFRR DSM All land boards	KCS RIs	900, 000	Integrated land use framework with SEA elements	2020	2022
7-2	To conduct, by 2015, an inventory of all wooded areas on state and communal land, including riparian woodlands, that warrant improved protection and management, and establish forestry management practices that support the regeneration of tree populations and maintain ecosystems processes.	DFRR		CBOs VACCs BALA	11, 000, 000	Inventory	2016	2019

	Strategic Actions	Lead institutions	Implementing Partners	Non-Govt Participants	Estimated Cost (BWP)	Indicators	Start	Completion
7-3	To revise, by 2025, the implementation strategies and their related guidelines (i.e., Master Plan for Arable Agriculture and Dairy Development, Integrated Support Programme for Arable Agriculture Development, support programme relating to fencing, and Livestock Management and Infrastructure Development ) of the National Policy on Agricultural Development to explicitly exclude habitats important to biodiversity.	Botswana Agricultural Hub	DAR, DCP DAP DWNP (during planning phase) DFRR (during planning phase)	BCA	4, 500, 000	Revised strategies and guidelines	2022	2025
7-4	To implement, by 2018, Conservation Agriculture (CA) practices in all agricultural extension areas.	DCP	DEA DFRR Botswana Agricultural Hub	BCA VACCs BALA	3, 000, 000	Conservation Agriculture (CA) practices implemented	2018	2025
7-5	To establish by 2020, broad scale ecosystem approaches to conservation that bring together different categories of land use under joint management to accommodate wildlife migrations.	DTRP	DoL DWNP DFRR		100, 000	broad scale ecosystem approaches to conservation adopted	2016	2020
7-6	Establish and operationalise, by 2025, Community Based Arable Farming Projects in Khumaga, Habu, Xere, Mopipi, Mokoboxane, and Makomoto	DCP	PEU S&CD Land Boards	Las BALA	18, 000, 000 (3, 000, 000 / project)	Community Based Arable Farming Projects established  No of operational farms	2017	2025

#### Capacity Building Actions for Target 7

Focal Institution	Capacity issues	Required solutions/ actions	Indicators	Responsibility	Resource implications	Time frame
- MOA (DPP, DAR, DCP) - DFRR	Lack of Systematic data collection at consistent and regular intervals	Availing funding to carry out research and monitoring Development of guidelines	Number of Systematic data collection projects/activities Guidelines developed	MoA		
- MLG - DOL - NSSD - Coordinating Office	Lack of enforcement of relevant policies and legislation (forestry Act, Agric Act, land use Plans)	Raising awareness on the legislation  Providing enforcement Provision Capacities for effecting and implementing	Number of awareness raising activities undertaken  Number of enforcement officers capacitated on relevant legislation			

Capacity Building Actions for Target 7						
Focal Institution	Capacity issues	Required solutions/ actions	Indicators	Responsibility	Resource implications	Time frame
	Capacity for carrying out Strategic Environmental Assessment	Raise awareness on the importance of carrying out SEA	Number of awareness raising activities on importance of carrying out SEA undertaken  Number of SEAs undertaken	DEA MoA DTRP		
	Lack of coordinated approaches to planning	Implement the Ecosystem approach and adopt the comprehensive and wide use of the National Strategy on Sustainable Development	Ecosystem approach and National Strategy on Sustainable Development implemented	MEWT DEA		

### 3.8.8 Strategic Actions for Target 8: By 2025, levels of air, water and soil pollution are maintained below levels that would threaten ecosystem functioning and biodiversity.

	Strategic Actions	Lead institutions	Implementing Partners	Non-Govt Participants	Estimated Cost (BWP)	Indicators	Start	Completion
8-1	To conduct, by 2017, a SEA of all the energy-related industries (coal, gas, uranium and thermal electrical power production) and their individual and cumulative impacts on biodiversity.	EAD	DoM BPC		10, 000, 000	SEA undertaken	2017	2020
8-2	By 2015 to institute and maintain water quality monitoring and systematic reporting to the CHM for those parts of the Okavango, Zambezi, Gariep and Limpopo river catchments within Botswana	DWA	DWMPC DEA	RIs KAZA	1, 400, 000	No. of Monitoring reports in the CHM	2015	2025
8-3	To prepare, by 2019, and enforce guidelines stipulating discharge and emission levels of key pollutants for both the Atmospheric Pollution (Prevention) Act and the Waste Management Act	DWMPC		KCS RIs	1,500, 000	Guidelines developed	2017	2019
8-4	By 2016 to maintain, and institute where necessary, air quality monitoring and systematic reporting to the CHM for all protected areas (parks, reserves and important bird areas) and major developed areas (cities, towns and industrial areas)	DWMPC	EAD		1, 400, 000	No. of Monitoring reports in the CHM	2016	2025

	<b>Strategic Actions</b>	<b>Lead institutions</b>	<b>Implementing Partners</b>	<b>Non-Govt Participants</b>	<b>Estimated Cost (BWP)</b>	<b>Indicators</b>	<b>Start</b>	<b>Completion</b>
8-5	To undertake, by 2017, a study on the impact of pollution on biodiversity hotspots and animal population dynamics.	DWMPC	DWNP DFRR	RIs	1, 000, 000	Study recommendations implemented	2017	2019

<b>Capacity Building Actions for Target 8</b>							
<b>Focal Institution</b>	<b>Capacity issues</b>	<b>Required solutions/ actions</b>	<b>Indicators</b>	<b>Responsibility</b>	<b>Resource implications</b>	<b>Time frame</b>	
<ul style="list-style-type: none"> <li>- DWA</li> <li>- DWMPC</li> <li>- Local Government</li> <li>- MoH</li> <li>- BOBS</li> </ul>	Lack of comprehensive (representative samples and regular) monitoring of various parameters that impacts on biodiversity (e.g. water quality, air pollution)	<ul style="list-style-type: none"> <li>Set-up long term monitoring programs for various aspects (water quality, air pollution)</li> <li>Develop discharge standards into natural environments</li> </ul>	<ul style="list-style-type: none"> <li>Monitoring programs established</li> <li>Discharge/pollution standards adopted at national level</li> </ul>	MEWT BOBS Sectoral departments			
	Lack of capacity to analyze various parameters (at the right level – local to national)	Develop capacity to analyze critical pollution parameters	Number of trained personnel on the analyses of critical pollution parameters	DWMPC MEWT Training Unit			
	Lack of regulations to limit the use of various pollutants (e.g. fertilizer, pesticides)	Develop regulations to limit the use of various pollutants (e.g. fertilizer, pesticides)	Regulations to limit and monitor the use of various pollutants developed	DAR			

### 3.8.9 Strategic Actions for Target 9: By 2025, key invasive alien species are identified and controlled or eradicated, and pathways for their spread are managed to prevent further introduction and establishment.

	Strategic Actions	Lead institutions	Implementing Partners	Non-Govt Participants	Estimated Cost (BWP)	Indicators	Start	Completion
9-1	By 2016, to identify, map, and quantify the baseline distribution of, the alien invasive species of greatest threat to Botswana's biodiversity for each ecoregion, and to institute and maintain monitoring and systematic reporting to the CHM on key alien invasive species	DFRR	DWNP DNMM DAR DCP DAP	VACCs BALA	1, 500, 000	Alien invasive species distribution map  No. of monitoring reports in the CHM	2016  2016	2017  2025
9-2	To initiate and implement, from 2017, control and eradication programmes for key alien invasive species for each ecoregion	DFRR	DWNP DNMM DAR DCP DAP	VACCs BALA	8, 000, 000	No. of alien invasive species controlled or eradicated	2017	2025

Capacity Building Actions for Target 9						
Focal Institution	Capacity issues	Required solutions/ actions	Indicators	Responsibility	Resource implications	Time frame
- DFRR - DWNP - DAR	Limited research on alien invasive species to inform control measures	Funding for research	Number of research funded on alien invasive species	MEWT R & D Unit DFRR DAR		
- DCP - DWA - BURS	Limited knowledge on invasive varieties by personnel in relevant institutions	Maintaining consolidated inventory of invasive alien species in Botswana	An Inventory of invasive alien species in Botswana Developed and maintained	DFRR DWNP DCP		
		Use targeted CEPA to disseminate inventory	Targeted CEPA to disseminate inventory developed	DFRR DWNP DCP		
		Training of relevant personnel on identification and control of the invasive alien species	Number of trained personnel	DFRR DWNP DAR		

Capacity Building Actions for Target 9						
Focal Institution	Capacity issues	Required solutions/ actions	Indicators	Responsibility	Resource implications	Time frame
		Foster collaborations with partners with relevant experience on specific species	Number of partnerships forged	MEWT R & D Unit DFRR DWNP		
	Limited enforcement to control the introduction of alien varieties	Resource enforcement relevant units to intensify enforcement	Enforcement Units resourced (awareness on species, and introduction of new technologies at border posts)	DFRR DWNP DCP BURS		

### 3.8.10 Strategic Actions for Target 10: By 2025, the anthropogenic pressures on wetlands, woodlands and savannas are minimised, so that the impacts of climate change and other external perturbations on their ecological integrity and functioning can be managed.

	Strategic Actions	Lead institutions	Implementing Partners	Non-Govt Participants	Estimated Cost (BWP)	Indicators	Start	Completion
10-1	To legislate, by 2020, formal protection for all IBAs and for 25% of wetlands in each of the ecoregions found in Botswana	DWNP	AG's Chambers DTRP DoL DEA	BLB	120, 000	Gazetted IBAs and wetlands	2016	2020
	To ensure that, by 2025, all Management Plans for Protected Areas are implemented.	DWNP DFRR	DEA	KCS BLB	56, 000,000	Effective Management System in place	2016	2025
10-2	To ensure that, by 2018, all protected areas (parks, game reserves, WMAs) and forest reserves and biodiversity hotspots eg IBAs in all ecoregions are actively managed using the ecosystem approach and systems are in place to ensure changes in management effectiveness, in extent, ecological integrity, protection status and key threats are identified and mapped.	DWNP	DFRR		60, 000	Ecosystem Approach adopted	2018	2025
10-3	To establish, by 2018, and maintain representative ecological transects for all ecoregions in all districts, that are systematically monitored and reported on to the CHM	MEWT RDU	DFRR DWNP	SASSCAL	13, 500, 000 (4,500,000 in year 1, then 1,500,000 / year)	Up-to-date datasets in the CHM	2018	2025

	<b>Strategic Actions</b>	<b>Lead institutions</b>	<b>Implementing Partners</b>	<b>Non-Govt Participants</b>	<b>Estimated Cost (BWP)</b>	<b>Indicators</b>	<b>Start</b>	<b>Completion</b>
10-4	To initiate and maintain, from 2018, the monitoring of vegetative biomass (as a measure of carbon sequestration) at the ecoregion level, and systematically report to the CHM	DFRR	DMS	NGOs RIs	1, 000, 000	No. of monitoring reports to the CHM	2018	2025
10-5	To streamline and maintain, from 2018, the monitoring of veld fires (as a measure of carbon emission) at the ecoregion level, and systematically report to the CHM	DFRR	DMS DWNP		1, 000, 000	No. of monitoring reports to the CHM	2018	2025
10-6	To ensure, by 2020, that biodiversity hotspots are protected through Integrated Land Use Plans	DTRP	DoL All land boards All DLUPUs DEA		100, 000	Biodiversity hotspots protected through integrated into land use plans	2016	2020

### 3.8.11 Strategic Actions for Target 11: By 2025, at least 25 percent of all Botswana's ecoregions, particularly the wetlands, rivers and pans in them, are effectively conserved through an ecosystem approach that integrates their management with that of the surrounding landscapes and involves resident communities.

	<b>Strategic Actions</b>	<b>Lead institutions</b>	<b>Implementing Partners</b>	<b>Non-Govt Participants</b>	<b>Estimated Cost (BWP)</b>	<b>Indicators</b>	<b>Start</b>	<b>Completion</b>
11-1	To commission, by 2016, the development of, and implement, a formal national biodiversity monitoring system, including the trend and analysis of species, with linkages to the CHM	DEA	MEWT RDU DFRR DWNP Statistics Botswana		5, 570, 000 (1,070,000 for first year, then 500, 000 / year)	National biodiversity monitoring system	2016	2025
11-2	To finalise, by 2016, the national-level and ecoregion biodiversity indicator lists, and initiate their systematic monitoring and reporting to the CHM	Statistics Botswana	DEA DFRR DWNP	NGOs	450, 000	Comprehensive biodiversity indicators	2016	2016
11-3	To provide, by 2016, annual grants to selected environmental NGOs for ongoing monitoring of key species	DEA	MEWT Executive MEWT RDU MEWT CBNRM Unit		20, 000, 000 (2, 000, 000 / year)	Amount of grant per selected NGO	2016	2025
11-4	To revise, adopt and implement, by 2016, Botswana's Wetlands Policy	DEA	MEWT Executive DWA OKACOM	KAZA	180, 000	Wetlands policy	2016	2016

	<b>Strategic Actions</b>	<b>Lead institutions</b>	<b>Implementing Partners</b>	<b>Non-Govt Participants</b>	<b>Estimated Cost (BWP)</b>	<b>Indicators</b>	<b>Start</b>	<b>Completion</b>
11-5	To finalise and adopt, by 2016, the Cubango-Okavango River Basin (CORB) SEA	MEWT RDU	DEA DWA	SAREP	200, 000	SEA for the Cubango-Okavango River Basin	2016	2016
11-6	To establish, by 2016, notification procedures for contraventions of the CORB SEA thresholds	OKACOM national reps	DEA AGs Chambers DMLA DWA		120, 000	Notification procedures adopted	2016	2016
11-7	To formally adopt, by 2015, and initiate implementation of the ODRS Strategic Environmental Management Plan	MEWT RDU	DEA		40, 000	ODRS Strategic Environmental Management Plan adopted	2016	2016
11-8	To conduct, by 2017, a SEA of the impact of land use changes and soda ash mining on the Makgadikgadi system	DWNP	DEA DoM	Ris BLB	1, 000, 000	SEA undertaken	2016	2017
11-9	To complete, by 2025, the species (flora and fauna) inventory through Global Taxonomy Initiative	DNMM	DWNP DFRR DAR	BCA	12, 000, 000	Species inventory completed	2018	2025
11-10	To pursue, by 2016, the application of Biosphere Reserve Status for the Makgadikgadi Wetlands	DEA	DWNP DFRR DMLA MEWT RDU	Ris NGOs KAZA	80, 000	Makgadikgadi Wetlands Biosphere Reserve status adopted	2016	2018
11-11	To conduct, by 2020, feasibility studies for the nomination of a) the northern forest region and b) the Kgalagadi Transfrontier Park, as Biosphere Reserves	DEA	DWNP DFRR DMLA MEWT RDU	Ris NGOs KAZA	320, 000 (120, 000 per study; 80, 000 for consultations leading to adoption)	Feasibility studies completed and adopted  Kgalagadi Transfrontier Park and Northern Forest Region declared Biosphere Reserves	2018	2020
	To complete, by 2025, an inventory on below-the-ground biodiversity.	DAR	DFRR UB BCA ORI	KCS	5, 000, 000	Inventory completed	2016	2020

### 3.8.12 Strategic Actions for Target 12: By 2025, the conservation status of species in Botswana that are listed as threatened has been improved or sustained.

	Strategic Actions	Lead institutions	Implementing Partners	Non-Govt Participants	Estimated Cost (BWP)	Indicators	Start	Completion
12-1	To review, finalise and implement, by 2016, the Botswana Threatened Species Management Strategy	DWNP DFRR	DNMM DEA	BLB KCS	80, 000	Threatened Species Management Strategy finalised	2016	2016
12-2	To prepare, by 2018, ecoregion-based threatened species lists and maps of their habitats, and initiate their systematic monitoring and reporting to the CHM	DFRR DWNP	DNMM DEA	UB Biology Dept BCA ORI KCS BLB	2, 500, 000	Threatened species maps developed	2016	2018
12-3	To legislate formal protection, by 2025, for areas critical to biodiversity and key ecosystem functioning (e.g. breeding areas, dry season grazing, IBAs, wetlands, habitats for threatened species)	DEA	DWNP DFRR DNMM DoL AG's Chambers	BLB KCS	80, 000	Threatened species hotspots gazetted	2018	2025
12-4	To ratify and domesticate, by 2020, the Agreement on the Conservation of African Eurasian Migratory Waterbirds	DWNP	DMLA AG's Chambers DWA	BLB	3, 000, 000	Agreement on the Conservation of African Eurasian Migratory Waterbirds ratified	2016	2020
12-5	To comply, by 2018, with the ex situ seed collection objectives of the Millennium Seed Bank	DAR	DNMM		3, 500, 000	Number of seed varieties in the seed bank	2018	2025
12-6	To ratify and domesticate, by 2020, the Convention on the Conservation of Migratory Species of Wild Animals	DWNP	DMLA AG's Chambers	KCS BLB	3, 000, 000	Convention on Migratory Species ratified	2016	2025
12-7	To establish, by 2019, recovery programmes for species with critically low populations	DWNP DFRR	DNMM		15, 000, 000	No. of recovered species	2019	2025

Capacity Building Actions for Target 12						
Focal Institution	Capacity issues	Required solutions/ actions	Indicators	Responsibility	Resource implications	Time frame
<ul style="list-style-type: none"> <li>- DTRP</li> <li>- FRR</li> <li>- DNMM</li> <li>- DWNP</li> <li>- Birdlife Botswana</li> <li>- Cheetah Conservation</li> <li>- Khama Rhino Sanctuary</li> </ul>	Inadequate institutional and systemic capacity to control Human-Wildlife Conflicts	Strategic land use planning to avoid human settlement within areas of significant densities of wildlife	Strategic land use plans developed	DTRP		
		Targeted CEPA on threatened species and the value of conserving them	Targeted CEPA on threatened species and the value of conserving them developed, and implemented	DWNP Birdlife Botswana Cheetah Conservation Khama Rhino Sanctuary		
		Increase incentives (and penalties) for protection of (threatened) problem animals to match the forgone benefit	Number of incentives introduced	DWNP		
	Inconsistent surveys of species	Appropriate and timely surveying/monitoring of species  Funding of species surveys/monitoring	Number of surveys/species population counts undertaken	DWNP		

### 3.8.13 Strategic Actions for Target 13: By 2025, the genetic resources of traditional agricultural species and their wild relatives are protected, and strategies for minimizing genetic erosion and safeguarding their genetic diversity have been implemented.

Rank	Strategic Actions	Lead institutions	Implementing Partners	Non-Govt Participants	Estimated Cost (BWP)	Indicators	Start	Completion
13-1	To ratify and domesticate, by 2016, the International Treaty on Plant Genetic Resources for Food and Agriculture	DAR	DMLA AG's Chambers NFRTC		3,000,000	International Treaty on Plant Genetic Resources for Food and Agriculture ratified	2016	2025
13-2	To finalise and implement, by 2016, domestication instruments for the Cartagena Protocol	DAR	AGs Chambers DEA		3,000,000	Domestication instrumentation finalised	2016	2025
13-3	To ratify and domesticate, by 2016, the Kuala Lumpur Supplementary Protocol on Liability and Redress to the Cartagena Protocol on Biosafety	DAR	DEA DCP DPH BURS BOBS	UB Biology Dept BCA KCS	3,000,000	Kuala Lumpur Supplementary Protocol on Liability and Redress to the Cartagena Protocol on Biosafety ratified	2016	2025
13-4	Establish, by 2023, Community Indigenous and Medicinal Tree Centres/Parks in each ecoregion	DFRR	DAR	CESRIKI RIs BALA	3,500,000 (500,000 / centre)	No of operational Centres/Parks	2023	2025

Capacity Building Actions for Target 13						
Focal Institution	Capacity issues	Required solutions/ actions	Indicators	Responsibility	Resource implications	Time frame
- DNMM	Lack of adequate taxonomic knowledge of our species, especially invertebrates  Lack of appropriate facilities, technology and equipment for adequate storage of taxonomic info	Funding and undertaking of research on taxonomy.	Number of taxonomic research undertaken	DNMM		
- DAR						
- DCP		Establishment of appropriate facilities, technology and equipment	Appropriate and adequate storage mechanisms in place			
- DAP						
- DRD						



**3.8.14 Strategic Actions for Target 14: By 2025, ecosystem services are identified and restored or maintained in all Botswana’s ecoregions, and contribute to livelihood improvement through strategies that enable equitable access by all vulnerable groups, including women, the poor and local communities.**

Rank	Strategic Actions	Lead institutions	Implementing Partners	Non-Govt Participants	Estimated Cost (BWP)	Indicators	Start	Completion
14-1	To establish, by 2016, the list of the main plant and animal resources in each ecoregion used by rural households and for which offtake should be managed, and commercial offtake regulated	DWNP	DFRR Statistics Botswana DAP DCP	Relevant CBOs BLB BALA	350, 000	List of resources by ecoregion  Regulations under relevant Acts.	2016	2016
14-2	To identify, set, and enforce, by 2019, offtake limits at the CHA level for each identified resource	DWNP	DFRR	Relevant CBOs NGOs BALA	60, 000	Offtake limits set	2019	2025
14-3	To commission a study, by 2019, to identify for each ecoregion the ecosystem services important to rural households.	DEA	DWNP DFRR DCP DAP DWA DoL WUC	RIs Relevant CBOs BALA	350, 000	Ecosystem services important to rural households	2019	2019
14-4	To develop, by <u>2018</u> , activities under the Local Economic Development Strategy that harmonise biodiversity conservation and poverty eradication in key ecoregions.	DLGDP	DEA PEU	RIs NGOs BALA	80, 000	No. of poverty-biodiversity activities in the LED Strategy	2018	2019
14-5	By 2022, introduce community use zones (seasonal uses to harvest firewood and veldt products) in Moremi and Chobe National Parks	DWNP	MEWT RDU MEWT CBRNM Unit	BALA	80, 000	Community use zones established	2019	2025

Capacity Building Actions for Target 14						
Focal Institution	Capacity issues	Required solutions/ actions	Indicators	Responsibility	Resource implications	Time frame
<ul style="list-style-type: none"> <li>- DWNP</li> <li>- DFRR</li> <li>- BLB</li> </ul>	Lack of guidelines to enforce regional commissions at national level	Adopt the ecosystem approach and integrated water basin management	Ecosystem approach and integrated water basin management adopted	MEWT R & D Unit		
	Lack of effectively managed buffer zones around protected areas and wildlife management areas	Effective management of buffer zones around protected areas and wildlife management areas	Implementation of the management plans	DWNP		
	Lack of comprehensive engagement with the local communities on the effective and sustainable policies/practices on species management	Engage with local communities on the effective policies/practices on species management	Number local communities engaged	CBNRM Coordinator		
	Limited number of communities benefitting from biodiversity resources	<p>Increase number of communities sustainably benefitting from biological resources</p> <p>Capacitate communities to ensure effective biodiversity management practices</p>	Number of communities benefitting from biological resources	MEWT CBNRM Coordinator DWNP DFRR DEA		

**3.8.15 Strategic Actions for Target 15: By 2025, ecosystem integrity in all Botswana’s ecoregions will be conserved through the adoption of ecosystem-level management approaches built around key ecological processes, so that they contribute to climate change mitigation and to combating desertification.**

	Strategic Actions	Lead institutions	Implementing Partners	Non-Govt Participants	Estimated Cost (BWP)	Indicators	Start	Completion
15-1	To map and quantify, by 2016, areas of degraded habitat for each ecoregion to establish baseline conditions for monitoring restoration.	DFRR	DWNP DAP NDMO	CBOs KCS BLB BALA	450, 000	Map of degraded habitats	2016	2016
15-2	To initiate and maintain, by 2017, monitoring of habitat condition in and peripheral to degraded areas, and systematically report to the CHM.	DFRR	DWNP DAP DoL	CBOs NGOs BALA	400, 000 (50, 000 / year)	No. of monitoring reports to the CHM  No. of updated maps of degraded habitats	2017	2025
15-3	To establish, by 2017, ecosystem restoration projects in degraded areas such that degraded areas are reduced to 80% of their baseline extent by 2025.	DFRR	DWNP DAP DEA DoL	VACCs CBOs BALA	5, 200, 000 (650, 000 / year)	No of restoration projects successfully implemented  % reduction of degraded areas	2017	2025
15-4	To ensure that, by2025, broad scale ecosystem management plans informed by ecological processes are in place for all protected areas incorporating their surrounding areas.	DWNP	DFRR DoL DoT	NGOs CBOs	4, 000, 000 (800, 000 / plan)	No. of plans developed  broad scale ecosystem landscape management plans adopted	2020	2025
15-5	To commission, by 2017, a study into past and present fire regimes in all the country’s ecoregions and to document deviation from natural regimes.	DFRR		Ris FCB NGOs	450, 000	fire regimes study	2017	2018
15-6	To finalise and implement, by 2016, the Elephant Management Plan and Predator Management Strategy	DWNP	DVS DoL	KCS BWMA HATAB	15, 020, 000 (20, 000 for plan finalisation; 1, 500, 000 / year for 10 years)	Elephant Management Plan and Predator Management Strategy finalised and adopted  No. of implemented activities	2016	2025

	Strategic Actions	Lead institutions	Implementing Partners	Non-Govt Participants	Estimated Cost (BWP)	Indicators	Start	Completion
15-7	To adopt and implement, by 2016, the National Climate Change Strategy and Action Plan	DMS	DEA NDMO DWNP DFRR DWMPC DWA EAD DCP BOBS	Farmers Associations CBOs NGOs VACCs BALA	15, 020, 000 (20, 000 for plan finalisation; 1, 500, 000 / year for 10 years)	Climate Change Strategy and Action Plan Adopted  No. of implemented activities	2016	2025

### 3.8.16 Strategic Actions for Target 16: By 2025, the Nagoya Protocol is domesticated and operational, and specific actions that ensure fair and equitable access and benefit sharing are implemented.

	Strategic Actions	Lead institutions	Implementing Partners	Non-Govt Participants	Estimated Cost (BWP)	Indicators	Start	Completion
16-1	By 2015, to develop the legislative framework for domestication and implementation of the Nagoya Protocol	DEA	DAR DCP AG's Chambers DFRR DWNP	Farmers' Associations CESRIKI Traditional Healer's Association	3, 000, 000	Legislative framework for implementation of the Nagoya Protocol developed	2016	2025
16-2	By 2016, develop the CHM for the ABS within the EIS	DEA	DIT DFRR DAR	KCS	750, 000.00	ABS-CHM functional and operational	2016	2018

Capacity Building Actions for Target 16							
Focal Institution	Capacity issues	Required solutions/ actions		Indicators	Responsibility	Resource implications	Time frame

Capacity Building Actions for Target 16						
Focal Institution	Capacity issues	Required solutions/ actions	Indicators	Responsibility	Resource implications	Time frame
<b>Regulators</b> - AGs chambers - DEA - DFRR - DAR - UB - CESRIKI	Limited number of trained experts to effectively domesticate the Nagoya Protocol on ABS.	Training more regulators on ABS.  Benchmark with other countries  Develop an ABS & Biodiversity Framework (Policy, Act, Regulations and Guidelines)	Number of trained experts  Number benchmarking exercises  ABS & Biodiversity Framework (Policy, Act, Regulations and Guidelines) adopted and enacted	MEWT DEA AGs chambers		
<b>Providers</b> - Resource Owners - CBOs - Traditional knowledge owners	Limited number of personnel/ community leaders to effectively negotiate MAT with the Resource Users.  There is generally lack of awareness of the existence of the Nagoya Protocol on ABS, the value of owning traditional knowledge and limited genetic resources.	Train negotiators within the community  Educate communities on the value holding traditional knowledge and genetic resources.  Infusion of CBD and environment programmes into curriculum	Number of negotiators within the community trained  Number of awareness raising activities to communities holding traditional knowledge and genetic resources.  CBD and environment programmes infused into curriculum	DEA EE&A DFRR MOESD-curriculum Tertiary Institutions		

### 3.8.17 Strategic Actions for Target 17: By 2015, Botswana's revised NBSAP has commenced implementation with the full support of all sectors and levels of governance.

	Strategic Actions	Lead institutions	Implementing Partners	Non-Govt Participants	Estimated Cost (BWP)	Indicators	Start	Completion
17-1	To inform and solicit, by 2016, implementing agencies' support in the implementation of the NBSAP	DEA	NBSAP lead implementers		150, 000	No. of participating implementing agencies  No. of projects implemented by agencies	2016	2025
17-2	To ensure that, by 2016, the National Strategy for Sustainable Development (NSSD) recognises and adopts the NBSAP as part of its implementation tools	DEA	NSSD Team		40, 000	NSSD incorporates NBSAP as an implementation tool	2016	2016

	Strategic Actions	Lead institutions	Implementing Partners	Non-Govt Participants	Estimated Cost (BWP)	Indicators	Start	Completion
17-3	From 2014, establish regular monitoring and reporting of all NBSAP activities.	DEA	NBSAP lead implementers		1, 500, 000	No. of projects on schedule  No. of completed projects  No. of planned and budgeted projects	2016	2025

**3.8.18 Strategic Actions for Target 18: By 2025, the indigenous knowledge of Botswana’s various communities, as it relates to the conservation and sustainable use of biodiversity in all the country’s ecoregions, will be documented, assessed and legally protected, and - where relevant - integrated into programmes and projects supporting biodiversity conservation.**

	Strategic Actions	Lead institutions	Implementing Partners	Non-Govt Participants	Estimated Cost (BWP)	Indicators	Start	Completion
18-1	To finalise, by 2016, and implement, the Indigenous Knowledge Systems Policy and Action Plan	DRST	ROCIP AG’s Chambers DFRR DWNP DNMM	CESRIKI CBOs	7, 000, 000 (700 000 / year)	Indigenous Knowledge Systems Policy and Action Plan adopted  No. of implemented activities	2016	2025
18-2	To establish, by 2019, and maintain a database of plants and their traditional uses by different groups as part of the CHM	DNMM	DEA DFRR DAR DRST	CESRIKI Relevant CBOs	1, 350, 000 (300, 000 for first year; 150, 000 / year following)	Database established and operational	2018	2025

Capacity Building Actions for Target 18						
Focal Institution	Capacity issues	Required solutions/ actions	Indicators	Responsibility	Resource implications	Time frame

Capacity Building Actions for Target 18						
Focal Institution	Capacity issues	Required solutions/ actions	Indicators	Responsibility	Resource implications	Time frame
DEA ROSIP DFRR CBOs	Lack of documented knowledge on IKS in Botswana, and on ownership of such knowledge	Funding research for Documenting and IKS in Botswana, and protecting it.	IKS documented	ROSIP DEA MEWT R &D		

### 3.8.19 Strategic Actions for Target 19: By 2025, information and techniques relating to the biodiversity and its value in all Botswana's ecoregions are efficiently documented, stored, shared, disseminated and used by all sectors and levels of society.

	Strategic Actions	Lead institutions	Implementing Partners	Non-Govt Participants	Estimated Cost (BWP)	Indicators	Start	Completion
19-1	To, by 2016, implement the communication strategy for the NBSAP	DEA	MEWT PRO	KCS BLB	1, 200, 000 (120, 000 / year)	No of action items implemented from the communication plan	2016	2025
19-2	To upgrade and maintain, by 2016, the Environmental Information System (EIS) to function as a Clearing House Mechanism (CHM) accessible to all sectors of society	DEA	Statistics Botswana		3,250,000	Functioning and operational EIS	2016	2025
19-3	To integrate, by 2018, biodiversity-related information into national welfare indicators and environmental statistics	DEA	Statistics Botswana DWNP		340, 000	Revised set of national welfare and environmental indicators	2016	2018
19-4	By 2017, to revise and revive, CBO MOMS activities to include biodiversity indicators relevant to the ecoregion(s) in the community's management area	DWNP	DEA DFRR CBNRM TACs	Relevant CBOs BLB KCS	3, 150, 000 (450, 000 / ecoregion)	CBO MOMS with biodiversity indicators	2017	2025
19-5	To develop, by 2018, a set of financial indicators relating to income from, and expenditure on, biodiversity-related activities.	DEA	Statistics Botswana DFRR DWNP DNMM	Relevant CBOs NGOs	250, 000	Set of financial indicators developed	2018	2018
19-6	By 2025, to have a focused unit on advanced Use of Biological Resources in BITRI	DRST	DEA DAR DFRR BITRI	RIs Science and Technology Innovation Hub	125, 000, 000	National Institute for the Research and Advanced Use of Biological Resources established	2016	2025



Capacity Building Actions for Target 19						
Focal Institution	Capacity issues	Required solutions/ actions	Indicators	Responsibility	Resource implications	Time frame
DEA DFRR DAR DWNP Research Institutions Individual researchers Tertiary institutions NGOs	Lack of education and awareness on clearing house mechanisms (EIS website)  Limited funding for research	Monitoring and update of established clearing house mechanism (EIS website)  Awareness creation on clearing house mechanisms  Create funding opportunities for researchers  Build partnerships with research institutions	Clearing house mechanisms monitored and adequately updated  Number of awareness raising activities  Number of research projects funded  Number of partnerships established and functioning	DEA MEWT R & D Unit		

### 3.8.20 Strategic Actions for Target 20: By 2017, at least 80% of the required budget for the revised NBSAP, generated from diverse sources, is made available for its implementation.

	Strategic Actions	Lead institutions	Implementing Partners	Non-Govt Participants	Estimated Cost (BWP)	Indicators	Start	Completion
20-1	To implement, from 2016, the NBSAP Resource Mobilisation Plan	DEA	Dept of Budgeting DMLA MEWT RDU		300, 000	Total amount received for NBSAP implementation  No of funded activities	2016	2025
20-2	To ensure that, by 2016, NBSAP activities are integrated into the national, district, and urban plans budgets.	NSO	DEA TWGs Development and Budget Division in MFDP		160, 000	National, district, and urban plans budgets integrate NBSAP activities	2016	2016
20-3	To ensure that, by 2016, the National Environment Fund (NEF) is fully functional and includes a specific allocation for biodiversity conservation activities	DEA	NEF Board		400, 000	Operational NEF	2016	2016
20-4	To commission, by 2020, a study on disaggregated biodiversity-related expenditure and revenue for the public sector, private sector, NGOs, CBOs, ICPs and research institutions	DEA	DWNP DFRR Macro-economic Planning Unit		1, 200, 000	Completed Study	2020	2022

	Strategic Actions	Lead institutions	Implementing Partners	Non-Govt Participants	Estimated Cost (BWP)	Indicators	Start	Completion
20-5	By 2020, to systematically collate and update datasets on the allocation of funds to biodiversity by all sectors, for inclusion in the CHM	DEA	Statistics Botswana DWNP DFRR Macro-economic Planning Unit		1, 080, 000 (180, 000 / year)	Updated biodiversity funding datasets	2020	2025

Capacity Building Actions for Target 20						
Focal Institution	Capacity issues	Required solutions/ actions	Indicators	Responsibility	Resource implications	Time frame
MEWT MFDP UNDP NEF Board	Inadequate financing of biodiversity related programmes	Increasing the national budget proportions allocated to biodiversity management	Percentage increase in allocation of the budget to biodiversity management	MFDP MEWT as TWG convener		
DEA	Lack of understanding on the importance of availing funds for biodiversity management	Raise awareness on trickle effects that will accrue to the economy if finance is availed to biodiversity management (development and dissemination of Biodiversity Business case)	Number of awareness raising activities on trickle effects that will accrue to the economy if finance is availed to biodiversity management	DEA		
DEA	Lack of bodies or platforms focused on resource mobilization	Empower (presentations, resource mobilization training) the TWG on Environment and Sustainability to take on the mandate of mobilizing resource ( ensuring that projects that are co-related are implemented together)	Number of training activities for the TWG on Environment and Sustainability	DEA MEWT Economic Planning		
MoESD, Tertiary Institutions	Lack of skills to undertake the valuation studies	- Training on undertaking valuations and accounting within the environment sector	Number of training activities on undertaking valuations and accounting	MEWT R & D Unit MEWT Training Units DEA MoESD		

# APPENDIX 1: COMPARISON OF CBD AND NATIONAL GOALS, AND OF NATIONAL AND AICHI TARGETS

## Biodiversity goals

	<b>Botswana Goals</b>	<b>CBD Goals</b>
1	<b>Biodiversity is mainstreamed and valued across all sectors of society</b>	<i>Address the underlying causes of biodiversity loss by mainstreaming biodiversity across government and society</i>
2	<b>The pressure on biodiversity is reduced and natural resources are used sustainably</b>	<i>Reduce the direct pressures on biodiversity and promote sustainable use</i>
3	<b>Ecosystems, species and genetic resources are protected through sound management</b>	<i>To improve the status of biodiversity by safeguarding ecosystems, species and genetic diversity</i>
4	<b>Fair and equitable access to the benefits of biodiversity is secured</b>	<i>Enhance the benefits to all from biodiversity and ecosystem services</i>
5	<b>Participatory planning, knowledge management and capacity-building are in place to support NBSAP implementation</b>	<i>Enhance implementation through participatory planning, knowledge management and capacity building</i>

## Goal 1 - Biodiversity is mainstreamed and valued across all sectors of society

	<b>Botswana Targets</b>	<b>Aichi Targets</b>
1	<b>By 2025, all people in Botswana appreciate how biodiversity contributes to their lives, and are aware of steps they can take to conserve and use it sustainably.</b>	<i>By 2020, at the latest, people are aware of the values of biodiversity and the steps they can take to conserve and use it sustainably.</i>
2	<b>By 2025, planning processes at all (district, urban and national) levels, and national accounting and reporting systems in Botswana contain explicit actions to promote biodiversity conservation.</b>	<i>By 2020, at the latest, biodiversity values have been integrated into national and local development and poverty reduction strategies and planning processes and are being incorporated into national accounting, as appropriate, and reporting systems.</i>
3	<b>By 2025, incentives and subsidies across all sectors are revised, designed or introduced to improve support for sustainable consumption and production and promote biodiversity conservation.</b>	<i>By 2020, at the latest, incentives, including subsidies, harmful to biodiversity are eliminated, phased out or reformed in order to minimize or avoid negative impacts, and positive incentives for the conservation and sustainable use of biodiversity are developed and applied, consistent and in harmony with the Convention and other relevant international obligations, taking into account national socio economic conditions.</i>
4	<b>By 2025, at all levels, policy and regulatory instruments are in place to ensure production and consumption by government, industry and society are kept within sustainable levels and safe ecological limits.</b>	<i>By 2020, at the latest, Governments, business and stakeholders at all levels have taken steps to achieve or have implemented plans for sustainable production and consumption and have kept the impacts of use of natural resources well within safe ecological limits.</i>

**Goal 2 - The pressure on biodiversity is reduced and natural resources are used sustainably**

	<b>Botswana Targets</b>	<b>Aichi Targets</b>
5	<b>By 2025, the rate of natural land conversion is at least halved, and degradation and fragmentation are significantly reduced.</b>	<i>By 2020, the rate of loss of all natural habitats, including forests, is at least halved and where feasible brought close to zero, and degradation and fragmentation is significantly reduced.</i>
6	<b>By 2025, animal and plant resources in Botswana's wetlands, woodlands and savannas are sustainably managed using the ecosystem approach, so that the impacts of harvesting remain within safe ecological limits.</b>	<i>By 2020 all fish and invertebrate stocks and aquatic plants are managed and harvested sustainably, legally and applying ecosystem based approaches, so that overfishing is avoided, recovery plans and measures are in place for all depleted species, fisheries have no significant adverse impacts on threatened species and vulnerable ecosystems and the impacts of fisheries on stocks, species and ecosystems are within safe ecological limits.</i>
7	<b>By 2025, wetlands, woodlands and savannas, particularly where used for use for range or crops, are managed sustainably, ensuring conservation of biodiversity.</b>	<i>By 2020 areas under agriculture, aquaculture and forestry are managed sustainably, ensuring conservation of biodiversity.</i>
8	<b>By 2025, levels of air, water and soil pollution are maintained below levels that would threaten ecosystem functioning and biodiversity.</b>	<i>By 2020, pollution, including from excess nutrients, has been brought to levels that are not detrimental to ecosystem function and biodiversity.</i>
9	<b>By 2025, key invasive alien species are identified and controlled or eradicated, and pathways for their spread are managed to prevent further introduction and establishment.</b>	<i>By 2020, invasive alien species and pathways are identified and prioritized, priority species are controlled or eradicated, and measures are in place to manage pathways to prevent their introduction and establishment.</i>
10	<b>By 2025, the anthropogenic pressures on wetlands, woodlands and savannas are minimised, so that the impacts of climate change and other external perturbations on their ecological integrity and functioning can be managed.</b>	<i>By 2015, the multiple anthropogenic pressures on coral reefs, and other vulnerable ecosystems impacted by climate change or ocean acidification are minimized, so as to maintain their integrity and functioning.</i>

**Goal 3 - Ecosystems, species and genetic resources are protected through sound management**

	<b>Botswana Targets</b>	<b>Aichi Targets</b>
11	<b>By 2025, at least 25 percent of all Botswana's ecoregions, particularly the wetlands, rivers and pans in them, are effectively conserved through an ecosystem approach that integrates their management with that of the surrounding landscapes and involves resident communities.</b>	<i>By 2020, at least 17 per cent of terrestrial and inland water, and 10 per cent of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem services, are conserved through effectively and equitably managed, ecologically representative and well-connected systems of protected areas and other effective area-based conservation measures, and integrated into the wider landscapes and seascapes.</i>
12	<b>By 2025, the conservation status of species in Botswana that are listed as threatened has been improved or sustained.</b>	<i>By 2020 the extinction of known threatened species has been prevented and their conservation status, particularly of those most in decline, has been improved and sustained</i>

	<b>Botswana Targets</b>	<b>Aichi Targets</b>
13	<b>By 2025, the genetic resources of traditional agricultural species and their wild relatives are protected, and strategies for minimizing genetic erosion and safeguarding their genetic diversity have been implemented.</b>	<i>By 2020, the genetic diversity of cultivated plants and farmed and domesticated animals and of wild relatives, including other socio-economically as well as culturally valuable species, is maintained, and strategies have been developed and implemented for minimizing genetic erosion and safeguarding their genetic diversity</i>

**Goal 4 - Fair and equitable access to the benefits of biodiversity is secured**

	<b>Botswana Targets</b>	<b>Aichi Targets</b>
14	<b>By 2025, ecosystem services are identified and restored or maintained in all Botswana's ecoregions, and contribute to livelihood improvement through strategies that enable equitable access by all vulnerable groups, including women, the poor and local communities.</b>	<i>By 2020, ecosystems that provide essential services, including services related to water, and contribute to health, livelihoods and well-being, are restored and safeguarded, taking into account the needs of women, indigenous and local communities, and the poor and vulnerable.</i>
15	<b>By 2025, ecosystem integrity in all Botswana's ecoregions will be conserved through the adoption of ecosystem-level management approaches built around key ecological processes, so that they contribute to climate change mitigation and to combating desertification.</b>	<i>By 2020, ecosystem resilience and the contribution of biodiversity to carbon stocks has been enhanced, through conservation and restoration, including restoration of at least 15 per cent of degraded ecosystems, thereby contributing to climate change mitigation and adaptation and to combating desertification.</i>
16	<b>By 2025, the Nagoya Protocol is domesticated and operational, and specific actions that ensure fair and equitable access and benefit sharing are implemented.</b>	<i>By 2015, the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization is in force and operational, consistent with national legislation.</i>

**Goal 5 - Participatory planning, knowledge management and capacity-building are in place to support NBSAP implementation**

	<b>Botswana Targets</b>	<b>Aichi Targets</b>
17	<b>By 2015, Botswana's revised NBSAP has commenced implementation with the full support of all sectors and levels of governance.</b>	<i>By 2015 each Party has developed, adopted as a policy instrument, and has commenced implementing an effective, participatory and updated national biodiversity strategy and action plan.</i>
18	<b>By 2025, the indigenous knowledge of Botswana's various communities, as it relates to the conservation and sustainable use of biodiversity in all the country's ecoregions, will be documented, assessed and legally protected, and - where relevant - integrated into programmes and projects supporting biodiversity conservation.</b>	<i>By 2020, the traditional knowledge, innovations and practices of indigenous and local communities relevant for the conservation and sustainable use of biodiversity, and their customary use of biological resources, are respected, subject to national legislation and relevant international obligations, and fully integrated and reflected in the implementation of the Convention with the full and effective participation of indigenous and local communities, at all relevant levels.</i>
19	<b>By 2025, information and techniques relating to the biodiversity and its value in all Botswana's ecoregions are efficiently documented, stored, shared, disseminated and used by all sectors and levels of society.</b>	<i>By 2020, knowledge, the science base and technologies relating to biodiversity, its values, functioning, status and trends, and the consequences of its loss, are improved, widely shared and transferred, and applied.</i>
20	<b>By 2017, at least 80% of the required budget for the revised NBSAP, generated from diverse sources, is made available for its implementation.</b>	<i>By 2020, at the latest, the mobilization of financial resources for effectively implementing the Strategic Plan for Biodiversity 2011-2020 from all sources, and in accordance with the consolidated and agreed process in the Strategy for Resource Mobilization should increase substantially from the current levels. This target</i>

---

		<i>will be subject to changes contingent to resource needs assessments to be developed and reported by Parties.</i>
--	--	---

---

## APPENDIX 2: PRINCIPLES OF THE ECOSYSTEM APPROACH

---

The following 12 principles are taken directly from the CBD's website ([www.cbd.int](http://www.cbd.int)). Since the ecosystem approach is integral to the convention, and underpins the successful attainment of the national targets, it is important that it is broadly understood. These principles are complementary and interlinked.

**Principle 1: The objectives of management of land, water and living resources are a matter of societal choices**

Different sectors of society view ecosystems in terms of their own economic, cultural and society needs. Indigenous peoples and other local communities living on the land are important stakeholders and their rights and interests should be recognized. Both cultural and biological diversity are central components of the ecosystem approach, and management should take this into account. Societal choices should be expressed as clearly as possible. Ecosystems should be managed for their intrinsic values and for the tangible or intangible benefits for humans, in a fair and equitable way.

**Principle 2: Management should be decentralized to the lowest appropriate level**

Decentralized systems may lead to greater efficiency, effectiveness and equity. Management should involve all stakeholders and balance local interests with the wider public interest. The closer management is to the ecosystem, the greater the responsibility, ownership, accountability, participation, and use of local knowledge.

**Principle 3: Ecosystem managers should consider the effects (actual or potential) of their activities on adjacent and other ecosystems**

Management interventions in ecosystems often have unknown or unpredictable effects on other ecosystems; therefore, possible impacts need careful consideration and analysis. This may require new arrangements or ways of organization for institutions involved in decision-making to make, if necessary, appropriate compromises.

**Principle 4: Recognizing potential gains from management, there is usually a need to understand and manage the ecosystem in an economic context.**

Any such ecosystem-management programme should:

- a) Reduce those market distortions that adversely affect biological diversity;
- b) Align incentives to promote biodiversity conservation and sustainable use;
- c) Internalize costs and benefits in the given ecosystem to the extent feasible.

The greatest threat to biological diversity lies in its replacement by alternative systems of land use. This often arises through market distortions, which undervalue natural systems and populations and provide perverse incentives and subsidies to favour the conversion of land to less diverse systems.

Often those who benefit from conservation do not pay the costs associated with conservation and, similarly, those who generate environmental costs (e.g. pollution) escape responsibility. Alignment of incentives allows those who control the resource to benefit and ensures that those who generate environmental costs will pay.

**Principle 5: Conservation of ecosystem structure and functioning, in order to maintain ecosystem services, should be a priority target of the ecosystem approach**

Ecosystem functioning and resilience depends on a dynamic relationship within species, among species and between species and their abiotic environment, as well as the physical and chemical interactions within the environment. The conservation and, where appropriate, restoration of these interactions and processes is of greater significance for the long-term maintenance of biological diversity than simply protection of species.

---

**Principle 6: Ecosystems must be managed within the limits of their functioning**

In considering the likelihood or ease of attaining the management objectives, attention should be given to the environmental conditions that limit natural productivity, ecosystem structure, functioning and diversity. The limits to ecosystem functioning may be affected to different degrees by temporary, unpredictable or artificially maintained conditions and, accordingly, management should be appropriately cautious.

**Principle 7: The ecosystem approach should be undertaken at appropriate spatial and temporal scales**

The approach should be bounded by spatial and temporal scales that are appropriate to the objectives. Boundaries for management will be defined operationally by users, managers, scientists and indigenous and local peoples. Connectivity between areas should be promoted where necessary. The ecosystem approach is based upon the hierarchical nature of biological diversity characterized by the interaction and integration of genes, species and ecosystems.

**Principle 8: Recognizing the varying temporal scales and lag-effects that characterize ecosystem processes, objectives for ecosystem management should be set for the long term**

Ecosystem processes are characterized by varying temporal scales and lag-effects. This inherently conflicts with the tendency of humans to favour short-term gains and immediate benefits over future ones.

**Principle 9: Management must recognize the change is inevitable**

Ecosystems change, including species composition and population abundance. Hence, management should adapt to the changes. Apart from their inherent dynamics of change, ecosystems are beset by a complex of uncertainties and potential "surprises" in the human, biological and environmental realms. Traditional disturbance regimes may be important for ecosystem structure and functioning, and may need to be maintained or restored. The ecosystem approach must utilize adaptive management in order to anticipate and cater for such changes and events and should be cautious in making any decision that may foreclose options, but, at the same time, consider mitigating actions to cope with long-term changes such as climate change.

**Principle 10: The ecosystem approach should seek the appropriate balance between, and integration of, conservation and use of biological diversity**

Biological diversity is critical both for its intrinsic value and because of the key role it plays in providing the ecosystem and other services upon which we all ultimately depend. There has been a tendency in the past to manage components of biological diversity either as protected or non-protected. There is a need for a shift to more flexible situations, where conservation and use are seen in context and the full range of measures is applied in a continuum from strictly protected to human-made ecosystems

**Principle 11: The ecosystem approach should consider all forms of relevant information, including scientific and indigenous and local knowledge, innovations and practices**

Information from all sources is critical to arriving at effective ecosystem management strategies. A much better knowledge of ecosystem functions and the impact of human use is desirable. All relevant information from any concerned area should be shared with all stakeholders and actors, taking into account, inter alia, any decision to be taken under Article 8(j) of the Convention on Biological Diversity. Assumptions behind proposed management decisions should be made explicit and checked against available knowledge and views of stakeholders.

**Principle 12: The ecosystem approach should involve all relevant sectors of society and scientific disciplines**

---

Most problems of biological-diversity management are complex, with many interactions, side-effects and implications, and therefore should involve the necessary expertise and stakeholders at the local, national, regional and international level, as appropriate.

## APPENDIX 3: NBSAP TARGETS AND STRATEGIC ACTIONS RELEVANT TO OTHER MEAS

This appendix highlights where the NBSAP targets and strategic actions overlap with other MEAs of interest and relevance to Botswana, so that approaches to biodiversity conservation and environmental protection generally can be developed.

### **Cartagena Protocol**

**Objective:** To contribute to ensuring an adequate level of protection in the field of the safe transfer, handling and use of living modified organisms resulting from modern biotechnology that may have adverse effects on the conservation and sustainable use of biological diversity

**Opportunities for coordination:**

No.	NBSAP Targets Offering Synergistic Potential	NBSAP Strategic Actions that Speak to MEA
13	By 2025, the genetic resources of traditional agricultural species and their wild relatives are protected, and strategies for minimizing genetic erosion and safeguarding their genetic diversity have been implemented	<p><u>13-1:</u> To ratify and domesticate, by 2016, the International Treaty on Plant Genetic Resources for Food and Agriculture</p> <p><u>13-2:</u> To finalise and implement, by 2016, domestication instruments for the Cartagena Protocol</p> <p><u>13-3:</u> To ratify and domesticate, by 2016, the Kuala Lumpur Supplementary Protocol on Liability and Redress to the Cartagena Protocol on Biosafety</p> <p><u>13-4:</u> Establish, by 2023, Community Indigenous and Medicinal Tree Centres/Parks in each ecoregion</p>

### **The Nagoya Protocol**

**Objective:** The fair and equitable sharing of the benefits arising from the utilization of genetic resources, including by appropriate access to genetic resources and by appropriate transfer of relevant technologies, taking into account all rights over those resources and to technologies, and by appropriate funding, thereby contributing to the conservation of biological diversity and the sustainable use of its components.

**Opportunities for coordination:**

No.	NBSAP Targets Offering Synergistic Potential	NBSAP Strategic Actions that Speak to MEA
14	By 2025, ecosystem services are identified and restored or maintained in all Botswana's ecoregions, and contribute to livelihood improvement through strategies that enable equitable access by all vulnerable groups, including women, the poor and local communities.	<p><u>14-1:</u> To establish, by 2016, the list of the main plant and animal resources in each ecoregion used by rural households and for which offtake should be managed, and commercial offtake regulated</p> <p><u>14-2:</u> To identify, set, and enforce, by 2019, offtake limits at the CHA level for each identified resource</p> <p><u>14-3:</u> To commission a study, by 2019, to identify for each ecoregion the ecosystem services important to rural households</p> <p><u>14-4:</u> To develop, by 2018, activities under the Local Economic Development Strategy that harmonise biodiversity conservation and poverty eradication in key ecoregions</p>

No.	NBSAP Targets Offering Synergistic Potential	NBSAP Strategic Actions that Speak to MEA
16	By 2025, the Nagoya Protocol is domesticated and operational, and specific actions that ensure fair and equitable access and benefit sharing are implemented.	<u>16-1</u> : By 2015, to develop the legislative framework for domestication and implementation of the Nagoya Protocol
18	By 2025, the indigenous knowledge of Botswana's various communities, as it relates to the conservation and sustainable use of biodiversity in all the country's ecoregions, will be documented, assessed and legally protected, and - where relevant - integrated into programmes and projects supporting biodiversity conservation.	<u>18-1</u> : To finalise, by 2014, and implement, the Indigenous Knowledge Systems Policy and Action Plan <u>18-2</u> : To establish, by 2019, and maintain a database of plants and their traditional uses by different groups as part of the CHM
19	By 2025, information and techniques relating to the biodiversity and its value in all Botswana's ecoregions are efficiently documented, stored, shared, disseminated and used by all sectors and levels of society.	<u>19-2</u> : To upgrade and maintain, by 2015, the Environmental Information System (EIS) to function as a Clearing House Mechanism (CHM) accessible to all sectors of society

### **Kuala Lumpur Supplementary Protocol**

**Objective:** to the conservation and sustainable use of biological diversity, taking also into account risks to human health, by providing international rules and procedures in the field of liability and redress relating to living modified organisms

**Opportunities for coordination:**

No.	NBSAP Targets Offering Synergistic Potential	NBSAP Strategic Actions that Speak to MEA
16	By 2025, the Nagoya Protocol is domesticated and operational, and specific actions that ensure fair and equitable access and benefit sharing are implemented	<u>16-1</u> : By 2015, to develop the legislative framework for domestication and implementation of the Nagoya Protocol

### **Global Taxonomy Initiative**

**Objective:** a) To contribute to the implementation of the Convention's Strategic Plan; b) To set operational objectives with clear expected outputs and ways and means through which to achieve the set objectives; c) To provide the rationale for the choice of the operational targets, with indications of opportunities for further elaboration of the programme of work; and d) To serve as a guide to all biodiversity stakeholders on specific objectives to which they can contribute individually or collectively, at the local, national or international level.

**Opportunities for coordination:**

No.	NBSAP Targets Offering Synergistic Potential	NBSAP Strategic Actions that Speak to MEA
6	By 2025, animal and plant resources in Botswana's wetlands, woodlands and savannas are sustainably managed using the ecosystem approach, so that the impacts of harvesting remain within safe ecological limits.	<u>6-1</u> : To establish, by 2015, and develop monitoring mechanisms for, by 2018, the list of key plant, insect, fish and animal resources in each ecoregion for which offtake limits should be set, and add these as guidelines to the relevant legal acts
11	By 2025, at least 25 percent of all Botswana's ecoregions, particularly the wetlands, rivers and pans in them, are effectively conserved through an ecosystem approach that integrates their management with that of the surrounding landscapes and involves resident communities.	<u>11-2</u> : To finalise, by 2016, the national-level and ecoregion biodiversity indicator lists, and initiate their systematic monitoring and reporting to the CHM <u>11-9</u> : To complete, by 2025, the Global Taxonomic Initiative's Inventory

No.	NBSAP Targets Offering Synergistic Potential	NBSAP Strategic Actions that Speak to MEA
12	By 2025, the conservation status of species in Botswana that are listed as threatened has been improved or sustained	<u>12-2</u> : To prepare, by 2018, ecoregion-based threatened species lists and maps of their habitats, and initiate their systematic monitoring and reporting to the CHM

### **Ramsar Convention**

**Objective:** To protect wetlands as important ecosystems for the maintenance of biodiversity.

**Opportunities for coordination:**

No.	NBSAP Targets Offering Synergistic Potential	NBSAP Strategic Actions that Speak to MEA
5	By 2025, the rate of natural land conversion is at least halved, and degradation and fragmentation are significantly reduced.	<u>5-1</u> : To conduct, by 2018, a study of current rates of natural land conversion in each ecoregion <u>5-4</u> : To commission, by 2016, ecological and policy studies into the interacting causes and potential consequences of a) loss of trees and b) habitat fragmentation in the northern ecoregions, and implement the study recommendations. <u>5-5</u> : By 2020, to identify, map and quantify the critical linkages between the Okavango Delta and wet season habitats in adjacent ecosystems, and to bring these linkages into land use planning and so halt, and where possible, reverse the isolation of the Panhandle region <u>5-8</u> : To rehabilitate, by 2024, the Ntshe, Tati, and Mahalapye rivers
6	By 2025, animal and plant resources in Botswana's wetlands, woodlands and savannas are sustainably managed using the ecosystem approach, so that the impacts of harvesting remain within safe ecological limits.	<u>6-4</u> : To commission, by 2016, a study of key ecosystem processes (including breeding areas) under wet and dry scenarios for Botswana's more vulnerable ecoregions..
8	By 2025, levels of air, water and soil pollution are maintained below levels that would threaten ecosystem functioning and biodiversity.	<u>8-2</u> : By 2015, to maintain, and institute where necessary, water quality monitoring and systematic reporting to the CHM for the those parts of the Okavango, Zambezi, Gariep and Limpopo river catchments within Botswana <u>8-4</u> : To prepare, by 2019, and enforce guidelines stipulating discharge and emission levels of key pollutants are prepared and enforced for both the Atmospheric Pollution (Prevention) Act and the Waste Management Act <u>8-5</u> : To undertake, by 2017, a study on the impact of pollution on biodiversity hotspots and animal population dynamics
9	By 2025, key invasive alien species are identified and controlled or eradicated, and pathways for their spread are managed to prevent further introduction and establishment.	<u>9-1</u> : By 2015, to identify, map, and quantify the baseline distribution of, the alien invasive species of greatest threat to Botswana's biodiversity for each ecoregion, and to institute and maintain monitoring and systematic reporting to the CHM on key alien invasive species <u>9-2</u> : To initiate and implement, from 2017, control and eradication programmes for key alien invasive species for each ecoregion
10	By 2025, the anthropogenic pressures on wetlands, woodlands and savannas are minimised, so that the impacts of climate change and other external perturbations on their ecological integrity and functioning can be managed.	<u>10-1</u> : To legislate, by 2020, formal protection for all IBAs and for 25% of wetlands in each of the ecoregions found in Botswana <u>10-2</u> : To ensure that, by 2018, all protected areas (parks, game reserves, WMAs) and forest reserves in all ecoregions are actively managed using the ecosystem approach

No.	NBSAP Targets Offering Synergistic Potential	NBSAP Strategic Actions that Speak to MEA
11	By 2025, at least 25 percent of all Botswana's ecoregions, particularly the wetlands, rivers and pans in them, are effectively conserved through an ecosystem approach that integrates their management with that of the surrounding landscapes and involves resident communities.	<p><u>11-4</u>: To revise, adopt and implement, by 2016, Botswana's Wetlands Policy</p> <p><u>11-5</u>: To finalise and adopt, by 2015, the Cubango-Okavango River Basin (CORB) SEA</p> <p><u>11-6</u>: To establish, by 2016, notification procedures for contraventions of the CORB SEA thresholds</p> <p><u>11-7</u>: To formally adopt, by 2015, and initiate implementation of the ODRS Strategic Environmental Management Plan</p>
12	By 2025, the conservation status of species in Botswana that are listed as threatened has been improved or sustained	<u>12-3</u> : To legislate formal protection, by 2025, for areas critical to biodiversity and key ecosystem functioning (e.g. breeding areas, dry season grazing, IBAs, wetlands, habitats for threatened species)
15	By 2025, ecosystem integrity in all Botswana's ecoregions will be protected through the adoption of ecosystem-level management approaches built around key ecological processes, so that they contribute to climate change mitigation and to combating desertification.	<p><u>15-1</u>: To map and quantify, by 2016, areas of degraded habitat for each ecoregion to establish baseline conditions for monitoring restoration.</p> <p><u>15-2</u>: To initiate and maintain, by 2017, monitoring of habitat condition in and peripheral to degraded areas, and systematically report to the CHM</p> <p><u>15-3</u>: To establish, by 2017, ecosystem restoration projects in degraded areas such that degraded areas are reduced to 80% of their baseline extent by 2025.</p> <p><u>15-4</u>: To ensure that, by 2025, broad scale ecosystem management plans informed by ecological processes are in place for all protected areas incorporating their surrounding areas</p> <p><u>15-6</u>: To finalise and implement, by 2015, the Elephant Management Plan and Predator Management Strategy</p> <p><u>15-7</u>: To adopt and implement, by 2015, the national Climate Change Strategy and Action Plan</p>

## CITES

Objective: To ensure that international trade in threatened animals and plant species does not threaten their survival

Opportunities for coordination:

No.	NBSAP Targets Offering Synergistic Potential	NBSAP Strategic Actions that Speak to MEA
6	By 2025, animal and plant resources in Botswana's wetlands, woodlands and savannas are sustainably managed using the ecosystem approach, so that the impacts of harvesting remain within safe ecological limits.	<u>6-1</u> : To establish, by 2015, and develop monitoring mechanisms for, by 2018, the list of key plant, insect, fish and animal resources in each ecoregion for which offtake limits should be set, and add these as guidelines to the relevant legal acts
12	By 2025, the conservation status of species in Botswana that are listed as threatened has been improved or sustained.	<p><u>12-1</u>: To review, finalise and implement, by 2016, the Botswana Threatened Species Management Strategy</p> <p><u>12-2</u>: To prepare, by 2018, ecoregion-based threatened species lists and maps of their habitats, and initiate their systematic monitoring and reporting to the CHM</p> <p><u>12-3</u>: To legislate formal protection, by 2025, for areas critical to biodiversity and key ecosystem functioning (e.g. breeding areas, dry season grazing, IBAs, wetlands, habitats for threatened species)</p>
19	By 2025, information and techniques relating to the biodiversity and its value in all Botswana's ecoregions are efficiently documented, stored, shared, disseminated and used by all sectors and levels of society.	<u>19-4</u> : By 2017, to revise and revive, CBO MOMS activities to include biodiversity indicators relevant to the ecoregion(s) in the community's management area.

## **UNFCCC**

**Objective:** The stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system.

**Opportunities for coordination:**

<b>No.</b>	<b>NBSAP Targets Offering Synergistic Potential</b>	<b>NBSAP Strategic Actions that Speak to MEA</b>
8	By 2025, levels of air, water and soil pollution are maintained below levels that would threaten ecosystem functioning and biodiversity.	<u>8-1:</u> To conduct, by 2017, a SEA of all the energy-related industries (coal, gas, uranium and thermal electrical power production) and their individual and cumulative impacts on biodiversity
10	By 2025, the anthropogenic pressures on wetlands, woodlands and savannas are minimised, so that the impacts of climate change and other external perturbations on their ecological integrity and functioning can be managed.	<u>10-4:</u> To initiate and maintain, from 2018, the monitoring of vegetative biomass (as a measure of carbon sequestration) at the ecoregion level, and systematically report to the CHM <u>10-5:</u> Starting in 2018, and based on ecosystem approaches, to streamline and maintain monitoring of veld fires (as a measure of carbon emission) at the ecoregion level, including systematic reporting to the CHM
15	By 2025, ecosystem integrity in all Botswana's ecoregions will be protected through the adoption of ecosystem-level management approaches built around key ecological processes, so that they contribute to climate change mitigation and to combating desertification.	<u>15-5:</u> To commission, by 2017, a study into past and present fire regimes in all the country's ecoregions to document deviation from natural regimes. <u>15-7:</u> To adopt and implement, by 2015, the national Climate Change Strategy and Action Plan

## **UNCCD**

**Objective:** To combat desertification and strive to mitigate the effects of drought in countries undergoing serious drought and/or desertification, particularly in Africa

**Opportunities for coordination:**

<b>No.</b>	<b>NBSAP Targets Offering Synergistic Potential</b>	<b>NBSAP Strategic Actions that Speak to MEA</b>
12	By 2025, the conservation status of species in Botswana that are listed as threatened has been improved or sustained.	<u>12-2:</u> To prepare, by 2018, ecoregion-based threatened species lists and maps of their habitats, and initiate their systematic monitoring and reporting to the CHM
15	By 2025, ecosystem integrity in all Botswana's ecoregions will be protected through the adoption of ecosystem-level management approaches built around key ecological processes, so that they contribute to climate change mitigation and to combating desertification.	<u>15-1:</u> To map and quantify, by 2016, areas of degraded habitat for each ecoregion to establish baseline conditions for monitoring restoration. <u>15-2:</u> To initiate and maintain, by 2017, monitoring of habitat condition in and peripheral to degraded areas, and systematically report to the CHM <u>15-3:</u> To establish, by 2017, ecosystem restoration projects in degraded areas such that degraded areas are reduced to 80% of their baseline extent by 2025.

## **World Heritage Convention**

**Objective:** To identify, protect, and conserve for future generations areas of natural and cultural heritage

**Opportunities for coordination:**

No.	NBSAP Targets Offering Synergistic Potential	NBSAP Strategic Actions that Speak to MEA
1	By 2025, all people in Botswana appreciate how biodiversity contributes to their lives, and are aware of steps they can take to conserve it.	<u>1-1</u> : Starting in 2015, to ensure that existing environmental education and awareness campaigns under the NEESAP include biodiversity components.
6	By 2025, animal and plant resources in Botswana's wetlands, woodlands and savannas are sustainably managed using the ecosystem approach, so that the impacts of harvesting remain within safe ecological limits.	<u>6-2</u> : To commission, by 2016, a study of key ecosystem processes (including breeding areas) under wet and dry scenarios for Botswana's more vulnerable ecoregions.
7	By 2025, woodlands and savannas, particularly where used for use for range or crops, are managed sustainably, ensuring conservation of biodiversity.	<u>7-2</u> : To conduct, by 2015, an inventory of all wooded areas on state and communal land, including riparian woodlands, that warrant improved protection and management, and establish forestry management practices that support the regeneration of tree populations and maintain ecosystems processes. <u>7-5</u> : To establish by 2020, broad scale ecosystem approaches to conservation that bring together different categories of land use under joint management to accommodate wildlife migrations.
10	By 2025, the anthropogenic pressures on wetlands, woodlands and savannas are minimised, so that the impacts of climate change and other external perturbations on their ecological integrity and functioning can be managed.	<u>10-1</u> : To legislate, by 2020, formal protection for all IBAs and for 25% of wetlands in each of the ecoregions found in Botswana <u>10-2</u> : To ensure that, by 2018, all protected areas (parks, game reserves, WMAs) and forest reserves in all ecoregions are actively managed using the ecosystem approach
11	By 2025, at least 25 percent of all Botswana's ecoregions, particularly the wetlands, rivers and pans in them, are effectively conserved through an ecosystem approach that integrates their management with that of the surrounding landscapes and involves resident communities.	<u>11-4</u> : To revise, adopt and implement, by 2016, Botswana's Wetlands Policy <u>11-5</u> : To finalise and adopt, by 2015, the Cubango-Okavango River Basin (CORB) SEA <u>11-6</u> : To establish, by 2016, notification procedures for contraventions of the CORB SEA thresholds <u>11-7</u> : To formally adopt, by 2014, and initiate implementation of the ODRS Strategic Environmental Management Plan
12	By 2025, the conservation status of species in Botswana that are listed as threatened has been improved or sustained.	<u>12-3</u> : To legislate formal protection, by 2025, for areas critical to biodiversity and key ecosystem functioning (e.g. breeding areas, dry season grazing, IBAs, wetlands, habitats for threatened species)

### **Gaborone Declaration**

**Objective**: To reaffirm the commitment to sustainable development, and to the signed conventions that protect the environment

**Opportunities for coordination**:

No.	NBSAP Targets Offering Synergistic Potential	NBSAP Strategic Actions that Speak to MEA
1	By 2025, all people in Botswana appreciate how biodiversity contributes to their lives, and are aware of steps they can take to conserve it.	<u>1-1</u> : Starting in 2015, to ensure that existing environmental education and awareness campaigns under the NEESAP include biodiversity components. <u>1-2</u> : To ensure that by 2020, biodiversity is included as a core topic in environmental studies in primary and secondary school curricula and that at tertiary level, biodiversity is a core subject for those doing environmental studies
2	By 2025, planning processes at all (district, urban and national) levels, and national accounting and reporting systems in Botswana contain explicit actions to promote biodiversity conservation.	<u>2-5</u> : To ensure that by 2015, the Environmental Assessment Act Guidelines specify that all SEAs must use an ecosystem approach, and that EIAs and SEAs in sensitive areas include a biodiversity assessment. <u>2-9</u> : To ensure that by 2017, all government and parastatal sectors specifically address biodiversity conservation in their components of district, urban and national development plans

No.	NBSAP Targets Offering Synergistic Potential	NBSAP Strategic Actions that Speak to MEA
3	By 2025, incentives and subsidies across all sectors are revised, designed or introduced to improve support for sustainable consumption and production and promote biodiversity conservation.	<p><u>3-1</u>: To conduct, by 2017, a SEA of taxes and subsidies used to promote development in key sectors such as agriculture and trade</p> <p><u>3-2</u>: To establish, by 2020, a system of incentives for sustainable natural resources use and biodiversity conservation</p> <p><u>3-3</u>: To revise, by 2018, all existing subsidies to ensure they support biodiversity conservation and sustainable development, and where appropriate, introduce new ones</p>
4	By 2025, at all levels, policy and regulatory instruments are in place to ensure production and consumption by government, industry and society are kept within sustainable levels and safe ecological limits.	<p><u>4-1</u>: To ensure that by 2017, the Environmental Management Act is legislated and operational.</p> <p><u>4-2</u>: By 2019, and subsequent to adopting the Environmental Management Act, to develop and implement supporting regulations to ensure enforcement of its principles.</p> <p><u>4-4</u>: By 2017, to undertake, and implement recommendations of, a study on sustainable consumption patterns of consumers (e.g., reducing, re-using and recycling behaviours) in order to minimise impacts on biodiversity.</p> <p><u>4-5</u>: By 2020, building regulations are amended to ensure that residential properties and industries have water harvesting tanks.</p>
17	By 2015, Botswana's revised NBSAP has commenced implementation with the full support of all sectors and levels of governance	<u>17-2</u> : To ensure that, by 2016, the National Strategy for Sustainable Development (NSSD) recognises and adopts the NBSAP as part of its implementation tools
19	By 2025, information and techniques relating to the biodiversity and its value in all Botswana's ecoregions are efficiently documented, stored, shared, disseminated and used by all sectors and levels of society.	<u>19-2</u> : To upgrade and maintain, by 2015, the Environmental Information System (EIS) to function as a Clearing House Mechanism (CHM) accessible to all sectors of society

## **Convention on the Conservation of Migratory Species of Wild Animals**

***Not yet ratified.***

**Objective:** a) To promote, co-operate in and support research relating to migratory species; b) To endeavour to provide immediate protection for migratory species included in Appendix I; and c) To endeavour to conclude agreements covering the conservation and management of migratory species included in Appendix II.

**Opportunities for coordination:**

No.	NBSAP Targets Offering Synergistic Potential	NBSAP Strategic Actions that Speak to MEA
5	By 2025, the rate of natural land conversion is at least halved, and degradation and fragmentation are significantly reduced	<p><u>5-1:</u> To conduct, by 2018, a study of current rates of natural land conversion in each ecoregion</p> <p><u>5-2:</u> To conduct, by 2017, a strategic environmental assessments (SEAs) of a) all the veterinary and game fences, b) the national road networks, and c) the national powerline grid in terms of their impact on wildlife (including birds), and to adopt the assessment recommendations</p> <p><u>5-3:</u> To implement, by 2018, Sustainable Land Management (SLM) practices on all tribal grazing land</p> <p><u>5-4:</u> To commission, by 2016, ecological and policy studies into the interacting causes and potential consequences of a) loss of trees and b) habitat fragmentation in the northern ecoregions</p> <p><u>5-5:</u> By 2020, to identify, map and quantify the critical linkages between the Okavango Delta and wet season habitats in adjacent ecosystems, and to bring these linkages into land-use planning and so halt, and where possible, reverse the isolation of the Panhandle region</p> <p><u>5-6:</u> To identify and protect, by 2020, migratory routes between Gcwihaba and Tsodilo WMAs, and the Okavango Delta and Lake Ngami</p> <p><u>5-7:</u> To conduct, by 2016, a SEA of the SW Kalahari Conservation Corridor, and implement the assessment recommendations</p>
7	By 2025, wetlands, woodlands and savannas, particularly where used for use for range or crops, are managed sustainably, ensuring conservation of biodiversity	<p><u>7-5:</u> To establish by 2020, broad scale ecosystem approaches to conservation that bring together different categories of land use under joint management to accommodate wildlife migrations</p>
11	By 2025, at least 25 percent of all Botswana's ecoregions, particularly the wetlands, rivers and pans in them, are effectively conserved through an ecosystem approach that integrates their management with that of the surrounding landscapes and involves resident communities.	<p><u>11-8:</u> To conduct, by 2016, a SEA of the impact of land use changes and soda ash mining on the Makgadikgadi system</p>
12	By 2025, the conservation status of species in Botswana that are listed as threatened has been improved or sustained.	<p><u>12-1:</u> To review, finalise and implement, by 2016, the Botswana Threatened Species Management Strategy</p> <p><u>12-2:</u> To prepare, by 2018, ecoregion-based threatened species lists and maps of their habitats, and initiate their systematic monitoring and reporting to the CHM</p> <p><u>12-3:</u> To legislate formal protection, by 2025, for areas critical to biodiversity and key ecosystem functioning (e.g. breeding areas, dry season grazing, IBAs, wetlands, habitats for threatened species)</p> <p><u>12-4:</u> To ratify and domesticate, by 2020, the Agreement on the Conservation of African Eurasian Migratory Waterbirds</p> <p><u>12-6:</u> To ratify and domesticate, by 2020, the Convention on the Conservation of Migratory Species of Wild Animals</p> <p><u>12-7:</u> To establish, by 2019, recovery programmes for species with critically low populations</p>

No.	NBSAP Targets Offering Synergistic Potential	NBSAP Strategic Actions that Speak to MEA
15	By 2025, ecosystem integrity in all Botswana's ecoregions will be protected through the adoption of ecosystem-level management approaches built around key ecological processes, so that they contribute to climate change mitigation and to combating desertification.	<p><u>15-4</u>: To ensure that, by 2025, broad scale ecosystem management plans informed by ecological processes are in place for all protected areas incorporating their surrounding areas</p> <p><u>15-6</u>: To finalise and implement, by 2015, the Elephant Management Plan and Predator Management Strategy</p>

### **Agreement on the Conservation of African Eurasian Migratory Waterbirds**

***Not yet ratified.***

**Objective:** To take co-ordinated measures to maintain migratory waterbird species in a favourable conservation status or to restore them to such a status

**Opportunities for coordination:**

No.	NBSAP Targets Offering Synergistic Potential	NBSAP Strategic Actions that Speak to MEA
5	By 2025, the rate of natural land conversion is at least halved, and degradation and fragmentation are significantly reduced	<u>5-2</u> : To conduct, by 2017, a strategic environmental assessments (SEAs) of a) all the veterinary and game fences, b) the national road networks, and c) <u>the national powerline grid in terms of their impact on wildlife (including birds)</u> , and to adopt the assessment recommendations
8	By 2025, levels of air, water and soil pollution are maintained below levels that would threaten ecosystem functioning and biodiversity.	<p><u>8-2</u>: By 2015 to institute and maintain water quality monitoring and systematic reporting to the CHM for those parts of the Okavango, Zambezi, Gariep and Limpopo river catchments within Botswana</p> <p><u>8-4</u>: By 2015 to maintain, and institute where necessary, air quality monitoring and systematic reporting to the CHM for all protected areas (parks, reserves and important bird areas) and major developed areas (cities, towns and industrial areas)</p> <p><u>8-5</u>: To undertake, by 2017, a study on the impact of pollution on biodiversity hotspots and animal population dynamics</p>
10	By 2025, the anthropogenic pressures on wetlands, woodlands and savannas are minimised, so that the impacts of climate change and other external perturbations on their ecological integrity and functioning can be managed.	<p><u>10-1</u>: To legislate, by 2020, formal protection for all IBAs and for 25% of wetlands in each of the ecoregions found in Botswana</p> <p><u>10-2</u>: To ensure that, by 2018, all protected areas (parks, game reserves, WMAs) and forest reserves in all ecoregions are actively managed using the ecosystem approach</p> <p><u>10-6</u>: To ensure, by 2020, that biodiversity hotspots are protected through Integrated Land-use Plans</p>
11	By 2025, at least 25 percent of all Botswana's ecoregions, particularly the wetlands, rivers and pans in them, are effectively conserved through an ecosystem approach that integrates their management with that of the surrounding landscapes and involves resident communities.	<p><u>11-4</u>: To revise, adopt and implement, by 2016, Botswana's Wetlands Policy</p> <p><u>11-5</u>: To finalise and adopt, by 2015, the Cubango-Okavango River Basin (CORB) SEA</p> <p><u>11-6</u>: To establish, by 2016, notification procedures for contraventions of the CORB SEA thresholds</p> <p><u>11-7</u>: To formally adopt, by 2014, and initiate implementation of the ODRS Strategic Environmental Management Plan</p> <p><u>11-8</u>: To conduct, by 2016, a SEA of the impact of land use changes and soda ash mining on the Makgadikgadi system</p>

No.	NBSAP Targets Offering Synergistic Potential	NBSAP Strategic Actions that Speak to MEA
12	By 2025, the conservation status of species in Botswana that are listed as threatened has been improved or sustained.	<p><u>12-1</u>: To review, finalise and implement, by 2016, the Botswana Threatened Species Management Strategy</p> <p><u>12-2</u>: To prepare, by 2018, ecoregion-based threatened species lists and maps of their habitats, and initiate their systematic monitoring and reporting to the CHM</p> <p><u>12-4</u>: To ratify and domesticate, by 2020, the Agreement on the Conservation of African Eurasian Migratory Waterbirds</p> <p><u>12-6</u>: To ratify and domesticate, by 2020, the Convention on the Conservation of Migratory Species of Wild Animals</p> <p><u>12-7</u>: To establish, by 2019, recovery programmes for species with critically low populations</p>

### **International Treaty on Plant Genetic Resources for Food and Agriculture**

***Not yet ratified.***

Objective: The conservation and sustainable use of plant genetic resources for food and agriculture and the fair and equitable sharing of the benefits arising out of their use, in harmony with the Convention on Biological Diversity, for sustainable agriculture and food security

Opportunities for coordination:

No.	NBSAP Targets Offering Synergistic Potential	NBSAP Strategic Actions that Speak to MEA
12	By 2025, the conservation status of species in Botswana that are listed as threatened has been improved or sustained.	<u>12-5</u> : To comply, by 2018, with the <i>ex situ</i> seed collection objectives of the Millennium Seed Bank
13	By 2025, the genetic resources of traditional agricultural species and their wild relatives are protected, and strategies for minimizing genetic erosion and safeguarding their genetic diversity have been implemented	<p><u>13-1</u>: To ratify and domesticate, by 2016, the International Treaty on Plant Genetic Resources for Food and Agriculture</p> <p><u>13-2</u>: To finalise and implement, by 2016, domestication instruments for the Cartagena Protocol</p> <p><u>13-3</u>: To ratify and domesticate, by 2016, the Kuala Lumpur Supplementary Protocol on Liability and Redress to the Cartagena Protocol on Biosafety</p> <p><u>13-4</u>: Establish, by 2023, Community Indigenous and Medicinal Tree Centres/Parks in each ecoregion</p>
16	By 2025, the Nagoya Protocol is domesticated and operational, and specific actions that ensure fair and equitable access and benefit sharing are implemented.	<u>16-1</u> : By 2015, to develop the legislative framework for domestication and implementation of the Nagoya Protocol
18	By 2025, the indigenous knowledge of Botswana's various communities, as it relates to the conservation and sustainable use of biodiversity in all the country's ecoregions, will be documented, assessed and legally protected, and - where relevant - integrated into programmes and projects supporting biodiversity conservation.	<p><u>18-1</u>: To finalise, by 2014, and implement, the Indigenous Knowledge Systems Policy and Action Plan</p> <p><u>18-2</u>: To establish, by 2019, and maintain a database of plants and their traditional uses by different groups as part of the CHM</p>

### **Vienna Convention for the Protection of the Ozone Layer**

**Objective:** To limit harmful impacts on the environment due to depletion of the ozone layer, and consequent climate change

**Opportunities for coordination:**

No.	NBSAP Targets Offering Synergistic Potential	NBSAP Strategic Actions that Speak to MEA
4	By 2025, at all levels, policy and regulatory instruments are in place to ensure production and consumption by government, industry and society are kept within sustainable levels and safe ecological limits	<u>4-1:</u> To ensure that by 2017, the Environmental Management Act is legislated and operational
8	By 2025, levels of air, water and soil pollution are maintained below levels that would threaten ecosystem functioning and biodiversity.	<u>8-1:</u> To conduct, by 2017, a SEA of all the energy-related industries (coal, gas, uranium and thermal electrical power production) and their individual and cumulative impacts on biodiversity <u>8-3:</u> To prepare, by 2019, and enforce guidelines stipulating discharge and emission levels of key pollutants for both the Atmospheric Pollution (Prevention) Act and the Waste Management Act <u>8-4:</u> By 2015 to maintain, and institute where necessary, air quality monitoring and systematic reporting to the CHM for all protected areas (parks, reserves and important bird areas) and major developed areas (cities, towns and industrial areas)
15	By 2025, ecosystem integrity in all Botswana's ecoregions will be conserved through the adoption of ecosystem-level management approaches built around key ecological processes, so that they contribute to climate change mitigation and to combating desertification.	<u>15-7:</u> To adopt and implement, by 2015, the national Climate Change Strategy and Action Plan

### **Basel Convention on Trans-boundary Movement of Hazardous Waste**

**Objective:** To protect human health and the environment from the negative effects of hazardous waste

**Opportunities for coordination:**

No.	NBSAP Targets Offering Synergistic Potential	NBSAP Strategic Actions that Speak to MEA
4	By 2025, at all levels, policy and regulatory instruments are in place to ensure production and consumption by government, industry and society are kept within sustainable levels and safe ecological limits.	<u>4-2:</u> By 2019, and subsequent to adopting the Environmental Management Act, to develop and implement supporting regulations to ensure enforcement of its principles.
8	By 2025, levels of air, water and soil pollution are maintained below levels that would threaten ecosystem functioning and biodiversity.	<u>8-3:</u> To prepare, by 2019, and enforce guidelines stipulating discharge and emission levels of key pollutants for both the Atmospheric Pollution (Prevention) Act and the Waste Management Act

### **Rotterdam Convention on the International Trade in Hazardous Chemicals**

**Objective:** To promote shared responsibility and cooperative efforts among parties in the international trade of certain hazardous chemicals in order to protect human health and the environment

**Opportunities for coordination:**

No.	NBSAP Targets Offering Synergistic Potential	NBSAP Strategic Actions that Speak to MEA
4	By 2025, at all levels, policy and regulatory instruments are in place to ensure production and consumption by government, industry and society are kept within sustainable levels and safe ecological limits.	<u>4-2</u> : By 2019, and subsequent to adopting the Environmental Management Act, to develop and implement supporting regulations to ensure enforcement of its principles.

### **Stockholm Convention on Persistent Organic Pollutants**

**Objective:** To protect human health and the environment from persistent organic pollutants

**Opportunities for coordination:**

No.	NBSAP Targets Offering Synergistic Potential	NBSAP Strategic Actions that Speak to MEA
4	By 2025, at all levels, policy and regulatory instruments are in place to ensure production and consumption by government, industry and society are kept within sustainable levels and safe ecological limits.	<u>4-2</u> : By 2019, and subsequent to adopting the Environmental Management Act, to develop and implement supporting regulations to ensure enforcement of its principles.
8	By 2025, levels of air, water and soil pollution are maintained below levels that would threaten ecosystem functioning and biodiversity.	<u>8-3</u> : To prepare, by 2019, and enforce guidelines stipulating discharge and emission levels of key pollutants for both the Atmospheric Pollution (Prevention) Act and the Waste Management Act

### **African Convention on the Conservation of Nature and Natural Resources**

**Objective:** To adopt the measures necessary to ensure conservation, utilization and development of soil, water, flora and faunal resources in accordance with scientific principles and with due regard to the best interests of the people

**Opportunities for coordination:**

All of the NBSAP targets and strategic actions speak to this convention's objective.

### **Libreville Declaration on Health and Environment**

**Objective:** To establish a health-and-environment strategic alliance, as the basis for plans of joint action in developing or updating our national, subregional and regional frameworks in order to address more effectively the issue of environmental impacts on health, through integration of these links in policies, strategies, regulations and national development plans.

#### **Opportunities for coordination:**

No.	NBSAP Targets Offering Synergistic Potential	NBSAP Strategic Actions that Speak to MEA
2	By 2025, planning processes at all (district, urban and national) levels, and national accounting and reporting systems in Botswana contain explicit actions to promote biodiversity conservation.	<p><u>2-2:</u> Starting in 2015, all MEWT departments report both ecological and socio-economic data according to ecoregions</p> <p><u>2-4:</u> To adopt fully and permanently, by 2020, a natural capital accounting system (such as the Wealth Accounting and Valuation of Ecosystem Services (WAVES) programme) into the national planning processes.</p> <p><u>2-7:</u> To carry out, by 2018, a country-level 'The Economics of Ecosystems and Biodiversity' (TEEB) assessment, that captures the ecosystem services values, and the total economic values, of all Botswana's ecoregions.</p> <p><u>2-10:</u> To adopt, by 2020, Local Economic Development Strategies that reflect natural capital and biodiversity as drivers of the local economy and poverty eradication.</p>
14	By 2025, ecosystem services are identified and restored or maintained in all Botswana's ecoregions, and contribute to livelihood improvement through strategies that enable equitable access by all vulnerable groups, including women, the poor and local communities.	<p><u>14-1:</u> To establish, by 2016, the list of the main plant and animal resources in each ecoregion used by rural households and for which offtake should be managed, and commercial offtake regulated</p> <p><u>14-3:</u> To commission a study, by 2019, to identify for each ecoregion the ecosystem services important to rural households</p> <p><u>14-4:</u> To develop, by 2018, activities under the Local Economic Development Strategy that harmonise biodiversity conservation and poverty eradication in key ecoregions.</p>

## **SADC Regional Biodiversity Strategy**

**Objective:** To provide guidelines to build regional capacity for CBD implementation; establish a framework for reaching regional consensus on key biodiversity issues; act as a vehicle for forming partnerships; and provide a framework for cooperation between members and with relevant MEAs

### **Opportunities for coordination:**

No.	NBSAP Targets Offering Synergistic Potential	NBSAP Strategic Actions that Speak to MEA
2	By 2025, planning processes at all (district, urban and national) levels, and national accounting and reporting systems in Botswana contain explicit actions to promote biodiversity conservation.	<u>2-3:</u> To ensure that by 2020, all national, district and urban plans are prepared using an ecosystem approach <u>2-9:</u> To ensure that by 2017, all government and parastatal sectors specifically address biodiversity conservation in their components of district, urban and national development plans.
4	By 2025, at all levels, policy and regulatory instruments are in place to ensure production and consumption by government, industry and society are kept within sustainable levels and safe ecological limits.	<u>4-1:</u> To ensure that by 2017, the Environmental Management Act is legislated and operational. <u>4-2:</u> By 2019, and subsequent to adopting the Environmental Management Act, to develop and implement supporting regulations to ensure enforcement of its principles.
11	By 2025, at least 25 percent of all Botswana’s ecoregions, particularly the wetlands, rivers and pans in them, are effectively conserved through an ecosystem approach that integrates their management with that of the surrounding landscapes and involves resident communities.	<u>11-3:</u> To provide, by 2016, annual grants to selected environmental NGOs for ongoing monitoring of key species <u>11-5:</u> To finalise and adopt, by 2015, the Cubango-Okavango River Basin (CORB) SEA <u>11-6:</u> To establish, by 2016, notification procedures for contraventions of the CORB SEA thresholds <u>11-7:</u> To formally adopt, by 2015, and initiate implementation of the ODRS Strategic Environmental Management Plan <u>11-9:</u> To complete, by 2025, the Global Taxonomic Initiative’s Inventory
12	By 2025, the conservation status of species in Botswana that are listed as threatened has been improved or sustained.	<u>12-3:</u> To legislate formal protection, by 2025, for areas critical to biodiversity and key ecosystem functioning (e.g. breeding areas, dry season grazing, IBAs, wetlands, habitats for threatened species) <u>12-4:</u> To ratify and domesticate, by 2020, the Agreement on the Conservation of African Eurasian Migratory Waterbirds <u>12-5:</u> To comply, by 2018, with the ex situ seed collection objectives of the Millennium Seed Bank <u>12-6:</u> To ratify and domesticate, by 2020, the Convention on the Conservation of Migratory Species of Wild Animals
13	By 2025, the genetic resources of traditional agricultural species and their wild relatives are protected, and strategies for minimizing genetic erosion and safeguarding their genetic diversity have been implemented.	<u>13-1:</u> To ratify and domesticate, by 2016, the International Treaty on Plant Genetic Resources for Food and Agriculture <u>13-2:</u> To finalise and implement, by 2016, domestication instruments for the Cartagena Protocol <u>13-3:</u> To ratify and domesticate, by 2016, the Kuala Lumpur Supplementary Protocol on Liability and Redress to the Cartagena Protocol on Biosafety
15	By 2025, ecosystem integrity in all Botswana’s ecoregions will be protected through the adoption of ecosystem-level management approaches built around key ecological processes, so that they contribute to climate change mitigation and to combating desertification.	<u>15-4:</u> To ensure that, by 2025, broad scale ecosystem management plans informed by ecological processes are in place for all protected areas incorporating their surrounding areas.

No.	NBSAP Targets Offering Synergistic Potential	NBSAP Strategic Actions that Speak to MEA
20	By 2017, at least 80% of the required budget for the revised NBSAP, generated from diverse sources, is made available for its implementation	<p><u>20-1</u>: To implement, from 2014, the NBSAP Resource Mobilisation Plan</p> <p><u>20-2</u>: To ensure that, by 2016, NBSAP activities are integrated into the national, district, and urban plans budgets.</p> <p><u>20-3</u>: To ensure that, by 2016, the National Environment Fund (NEF) is fully functional and includes a specific allocation for biodiversity conservation research and monitoring, including those activities conducted by NGOs and key stakeholders</p>

### **SADC Protocol on Wildlife Conservation and Law Enforcement**

**Objective:** To establish within the Region and within the framework of the respective national laws of each State Party, common approaches to the conservation and sustainable use of wildlife resources and to assist with the effective enforcement of laws governing those resources.

#### **Opportunities for coordination:**

No.	NBSAP Targets Offering Synergistic Potential	NBSAP Strategic Actions that Speak to MEA
5	By 2025, the rate of natural land conversion is at least halved, and degradation and fragmentation are significantly reduced.	<p><u>5-1</u>: To conduct, by 2018, a study of current rates of natural land conversion in each ecoregion</p> <p><u>5-2</u>: To conduct, by 2017, a strategic environmental assessments (SEAs) of a) all the veterinary and game fences, b) the national road networks, and c) the national powerline grid in terms of their impact on wildlife (including birds), and to adopt the assessment recommendations.</p> <p><u>5-5</u>: By 2020, to identify, map and quantify the critical linkages between the Okavango Delta and wet season habitats in adjacent ecosystems, and to bring these linkages into land-use planning and so halt, and where possible, reverse the isolation of the Panhandle region</p> <p><u>5-6</u>: To identify and protect, by 2020, migratory routes between Gcwihaba and Tsodilo WMAs, and the Okavango Delta and Lake Ngami</p> <p><u>5-7</u>: To conduct, by 2016, a SEA of the SW Kalahari Conservation Corridor, and implement the assessment recommendations.</p>
7	By 2025, wetlands, woodlands and savannas, particularly where used for use for range or crops, are managed sustainably, ensuring conservation of biodiversity.	<u>7-5</u> : To establish by 2020, broad scale ecosystem approaches to conservation that bring together different categories of land use under joint management to accommodate wildlife migrations.
10	By 2025, the anthropogenic pressures on wetlands, woodlands and savannas are minimised, so that the impacts of climate change and other external perturbations on their ecological integrity and functioning can be managed.	<p><u>10-2</u>: To ensure that, by 2018, all protected areas (parks, game reserves, WMAs) and forest reserves in all ecoregions are actively managed using the ecosystem approach</p> <p><u>10-6</u>: To ensure, by 2020, that biodiversity hotspots are protected through Integrated Land-use Plans</p>
11	By 2025, at least 25 percent of all Botswana's ecoregions, particularly the wetlands, rivers and pans in them, are effectively conserved through an ecosystem approach that integrates their management with that of the surrounding landscapes and involves resident communities.	<p><u>11-4</u>: To revise, adopt and implement, by 2016, Botswana's Wetlands Policy</p> <p><u>11-7</u>: To formally adopt, by 2014, and initiate implementation of the ODRS Strategic Environmental Management Plan</p>

No.	NBSAP Targets Offering Synergistic Potential	NBSAP Strategic Actions that Speak to MEA
12	By 2025, the conservation status of species in Botswana that are listed as threatened has been improved or sustained.	<p><u>12-1</u>: To review, finalise and implement, by 2016, the Botswana Threatened Species Management Strategy</p> <p><u>12-3</u>: To legislate formal protection, by 2025, for areas critical to biodiversity and key ecosystem functioning (e.g. breeding areas, dry season grazing, IBAs, wetlands, habitats for threatened species)</p> <p><u>12-4</u>: To ratify and domesticate, by 2020, the Agreement on the Conservation of African Eurasian Migratory Waterbirds</p> <p><u>12-6</u>: To ratify and domesticate, by 2020, the Convention on the Conservation of Migratory Species of Wild Animals</p>
15	By 2025, ecosystem integrity in all Botswana's ecoregions will be protected through the adoption of ecosystem-level management approaches built around key ecological processes, so that they contribute to climate change mitigation and to combating desertification.	<p><u>15-4</u>: To ensure that, by 2025, broad scale ecosystem management plans informed by ecological processes are in place for all protected areas incorporating their surrounding areas</p> <p><u>15-6</u>: To finalise and implement, by 2015, the Elephant Management Plan and Predator Management Strategy</p>

### **SADC Protocol on Forestry**

**Objective:** a) To promote the development, conservation, sustainable management and utilisation of all types of forests and trees; b) To promote trade in forest products throughout the Region in order to alleviate poverty and generate economic opportunities for the peoples of the Region; and c) To achieve effective protection of the environment, and safeguard the interests of both the present and future generations.

#### **Opportunities for coordination:**

No.	NBSAP Targets Offering Synergistic Potential	NBSAP Strategic Actions that Speak to MEA
5	By 2025, the rate of natural land conversion is at least halved, and degradation and fragmentation are significantly reduced.	<p><u>5-1</u>: To conduct, by 2018, a study of current rates of natural land conversion in each ecoregion</p> <p><u>5-4</u>: To commission, by 2016, ecological and policy studies into the interacting causes and potential consequences of a) loss of trees and b) habitat fragmentation in the northern ecoregions</p>
6	By 2025, animal and plant resources in Botswana's wetlands, woodlands and savannas are sustainably managed using the ecosystem approach, so that the impacts of harvesting remain within safe ecological limits.	<p><u>6-1</u>: To establish, by 2015, and develop monitoring mechanisms for, by 2018, the list of key plant, insect, fish and animal resources in each ecoregion for which offtake limits should be set, and add these as guidelines to the relevant legal acts</p> <p><u>6-2</u>: To commission, by 2016, a study of key ecosystem processes (including breeding areas) under wet and dry scenarios for Botswana's more vulnerable ecoregions.</p>
7	By 2025, wetlands, woodlands and savannas, particularly where used for use for range or crops, are managed sustainably, ensuring conservation of biodiversity.	<u>7-2</u> : To conduct, by 2015, an inventory of all wooded areas on state and communal land, including riparian woodlands, that warrant improved protection and management, and establish forestry management practices that support the regeneration of tree populations and maintain ecosystems processes.
10	By 2025, the anthropogenic pressures on wetlands, woodlands and savannas are minimised, so that the impacts of climate change and other external perturbations on their ecological integrity and functioning can be managed.	<p><u>10-2</u>: To ensure that, by 2018, all protected areas (parks, game reserves, WMAs) and forest reserves in all ecoregions are actively managed using the ecosystem approach</p> <p><u>10-4</u>: To initiate and maintain, from 2018, the monitoring of vegetative biomass (as a measure of carbon sequestration) at the ecoregion level, and systematically report to the CHM</p>

No.	NBSAP Targets Offering Synergistic Potential	NBSAP Strategic Actions that Speak to MEA
14	By 2025, ecosystem services are identified and restored or maintained in all Botswana's ecoregions, and contribute to livelihood improvement through strategies that enable equitable access by all vulnerable groups, including women, the poor and local communities	<u>14-1</u> : To establish, by 2016, the list of the main plant and animal resources in each ecoregion used by rural households and for which offtake should be managed, and commercial offtake regulated <u>14-4</u> : To develop, by 2018, activities under the Local Economic Development Strategy that harmonise biodiversity conservation and poverty eradication in key ecoregions.

### **OKACOM and SADC Revised Protocol on Shared Watercourses**

**Objective:** Although a standalone agreement, OKACOM falls under the framework of the regional protocol on shared watercourses. In keeping with the SADC initiative, OKACOM's objective is to act as technical advisor on matters relating to the conservation, development and use of water resources shared by the three countries of Botswana, Angola and Namibia.

#### **Opportunities for coordination:**

No.	NBSAP Targets Offering Synergistic Potential	NBSAP Strategic Actions that Speak to MEA
5	By 2025, the rate of natural land conversion is at least halved, and degradation and fragmentation are significantly reduced.	<u>5-5</u> : By 2020, to identify, map and quantify the critical linkages between the Okavango Delta and wet season habitats in adjacent ecosystems, and to bring these linkages into land-use planning and so halt, and where possible, reverse the isolation of the Panhandle region
7	By 2025, wetlands, woodlands and savannas, particularly where used for use for range or crops, are managed sustainably, ensuring conservation of biodiversity.	<u>7-5</u> : To establish by 2020, broad scale ecosystem approaches to conservation that bring together different categories of land use under joint management to accommodate wildlife migrations.
8	By 2025, levels of air, water and soil pollution are maintained below levels that would threaten ecosystem functioning and biodiversity.	<u>8-2</u> : By 2015 to institute and maintain water quality monitoring and systematic reporting to the CHM for those parts of the Okavango, Zambezi, Gariep and Limpopo river catchments within Botswana <u>8-3</u> : To prepare, by 2019, and enforce guidelines stipulating discharge and emission levels of key pollutants for both the Atmospheric Pollution (Prevention) Act and the Waste Management Act
10	By 2025, the anthropogenic pressures on wetlands, woodlands and savannas are minimised, so that the impacts of climate change and other external perturbations on their ecological integrity and functioning can be managed.	<u>10-1</u> : To legislate, by 2020, formal protection for all IBAs and for 25% of wetlands in each of the ecoregions found in Botswana <u>10-2</u> : To ensure that, by 2018, all protected areas (parks, game reserves, WMAs) and forest reserves in all ecoregions are actively managed using the ecosystem approach
11	By 2025, at least 25 percent of all Botswana's ecoregions, particularly the wetlands, rivers and pans in them, are effectively conserved through an ecosystem approach that integrates their management with that of the surrounding landscapes and involves resident communities.	<u>11-4</u> : To revise, adopt and implement, by 2016, Botswana's Wetlands Policy <u>11-5</u> : To finalise and adopt, by 2015, the Cubango-Okavango River Basin (CORB) SEA <u>11-6</u> : To establish, by 2016, notification procedures for contraventions of the CORB SEA thresholds <u>11-7</u> : To formally adopt, by 2014, and initiate implementation of the ODRS Strategic Environmental Management Plan

No.	NBSAP Targets Offering Synergistic Potential	NBSAP Strategic Actions that Speak to MEA
15	By 2025, ecosystem integrity in all Botswana's ecoregions will be protected through the adoption of ecosystem-level management approaches built around key ecological processes, so that they contribute to climate change mitigation and to combating desertification.	<u>15-4</u> : To ensure that, by 2025, broad scale ecosystem management plans informed by ecological processes are in place for all protected areas incorporating their surrounding areas.

---

## APPENDIX 4: BIODIVERSITY INDICATORS

---

As with the original set of biodiversity indicators, the ones presented here are grouped according to 1) pressure, 2) state and 3) response. However, within these categories extensive revisions have been made, such as where the original indicator was not sufficiently linked to biodiversity, or because of challenges in measurement, or because of complex interactions with other factors.

### Pressure indicators

- 1) *Trend in wildlife ungulate biomass (excluding elephant) within PAs and within WMAs*  
This will be based on DWNP Aerial survey data and prepared by the Department annually. It represents the most reliable and comprehensive dataset in Botswana. It is also Indicative (to varying degrees) of HWC, poaching, 'Big Five' populations (important for their charismatic as well as financial value). This also links indirectly to ecotourism and hunting.
- 4) *Trend in change in land use (from natural to other)*  
Land-use classes will be subjectively chosen (by expert opinion and research) to represent levels of protection. Such trends can also include land-cover classes related to *quality* of land cover to track habitat degradation/regeneration such as desertification or reforestation.
- 5) *Trend in contiguity of PAs (the degree of impermeability of its boundaries)*  
In Botswana's savannas, permeability is important for migratory species, and refers to the ability of wildlife to move out to wet season ranges. Points of measurement could include:
  - Proportion of each protected area boundary that has become fixed and impermeable due to settlement, lands, fencing or other land uses (e.g. mining).
  - Length of common border/ touching between PAs (to express continuity).
  - Also need to measure trends across WMAs and tribal grazing lands as these types of areas may be vitally important in terms of species niche shift with climate change.
- 6) *Trend in water quality of the Okavango (river supplying Okavango Delta)*  
Good data are available and are well-monitored, and water quality is critical for maintaining ecosystem functioning (and services) in Botswana's biodiversity hotspots such as the Okavango Delta.

### State Indicators

- 1) *Trend in populations of indicator species*  
This has been changed from using the IUCN rating, since some key population trends in Botswana differ from the global picture. It is therefore felt that using indicator species would be a more viable option. While it would be useful to identify one or two species from each major taxonomic group (i.e. mammal, bird, reptile, amphibian, fish, invertebrate, plant) for each ecoregion, the usefulness of this exercise would depend on monitoring capabilities and establishing partnerships with projects such as Southern African Science Service Centre for Climate Change and Adaptive Land Use (SASSCAL). At a minimum the monitoring of the following species should be conducted at the national level:
  - Mammal: Cheetah (*Acinonyx jubatus*) - good data and high trophic level.
  - Bird: Wattled Crane (*Bugeranus carunculatus*) - indicator of wetland health and important to Botswana biodiversity, and Lappet-Faced Vulture (*Torgos tracheliotos*) - good indicator, top trophic level and good data available.
  - Reptile: Nile Crocodile (*Crocodylus niloticus*) - top trophic level of the aquatic systems which in Botswana are biodiversity hotspots.

- Amphibian: African bullfrog (*Pyxicephalus adspersus*) – iconic and dispersed across the country. An alternative specific to wetlands could be the Painted Reed Frog (*Hyperolius marmoratus*).
- Fish: Three-Spot Tilapia (*Oreochromis andersonii*) - it is potentially heavily threatened by the upstream Zambezi migration of *O. niloticus*, which could eventually hybridise the Three-spot out of existence; at the same time it is an important food and sport fishing species.
- Invertebrate: Swamp emperor dragonfly (*Anax bangweuluensis*) – an iconic species and a good indicator of wetland functioning. It is near-threatened, and its global population is largely constrained to the Okavango Delta.<sup>5</sup>
- Plant: Hoodia (*Hoodia gordonii*) - heavily utilized by people; and an indicator of nutrient status (carnivorous).

7) *Trend in area covered by invasive alien species*

This indicator will be based on the monitoring of key invasive species of concern, since the potential for negative consequences for biodiversity are large. As with population indicator species, one or two species from each major taxonomic group (i.e. mammal, bird, reptile, amphibian, fish, invertebrate, plant) should be identified, even if at this stage it only exists as a potential threat. Again, while establishing invasive alien indicators for each ecoregion would be ideal, this would depend on monitoring capabilities, and in the interim, those of concern at the national level should be used. Suggestions here are taken from the Global Invasive Species Database (<http://www.issg.org/database/species/search.asp?st=sss&sn=&rn=Botswana&hci=1&ei=-1&lang=EN>) but this list should be validated and finalized. Alternative known problem species are also listed.

- Mammal: *Myocastor coypus* (coypu aquatic rodent from South America)
- Bird: *Sturnus vulgaris* (the European starling). Alternative known invader: *Acridotheres tristis* (Indian mynah)
- Reptile: none identified.
- Amphibian: none identified.
- Fish: *Cyprinus carpio* (common carp). Alternative known potential threat: *Oreochromis niloticus* (Nile tilapia)
- Invertebrate: *Ceratitis capitata* (Mediterranean fruit fly)
- Plant: *Leucaena leucocephala* (leucaena). Alternative known invaders: *Prosopis glandulosa* (Prosopis) in dryland river courses, *Salvinia molesta* (Salvinia) in aquatic systems.

8) *Trend in extent of PAs*

This would be a straightforward assessment of the areal extent and percentage of Botswana land area dedicated to conservation in each ecoregion. This should be evaluated for different categories of protection, from formal such as national parks and game reserves, through use-managed such as WMAs, to potentially useable, such as communal grazing areas.

9) *Trend in Ecological Footprint*

This indicator of our impact on biodiversity, as we strive for sustainable use, is recommended by the CBD. The data required for its compilation are readily available.

<sup>5</sup> Kipping (*pers. comm.*) notes that monitoring can be done by counting territorial males along defined river/channel sections. It is easy to identify in flight by its large size and brown colouration which distinguishes it from all other species in the Delta.

---

### **Response indicators**

#### ***1) Trend in money spent on conservation as a percentage of government expenditure***

This straightforward indicator would be a simple proportion of total Government expenditure that contributes to biodiversity conservation. This would include environmental funds.

#### ***10) Trend in money generated from the environment***

This would combine income from CBNRM, hunting and ecotourism, both in the public and private sector. Presentation and comparison of this with the above indicator (especially in graphic format) would be very useful tracking mainstreaming of biodiversity, as the ratio would be indicative of reinvestment.

#### ***11) Trend in policies considering biodiversity and/or ecosystem services***

Several specific points can be noted here. These would be the proportion of national policies, programmes and strategies subject to strategic environmental assessments (SEAs); changes to specific environmental legislation to explicitly require consideration of biodiversity factors; preparation of by-laws and guidelines to enforce the protection of key species. Although not readily quantifiable, it would nevertheless be possible to use subjective (but expert) opinions of whether the alteration or new policy reduces negative impacts or increases positive impacts (on biodiversity).

#### ***12) Trend in area of conservation management percentage per ecoregion***

Similar to Status Indicator 3, this would track change over time for each ecoregion, broken down according to type of conservation management / protection associated with different areas. These data would be a striking displayed graphically.



---

## APPENDIX 6: NBSAP UPDATE PROCESS

---

This update comprised a review of an extensive body of work; consultations with key stakeholders; data collation and analysis; ecoregion economic valuations using existing data; and an analysis of implementation and the implementing environment.

### **Literature Review**

An extensive body of work was consulted as part of the literature review. Eight different categories of literature were assessed:

- 1) UN CBD documents
- 2) Other Multilateral Environmental Agreements (MEAs) to which Botswana is party, and other relevant regional and international protocols, conventions and agreements
- 3) Botswana NBSAP documents and national reports
- 4) Relevant and supporting Botswana Government policies, strategies and action plans
- 5) Relevant and supporting Botswana Government legal acts
- 6) NBSAP documents and reports for selected other countries
- 7) Theories, methods and guidelines for biodiversity in development
- 8) Other reports and academic papers addressing biodiversity and its management.

### **Consultations**

The consultation process had two purposes: to obtain data for use in evaluating the current status and trends relating to Botswana's biodiversity; and to engage with those stakeholders involved in NBSAP implementation. Stakeholder engagement focused on the assessment of progress to-date, barriers to implementation, and the way forward for the revised NBSAP, including input to the national goals, targets, strategic actions and activities. Consultations comprised specific data requests, survey instruments, and focus group workshops.

### **Data collation and analysis**

Datasets were compiled from a range of official sources, including government departments, NGOs, and research institutes, as well as from established private experts. Data were analysed both quantitatively and spatially using GIS. Responses from the stakeholders relating to perceptions to threats and trends were analysed qualitatively.

### **Ecoregion economic valuations**

Existing data on revenues and usage were obtained, and as far as possible matched up to ecoregions – although a major constraint is that socio-economic data tends to follow district administrative boundaries, and not ecological ones. Both direct and indirect values were assessed.

### **Analysis of implementation and the implementing environment**

Results from the consultation process revealed the extent to which different activities had been implemented and completed. These results were combined with a review of relevant documentation, such as the legal documents in place to support sustainable development. The MEAs to which Botswana is a party were reviewed and evaluated in terms of their synergies with the NBSAP, and the potential for using the ecosystem approach to bring all sectors together. These analyses then formed the basis for the assessment of appropriate and suitable modalities for implementing the CBD programmes and protocols.

---

Finally, feedback from those parties responsible for implementation allowed the key challenges and obstacles to be identified and evaluated.