

## NATIONAL BIODIVERSITY STRATEGY AND ACTION PLAN III (2025-2030)

Theme: Conservation and sustainable use of biodiversity for inclusive wealth creation



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The Grey Crowned Crane (Balearica regulorum), courtesy of Dr. Barirega Akankwasah

#### TABLE OF CONTENTS

LIST OF FIGURES	V
LIST OF TABLES	vi
ACRONYMS	vii
FOREWORD	ix
ACKNOWLEDGEMENTS	X
EXECUTIVE SUMMARY	xii
1.0. INTRODUCTION	1
1.1 Background information	1
1.2 Status and trends of biodiversity in Uganda	2
1.3 Biodiversity at the Species level	2
1.4 Biodiversity description based on taxa	3
1.5 Biodiversity of Fish	4
1.6 Conservation status of Amphibians and Reptiles in Uganda	
1.7 Plant Genetic Resources	
1.8 Animal Genetic Resources	
1.9 Fungi	9
1.10 Biodiversity in protected areas	
1.11 Wildlife population	10
1.12 Biodiversity outside protected areas	
1.13 Biodiversity in aquatic ecosystems	
1.14 Belowground biodiversity	
1.15 Conservation status of birds in Uganda	
1.16 Conservation status of insects in Uganda	
1.17 Forests	
1.18 Wetlands	16
2.0. BIODIVERSITY AND HUMAN WELLBEING IN UGANDA	17
2.1 Introduction	17
2.2 Fisheries sector	17
2.3 Agriculture	19
2.3.1 Plant and animal genetic resources	19
2.4 Forestry	20
2.5 Tourism	20
2.6 Wetlands	21
2.7 Biodiversity and Health	21
2.8 Biotechnology and Biosafety	21
3.0. THREATS TO BIODIVERSITY IN UGANDA	23
3.1 Causes of biodiversity Loss	23
3.1.1 Over-harvesting and exploitation of biological resources	
3.1.2 Agricultural expansion	
3.1.3 Poaching	
3.1.4 Diseases in wildlife	
3.1.5 Livestock	
3.1.6 Loss of plant and animal genetic resources	24

3.1.7 Human wildlife conflict	24
3.1.8 Invasive alien species	25
3.1.9 Emerging zoonotic diseases	30
3.1.10 Climate Change impacts	
3.1.11 Poaching	
3.1.12 Encroachment on forests and wetlands	
3.1.13 Pollution	
3.2. Policy and legal framework for biodiversity management	
3.2.1 National Policies	
3.2.2 National legal Frameworks	
3.2.3 Multilateral Environmental Agreements and Protocols	
4.0. BIOIDVESITY STRATEGY AND ACTION PLAN III 2025-2030	41
4.1 Introduction	41
4.2.1 Lessons learnt from implementing NBSAPII for Uganda	41
4.3. Guiding Principles for the Development of NBSAPIII	
4.4.Linking NBSAPIII to Uganda's Vision 2040, NDP, SDGs and KMGBF	
5.0.THE NATIONAL BIODIVERSITY STRATEGY AND ACTION PLAN 2025-2030	)45
5.1 Overarching principles for implementation of NBSAPIII	45
5.2 Vision, Goal and Strategic Objectives of NBSAPIII	
5.2.1 Vision	
5.2.2 Goal	
5.2.3 Strategic Objectives	
5.3 The National Strategies and Action Plans	
Thematic area one: Connectivity and integrity of ecosystems	
5.4 Thematic area Two: Harnessing benefits from modern biotechnology	
5.5 Thematic area three: Benefit sharing from utilisation of genetic resources	
5.6 Thematic Area Four: Coordination framework for biodiversity management	
5.7 Thematic Area Five: Knowledge Management, Monitoring and Research	
5.8 Thematic Area Six: Awareness and Education	
5.9 Thematic area seven: Funding implementation	
6.0. IMPLEMENTATION OF NBSAPIII	
6.1 Implementation Arrangements	
6.1.1 National Environment Management Authority	166
6.1.2 Sectoral Agencies	166
6.1.3 District Local Governments	166
6.1.4 Local Communities Local Communities	167
6.1.5 Non-Government Organizations (NGOs)	167
6.1.6 Private Sector	167
6.2 Implementation approach	167
6.2.1 Inclusive and Participatory Approach	167
6.2.2 Whole-of-Government Approach	168
6.2.3 Gender Equality	168
6.2.4 Human Rights	168
6.2.5 Ecosystem Approach	168
6.2.6 Intergenerational equity	168

	6.2.7 Integration with National Development Plans	168
	6.2.8 Capacity Building and Training	168
	6.2.9. Public Awareness and Education	169
	6.1.10 Budgeting and Financing	169
7.0	. MONITORING AND EVALUATION	170
	7.1 Rationale for Monitoring and Evaluation of NBSAPIII	170
	7.2 Key Strategic Aims for Monitoring and Evaluation of NBSAPIII	170
8.0	. FINANCING AND RESOURCE MOBILIZATION	171
	8.1 Introduction	171
	8.2 Domestic Financing Mechanisms	171
	8.3 The Global Environment Facility	171
	8.4 The Global Biodiversity Framework Fund	171
	8.5 The Bilateral and Multilateral Financing Sources	171
	8.6 The Multilateral Benefit Sharing Fund from the Use of Digital Sequence Information	172
	8.7 Conservation Trust Funds	172
	8.8 Payments for ecosystem services	172
	8.9 Biodiversity offsets	173
	8.10 Ecological fiscal transforms	173
	8.11 Performance bonds	174
	8.12 Green markets through natural resource trade and value chains	174
	8.13 Climate finance	175
	8.14 Private Sector	175
	8.15 Non-Government Organisations	176
	8.16 Blended Finance	176
9.0	. REFERENCES	177
10.	. ANNEXES	
	Annex 10.1: NEMA Sixth Board of Directors	180
	Annex 10.2: The Technical Committee on Biodiversity Conservation	181
	Annex 10. 3: Persons who participated in the development of NBSAP III	182

#### LIST OF FIGURES

Figure 1.1: Location of Uganda in Africa	
Figure 1.2: The mountain gorilla in Bwindi Impenetrable National Park	,
Figure 1.3: Orphaned and rescued chimpanzees at Ngamba Island Chimpanzee Sanctuary4	ŀ
Figure 1.4: Blaciris and Haplochromissimotes - endemics of Lakes Edward and Victoria	
respectively4	ŀ
Figure 1.5: The three horned chameleon in the Rwenzori Mountain National Park:6	)
Figure 1.6: A display of part of the 5000 accessions comprising 102 species of Plant	
Genetic Resources Conserved at the Plant Genetic Resources Centre8	}
Figure 1.7: Collecting millet wild relatives for conservation and research at the PGRC8	}
Figure 1.8: The giant lobelia in Rwenzori mountains national park	9
Figure 1.9: An elephant in Murchison Falls National Park	. 1
Figure 1.10: The giraffe in Kidepo Valley National Park	2
Figure 1.11: A buffalo in Lake Mburo National Park	2
Figure 1.12: The African fish eagle in Lake Mburo National Park	.5
Figure 1:13:The Shoebill in Mamaba wetlands, a Ramsar site	5
Figure 1.14: Coverage of intact wetlands in Uganda in 1994, 2008, 2015, and 2021	6
Figure 2.1: Trend in fish catches in Uganda from 2015 - 2021.	8
Figure 2.2: Trends in annual aquaculture production (tons) in Uganda (2000-2020)	9
Figure 2.3: Tourist climbing the Rwenzori Mountains National Park	20
Figure 3.1: Biosafety Level Two Wildlife Veterinary Diagnostic Laboratory at Mweya3	0
Figure 3.2: The legendary Mountains of the Moon in Rwenzori National Park.	
The snow on the mountain is receding due to climate change	1
Figure 3.3: The overall PM <sub>2.5</sub> averages for 2022 and 2023 for available data points	
in Central Uganda	7
Figure 4.1: Conceptual framework of the linkage between NBSAP III, the Strategic Plan	
for Biodiversity, SDGs, NDPIV and National Vision 2040	13

#### LIST OF TABLES

Table 1.1: Recorded flora and fauna species in Uganda	2
Table 1.2: Cconservation status of amphibia and reptilia in Uganda	5
Table 1.3: Diversity of common agriculture crop plants in Uganda	6
Table 1.4:Diversity of animal breeds/varieties in Uganda	7
Table 1.5: Major species of soil micro flora in Uganda	14
Table 1.6: Conservation Status of Birds in Uganda	14
Table 1.7: Globally threatened Birds of Uganda: EN= Endangered, VU= Vulnerable	15
Table 3.1:Distribution of what is considered the 30 species with the greatest impact in	
terms of transforming natural vegetation	26
Table 3.2: Sectoral Policies relevant to biodiversity management in Uganda	33
Table 3.3: Sectoral laws for biodiversity management in Uganda	37
Table 4.1:Linking the Strategic Objectives of NBSAPIII to the Kunming Montreal	
Global Biodiversity Framework	43
Table 4.2:NBSAP key contribution areas towards Vision 2040, NDP and the SDGs	44
Table 4.3: Strategic Objective 1: To reduce and manage negative impacts while enhancing	
positive impacts on biodiversity	48
Table 4.4:Objective 2. To harness biotechnology for socio-economic transformation	
with adequate safety measures for human health and environment	97
Table 4.5: Strategic Objective 3: To promote inclusive, fair and equitable sharing of	
benefits arising from utilisation of genetic resources, including digital sequence	
information on genetic resources, and of traditional knowledge associated with	
genetic resource	111
Table 4.6: Strategic Objective 4: To strengthen stakeholder co-ordination, inclusive	
participation, partnerships and frameworks for biodiversity conservation	126
Table 4.7: Strategic Objective 5: To facilitate and build capacity for research,	
technology development, innovation, monitoring and knowledge management	141
Table 4.8: Strategic Objective 6: To enhance stakeholder awareness, education and	
stewardship of biodiversity conservation	153
Table 4.9: Strategic Objective 7: To promote innovative and sustainable funding	
solutions for implementing NBSAPIII	158

#### **ACRONYMS**

ABS Access and Benefit Sharing
AWF African Wildlife Foundation
BER Biodiversity Expenditure Review

**BIOFIN** Biodiversity Finance Initiative

CBD Convention on Biological DiversityCDC Curriculum Development Center

**CEPA** Communication, Education and Public Awareness

CITES Convention on International Trade in Endangered Species of wild flora and fauna

**CNOOC** China National Offshore Oil Cooperation **IEC** Information, Education Communication

**CFM** Collaborative Forest Management

**CFR** Central Forest Reserve

CHM Clearing House MechanismCOP Conference of the PartiesCSO Civil Society Organization

**DEAP** District Environment Action Plan

**DEAT** Department of Environment Affairs & Tourism,

DRR Disaster Risk ReductionDRM Disaster Risk Management

**ENR** Environment and Natural Resources

**FAO** Food and Agriculture Organization of the United Nations

**FSSD** Forest Sector Support Department

GDP Gross Domestic ProductGEF Global Environment FacilityGMO Genetically Modified Organism

GTF Gender Task Force
GoU Government of Uganda
GTI Global Taxonomy Initiative
HFA Hyogo Framework of Action

**IGAD** Intergovernmental Authority on Development

IK Indigenous Knowledge

**IPLC** Indigenous Peoples and Local Communities

**IPR** Intellectual Property Right

IUCN International Union for Conservation of Nature

LFR Local Forest Reserve

**LGDP** Local Government Development Plan

LMO Living Modified Organism

MAAIF Ministry of Agriculture, Animal Industry and Fisheries

MP Medicinal PlantsMT Metric Tonnes

MEAs Multilateral Environmental Agreements

**MEMD** Ministry of Energy and Mineral Development

MGLSD Ministry of Gender, Labour and Social Development

MOEST Ministry of Education Sports and Technology

MOH Ministry of Health

MOJCA Ministry of Justice and Constitutional AffairsMTWA Ministry of Tourism, Wildlife and AntiquitiesMTIC Ministry of Trade, Industry and Cooperatives

MWE Ministry of Water and Environment
 NAADS National Agricultural Advisory Services
 NAPA National Adaptation Programme of Action
 NAMA Nationally Appropriate Mitigation Action
 NARO National Agricultural Research Organization

**NBI** Nile Basin Initiative

NBSAP National Biodiversity Strategy and action Plan NCRI National Chemotherapeutics Research Institute

**NDP** National Development Plan

**NEMA** National Environment Management Authority

**NFA** National Forestry Authority

PAs Protected Areas

PIR Policy Institutional Review

PMA Plan for the Modernization of Agriculture PSFU Private Sector Foundation of Uganda

**REDD** Reducing Emissions from Deforestation and Forest Degradation

**REDD+** Reducing Emissions from Deforestation and Forest Degradation including conser-

vation of forest carbon stocks, sustainable management of forests and enhancement

of forest carbon stocks

SDGs Sustainable Development Goals SPB Strategic Plan for Biodiversity

**SIP** Sector Investment Plan

SLM Sustainable Land Management SOER State of Environment Report

**TCBC** Technical Committee on Biodiversity Conservation

**TWG** Thematic Working Group

UEPB Uganda Export Promotion BoardUJA Uganda Journalists AssociationUMA Uganda Manufacturers Association

**UBOS** Uganda Bureau of Statistics

UNCCD United Nations Convention to Combat Desertification
UNCST Uganda National Council for Science and Technology

**UNFCCC** United Nations Framework Convention on Climate Change

**UNFF** Uganda National Farmers Federation

URA Uganda Revenue AuthorityUWA Uganda Wildlife Authority

**UWCEC** Uganda Wildlife Conservation and Education Center

WMD Wetlands Management Department

#### **FOREWORD**

It is with great pride and a profound sense of responsibility that I present Uganda's National Biodiversity Strategy and Action Plan (NBSAP III) for the period 2025-2030. Since Uganda ratified the Convention on Biological Diversity (CBD) on September 8, 1993, it has made significant strides in her commitment to preserving the country's rich natural heritage. As a Party to several important Protocols under the CBD, including the Cartagena Protocol on Biosafety and the Nagoya Protocol on Access to Genetic Resources and Benefit Sharing, Uganda stands at the forefront of global efforts to ensure conservation and sustainable use of our biodiversity. In pursuit of this goal, Uganda developed its first National Biodiversity Strategy and Action Plan in 2002, which provided a framework for action over a decade. The Plan was further refined with the introduction of NBSAP II (2015-2025).

I am proud to introduce NBSAP III which aligns with the Kunming Montreal Global Biodiversity Framework (KMGBF), that was adopted during the fifteenth meeting of the Conference of the Parties to the CBD. NBSAP III reflects our unwavering commitment to the conservation and sustainable use of the country's rich biodiversity. NBSAP III not only establishes national targets that align with the global goals and the global targets outlined in the KMGBF; it is also designed as a flexible framework that respects Uganda's unique priorities and capacities. Our vision remains clear: to maintain a rich biodiversity that benefits both present and future generations, advancing the socioeconomic development of our country. The overarching goal of NBSAPIII is to enhance biodiversity conservation, reduce biodiversity loss and ensure equitable sharing of benefits arising from utilization of genetic resources.

NBSAPIII is an integral component of our National Development Plan IV and aligns with our National Vision 2040, incorporating government priorities and the developmental agenda that is pivotal for our nation's progress. Importantly, NBSAP III embraces a whole-of-government and whole-of-society approach, ensuring inclusivity and gender responsiveness. It is also designed for seamless integration into sectoral plans, making it easier to implement within existing mandates. Moreover, to support the mobilization of necessary resources, we have developed a National Biodiversity Finance Plan, which underscores our commitment to financing our biodiversity initiatives sustainably.

In conclusion, I call upon all ministries, departments, agencies (MDAs), local governments, academic and research institutions, non-governmental organizations (NGOs), civil society organizations (CSOs), the private sector, development partners, individuals, and the general public to join hands in supporting the successful implementation of NBSAP III. Together, let us safeguard Uganda's biodiversity for the benefit of generations to come.

For God and my country.

Hon. Sam Mangusho Cheptoris

MINISTER OF WATER AND ENVIRONMENT

#### **ACKNOWLEDGEMENTS**

The National Biodiversity Strategy and Action Plan (NBSAPII) III has been developed through extensive consultations with a range of stakeholders, embodying a collaborative whole-of-government and whole-of-society approach. On behalf of the Government, I would like to express my sincere gratitude to the Global Environment Facility (GEF) for the financial support, facilitated through the United Nations Environment Programme (UNEP) which made it possible to develop NBSAP III. I appreciate UNEP's assistance in helping Uganda to secure the funds from GEF as well as the support by the United Nations Development Programme (UNDP) to develop the road map for implementing the Kunming Montreal Global Biodiversity Framework in Uganda and for supporting the production and dissemination of NBSAPIII.

I would like to extend my gratitude to the Board of Directors of NEMA for their invaluable guidance throughout the development of NBSAP III. Furthermore, I acknowledge the contributions made by the National Focal Points of various Multilateral Environmental Agreements (MEAs) and extend my gratitude to the Uganda Country Office of the United Nations Food and Agricultural Organisation (FAO) as well as the Center for International Forestry Research and World Agroforestry (CIFOR-ICRAF) for the support during the development of NBSAP III.

I thank all the experts, representatives of Government institutions, the private sector, indigenous peoples and local communities (IPLCs), Civil Society Organisations (CSOs), Non-Government Organisations (NGOs), cultural institutions and professional bodies for the time their valuable input and time committed in developing NBSAPIII. I am particularly grateful to the following institutions/organizations for their active participation in developing this NBSAPIII:

Ministry of Agriculture, animal Industry and Fisheries

Ministry of East African Community Affairs

Ministry of Energy and Mineral Development

Ministry of Finance, Planning and Economic Development

Ministry of Gender, Labour and Social Developmennt

Ministry of Lands, Housing and Urban Development

Ministry of Tourism, Wildlife and Antiquities

Ministry of Water and Environment

National Agricultural Research Organisation

National Biodiversity Data Bank

National Chemotherapeutics Research Institute

National Forestry Authority

National Forestry Resources Research Institute

National Planning authority

Uganda National Council for Science and Technology

Uganda National Meteorological Authority

Uganda Wildlife Authority

Busitema University

Makerere University

**Buikwe District Local Government** 

Jinja City Local Government

Jinja District Local Government

Kayunga District Local Government

Mukono District Local Government

Wakiso District Local Government

Buganda Kingdom

United Organisation for Batwa Development in Uganda

Karamoja Women Cultural Group

Ecotrust

Environmental Alert

Global Youth Biodiversity Network-Uganda Chapter

Jane Goodall Institute, Uganda

Nature Uganda

Private Sector Foundation of Uganda

Total Energies Limited

Uganda Biodiversity Fund

Uganda Manufacturers' Association

Uganda Youth Biodiversity Network

Wildlife Conservation Society

World Wide Fund for Nature

Youth Go Green Uganda

International Union for the Conservation of Nature

United Nations Development Programme

United Nations Food and Agricultural Organisation

Finally, I would like to express my gratitude to the team of National Environment Management Authority (NEMA) led Mr. Francis Sabino Ogwal, the CBD National Focal Point, for his outstanding coordination and leadership in the development of NBSAPIII on behalf of Government of Uganda. I also extend my thanks to Ms. Anne Nakafeero and Mr. Patrick Elolu for their invaluable support to the CBD National Focal Point throughout the process of developing NBSAPIII.

Barirega Akankwasah, PhD

**EXECUTIVE DIRECTOR** 

NATIONAL ENVIRONMENT MANAGEMENT AUTHORITY

#### **EXECUTIVE SUMMARY**

The Government of Uganda is committed to the conservation and sustainable utilization of the Country's biological resources, recognizing the crucial ecosystem services that biodiversity offers for sustainable development, wealth and job creation, and improvement of the livelihoods of local communities. The National Biodiversity Strategy and Action Plan (NBSAP) serves as the primary mechanism for implementing the Convention on Biological Diversity (CBD) and its Protocols in the country. NBSAP establishes a comprehensive framework for the government to fulfill its obligations under the CBD and the Protocols adopted under the Convention, set conservation priorities, direct investments, and strengthen the capacity needed for effective biodiversity conservation and sustainable use in the country.

At the fifteenth meeting of the Conference of the Parties to the CBD (COP 15), the Kunming-Montreal Global Biodiversity Framework (KMGBF). In Decision 15/6 Parties committed themselves to revising and updating their NBSAPs and to submit them through the clearing house mechanism by the sixteenth meeting of the Conference of the Parties. Uganda successfully reviewed its NBSAPII and submitted the NBSAPIII through the Online Reporting Tool within the time required by the Conference of the Parties

In conducting the revision and updating their NBSAPs, Parties were strongly encouraged to ensure that national targets not only address the goals and targets of KMBGF but also to take into account the use of headline indicators, relevant complementary, supplementary and national indicators to monitor and track progress towards implementation of KMGBF goals and targets, while also taking into account national circumstances and capabilities.

Uganda's NBSAP III outlines national biodiversity targets that conform to the guidance from decision 15/6 and the Implementation Plan for the Cartagena Protocol on Biosafety 2022. These targets establish a framework for assessing progress in the execution of NBSAPIII, with designated institutions also known as target champions responsible for their implementation. In addition, NBSAPIII is aligned with the Sustainable Development Goals (SDGs), recognizing the significant role of biodiversity in advancing implementation of SDGs in Uganda. The priority areas identified in NBSAPIII are also aligned with the National Vision 2040 and the National Development Plan (NDP) IV. NBSAP III has been mainstreamed in NDP IV.

NBSAP III addresses critical issues in biodiversity conservation and management, including protected areas, access to genetic resources and benefit sharing, digital sequence information on genetic resources, invasive species, pollution, restoration, climate change, sustainable use, mainstreaming, biotechnology, gender, youth, indigenous peoples and local communities, spatial planning and resource mobilization. NBSAPII also addresses habitat loss - particularly in wetlands and forests - driven by the conversion of natural spaces for commercial developments and habitat degradation. Other vital concerns covered by NBSAP III include human-wildlife conflicts and gender.

The vision of Uganda's NBSAPIII is "Rich biodiversity benefiting the present and future generations." Its goal is to "To enhance biodiversity conservation, reduce biodiversity loss and ensure equitable sharing of benefits arising from utilization of genetic resources" This will be achieved through seven strategic objectives, namely:

1. To increase the connectivity, integrity and resilience of ecosystems

- 2. To harness biotechnology for socio-economic transformation with adequate safety measures for human health and environment
- 3. To promote inclusive, fair and equitable sharing of benefits arising from utilization of genetic resources, including digital sequence information on genetic resources, and of traditional knowledge associated with genetic resources
- 4. To strengthen stakeholder co-ordination, inclusive participation, partnerships and frameworks for biodiversity conservation
- 5. To facilitate and build capacity for research, technology development, innovation, monitoring and knowledge management
- 6. To enhance stakeholder awareness, education and stewardship of biodiversity conservation
- 7. To promote innovative and sustainable funding solutions for implementing NBSAPIII

The minimum cost for implementing NBSAP III over the 5-year period (2025-2030) is estimated at USD 306.7 million annually. Resource mobilization will be central to implementation of NBSAPIII and in this regard the National Biodiversity Finance Plan (NBFP) was revised and aligned to NBSAP III. The development of NBFP was informed by the Policy Institutional Review (PIR), the Biodiversity Expenditure Review (BER) and Financial Needs and Gap Analysis.

Funding by Government and resource mobilization from all sources including bilateral and multilateral cooperations, Global Environment Facility (GEF), the Global Biodiversity Framework Fund (GBFF) and the Multilateral Benefit Sharing Fund from the Use of Digital Sequence Information; Conservation Trust Funds; payments for ecosystem services; biodiversity offsets; ecological fiscal transforms; performance bonds; green markets through natural resource trade and value chains; Climate finance; private sector; Non-Government Organisations and blended finance are the approaches and mechanism for raising funds for implementing NBSAP III.

NBSAPIII has a dynamic five-year lifecycle, with a mid-term review is expected to be carried out in 2027. The National Environment Management Authority (NEMA) is responsible for overall coordination and monitoring of progress of implementation of NBSAP III. Designated lead institutions responsible for implementing national targets, referred to as "target champions," will lead the implementation efforts and report on advancements toward achieving the targets in their jurisdiction.

### 1.0. INTRODUCTION

#### 1.1 Background information

Jganda is a landlocked country that lies astride the equator between 4°N and 1°S and stretches from 29.5°W – 35°W (Figure 1.1). It is one of the smaller states in Eastern Africa covering an area of 236,000 square km comprising 194,000 square km dry land, 33,926 square km open water and 7,674 square km of permanent swamp (Langdale-Brown et al 1964, Langlands, 1973).

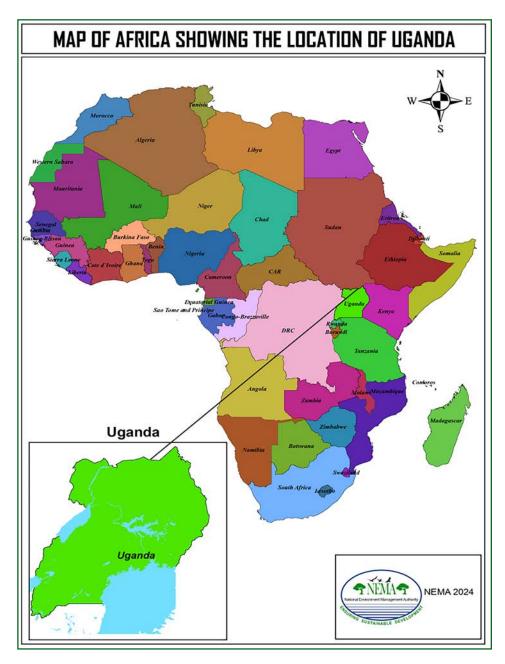


Figure 1.1: Location of Uganda in Africa

#### 1.2 Status and trends of biodiversity in Uganda

Uganda's location in a zone between the ecological communities that are characteristic of the drier East African savannas and the moister West African rain forests, combined with high altitude ranges, the country has a high level of biological diversity. Internationally and in Africa, for its size, Uganda is among those countries endowed with the greatest diversity of animal and plant species.

#### 1.3 Biodiversity at the Species level

Uganda is a country gifted by nature with extraordinary diversity of biological resources. Although Uganda occupies only 2% of the world's area, with a recorded 18,783 species of fauna and flora (NEMA, 2009), Uganda ranks among the top ten most bio-diverse countries in the world. Uganda is host to 53.9% of the World's population of mountain gorillas, 11% (1,063 species) of the world's recorded species of birds (50% of Africa's bird species), 7.8% (345 species) of the Global Mammal Diversity (39% of Africa's Mammal Richness), 19% (86 species) of Africa's amphibian species richness and 14% (142 species) of Africa's reptile species richness, 1,249 recorded species of butterflies and 600 species of fish.

There are 30 species of antelope, 24 species of primates including charismatic species of Mountain Gorillas and Chimpanzees, and more than 5,406 species of plants so far recorded of which 30 species of plants are endemic to Uganda (Uganda Wildlife Policy, 2014). Uganda has 322 species listed as threatened in the IUCN Red List of 2024 which includes plants 158, mammals 32, birds 33, reptiles 8, amphibians 2, fishes 55, molluscs 17 and other invertebrates 17.

According to the Red list of Threatened Species in Uganda Report (2018), the total number of species per taxa found to be nationally threatened are: 77 species of mammals, 83 birds, 31 reptiles, 19 amphibians, 44 dragon flies, 184 butterflies and 99 plant species. Of these, 110 species are critically endangered, 174 endangered and 253 vulnerable (MTWA, 2023)

Knowledge of the species present is confined to the more known taxa such as birds, mammals, butterflies, higher plants, reptiles, amphibians and fish (Table 1.1). This is because of their relative conspicuousness and economic importance. Little is known about the less conspicuous ones including important forms such as below ground biodiversity.

Table 1.1: Recorded flora and fauna species in Uganda

Taxon	Total number of species	% of global species	No. of globally threatened spp
Amphibians	86	1.7	10
Birds	1,012	10.2	15
Butterflies	1,242	6.8	-
Dragon flies	249	4.6	-
Ferns	389	3.2	-
Fish	501	2.0	49
Flowering plants	4,500	1.1	40
Fungi (poly pore)	173	16	-
Liverworts	275	46	-
Mammals	345	7.5	25
Molluses	257	0.6	10

Mosses	445	3.5	-
Reptiles	142	1.9	1
Termites	93	3.4	-
Other invertebrates	-	-	17

Source: NEMA (2009)

#### 1.4 Biodiversity description based on taxa

Uganda has approximately 380 mammal species and is ranked 13th in the world in terms of mammal species richness (IUCN RED Data List 2008). The number of mammal species including mountain gorilla (Figure 1.2) and chimpanzees (Figure 1.3) has been changing due to local extinctions and introductions (UWA, 2010). In terms of birds, Uganda has approximately 1,016 species of birds (10% of world total). There are over 2,250 species recorded on the African continent and the total list of Uganda species represents nearly half (47%) of all species recorded on the continent. There are 143 palaearctic migrants, 56 afro-tropical migrants and 25 Albertine endemics. A total of 189 species are forest specialists while 160 species are water dependent (Byaruhanga et al, 2001; NBI, 2010).



Figure 1.2: The mountain gorilla in Bwindi Impenetrable National Park (Photo credit: Uganda Wildlife Authority)



Figure 1.3: Orphaned and rescued chimpanzees at Ngamba Island Chimpanzee Sanctuary (Photo credit: Chimpanzee Sanctuary and Wildlife Conservation Trust)

#### 1.5 Biodiversity of Fish

The fish biodiversity in Uganda is dominated by the cichlid family consisting of 324 species of which 292 are endemic to Lake Victoria. Of the over 600 fish species found in Uganda, the only commercial fish species include Nile perch (*Lates niloticus*) found in all the major lakes except Edward/George. Other commercially exploited species include the Nile Tilapia (*Oreochromis niloticus*) found in all major water bodies, Mukene (*Rastreneobola argentea*) from Lakes Victoria and Kyoga, Muziri/Mukene, (*Neobola bredoi*) of L. Albert, Catfish (*Clarias gariepinus*) and the Silver catfish (*Bagrus documak*) from all major water bodies. *Alestes baremose, Brycinus* nurse and N. bredoi currently constitute about 80% of fish biomass in Lake Albert. The most common fish species in almost all the water bodies is the Lungfish (*Protopterus aethiopicus*).



#### Laciris pelagica

This small species with a maximum length of 8 cm (total length) is endemic to the deep waters of Lake Edward. For this reason, its presence in the lake is not known to many people including fishermen.

Source: The Freshwater Biodiversity Portal for the Fishes of Uganda (https://freshwaterbiodiversity.go.ug/species/?code=VQNTHK48)



Haplochromis (Neochromis) simotes

This species is endemic to the middle of Upper Victoria Nile, between Kirindi and Kakindu, a stretch of about 20 km of the Nile River that connects Lakes Victoria and Kyoga. The species is a flagship species in this part of the River Nile that is undergoing heavy modification by hydroelectric power dams. The species Endangered on the national red list for the fishes of Uganda and Data Defient on IUCN red list.

Source: The Freshwater Biodiversity Portal for Uganda (https://freshwaterbiodiversity.go.ug/species/?code=3F1XO645)

Figure 1.4: Blaciris and Haplochromissimotes - endemics of Lakes Edward and Victoria respectively.

#### 1.6 Conservation status of Amphibians and Reptiles in Uganda

There are 98 species of amphibians recorded in Uganda, representing 1.65% of global species. Most of the amphibian species in Uganda have an IUCN category of Least Concern because they either have a wide distribution, tolerant to broad range of habitats or presumed to have large populations. There are an estimated 150 reptile species in Uganda including the 3 horned chameleon (Figure 1.5) which represent approximately 1.5 % of total global species but very little is currently known about these taxa (NBI, 2010). The conservation status of Amphibians and Reptile is shown in the table 1.2 below.

Table 1.2: Cconservation status of amphibia and reptilia in Uganda

IUCN STATUS	Amphibia species	Reptilia species
CR = Critically Threatened	01 (Arthroleptides dutoiti)	06 (including <i>Trionyx triunguis</i> )
EN = Endangered	06	04
VU = Vulnerable	06	06
NT = Near Threatened	08	06
LC = Least Concern	48	73
DD = Data Defficient	11	80

(MTWA, 2023)



Figure 1.5: The three horned chameleon in the Rwenzori Mountain National Park:

#### 1.7 Plant Genetic Resources

Plant genetic resources (PGR) in Uganda range from little known indigenous wild fruits and vegetables, pastures and forages, medicinal plants, indigenous staples like millet and sorghum to introduced crops such as maize, tobacco, coffee, cotton and beans (Table 1.3). PGR is distributed across the diverse ecological zones of Uganda. There are approximately 5,000 species of higher plants in Uganda, of which 70 are endemic and mainly concentrated in tropical forests in the western region. The lower plants are generally poorly documented in Uganda. They fall under three main types: Algae (115 species), Bryophytes and Pteridophytes (ferns) (386 species). Bryophytes (mosses (500 species), liverworts (250 species) and hornworts) represent the most ancient lineage of land plants (UNESCO, 2012).

Table 1.3: Diversity of common agriculture crop plants in Uganda

Plants	Status	
Exotic plants	<ul> <li>58 families in 180 tree species</li> <li>55 species of other plants which are dominated by ornamental and fruit trees/plants and vegetables</li> </ul>	
Edible plants	• >200 species of non-cultivated edible plants	
Indigenous edible fruit trees	• 37 families represented by 75 species	

Source: NBSAP (2002)

#### 1.8 Animal Genetic Resources

The indigenous breeds of cattle are the main source of beef in Uganda constituting almost 95% of the total cattle population. Table 1.4 shows the diversity of common livestock species in Uganda.

Table 1.4: Diversity of animal breeds/varieties in Uganda

Animals	No. of breeds or varieties	O Status
Cattle	>16	<ul> <li>4 indigenous breeds, 12 exotic breeds</li> <li>Indigenous distributed country-wide mainly under traditional systems; exotics mainly under commercial dairy or beef farming</li> </ul>
Goats	7	<ul> <li>3 indigenous, 4 exotic breeds</li> <li>There is increasing commercial value being given to goats for dairy and meat favouring exotic breeds.</li> </ul>
Sheep	7	<ul> <li>3 indigenous, 4 exotic species</li> <li>3 Exotic breeds are not well adapted, they are concentrated in highland areas.</li> </ul>
Pigs	4	<ul> <li>1 mixed breed, several breed related to wild forms; 3 breeds introduced</li> <li>Economic value increasing as "pork" continues to become popular especially in urban areas</li> </ul>
Poultry	9	<ul><li>3 indigenous; 6 introduced breeds</li><li>Exotics concentrated in and around urban areas.</li></ul>
Horses	1	<ul><li> Little known in Uganda</li><li> Owned privately for leisure</li></ul>
Donkeys	1	<ul> <li>Little known</li> <li>Reared mainly for providing "labor" especially in Karamoja and Kapchorwa</li> </ul>
Rabbits	7	<ul> <li>Little known</li> <li>Economic value is increasing as they continue to be valued as a protein</li> <li>diet and source of household income</li> </ul>

(Source: Mbuza et al. 1999)

At the National Gene Bank, more than 5,000 accessions are being conserved in both the active (short term storage 5°C) and base (long term storage -20°C) collections (Figure 1.6). The bank ensures that seeds placed in storage are of the highest quality and achieve maximum longevity. The seeds are occasionally regenerated to ensure their genetic integrity is maintained. Species whose seed cannot survive desiccation and very low temperature levels (referred to as recalcitrant) are conserved in the botanic gardens as live collections. The germplasm held is available for different users on request. The bank includes a database on all stored collections in the Uganda National Gene Bank under priority activity of ex situ conservation.



Figure 1.6: A display of part of the 5000 accessions comprising 102 species of Plant Genetic Resources Conserved at the Plant Genetic Resources Centre (Photo credit: Plant Genetic Resource Centre)



Figure 1.7: Collecting millet wild relatives for conservation and research at the PGRC

Such material has potential to provide genes tolerant to water stress and other climatic vagaries for crop improvement



Figure 1.8: The giant lobelia in Rwenzori mountains national park (Photo credit: Speciation Clock)

#### 1.9 Fungi

Fungi are generally poorly known or documented in Uganda. However, the available records show that there are 420 species of fungi (NBSAP, 2002). Fungi exist in form of ecological (saprophytic, symbiotic and parasitic fungi, edible and medical mushrooms), industrial (for instance, brewing and baling yeast), medicines and pathogenic organisms in human health (candidiasis, ring worms, athlete foot) or agricultural forms (crop and animal pathogens of domestic and wild animals). There are 296 species of lichens in Uganda represented in 51 genera. These represent 1.6% of world species (NBI, 2010).

#### 1.10 Biodiversity in protected areas

Uganda's rich biodiversity is distributed across both terrestrial and aquatic habitats. In the early 1930's Government created forest reserves. These offered important habitats for wildlife. Around 1950s and 1960s, Government established a network of national parks and game reserves to protect

wildlife. Government prohibited settlement, cultivation and hunting in the national parks and Game Reserves. Queen Elizabeth, Murchison Falls and Kidepo Valley were the first three National Parks established in the early 1950's.

Two of the national parks namely Bwindi Impenetrable and Rwenzori Mountains National Parks are also inscribed as World Heritage Sites while Queen Elizabeth and Mount Elgon National Parks are recognized as Man and Biosphere Reserves by UNESCO in recognition of the importance of man as part and parcel of these ecosystems. Uganda has 12 Ramsar sites, namely: Lake George, Lake Mburo-Nakivali Wetland System (LMP), Lake Bisina Wetland System (BSN), Lake Nakuwa Wetland System (NKW), Lake Opeta Wetland System (OPT), Lutembe Bay (LTB), Mabamba Bay Wetland System (MBB), Murchison Falls-Albert Delta Wetland System (MFP), Nabajjuzi Wetland System, Rwenzori Mountains (RM) and Sango Bay-Musambwa-Kagera Wetland System.

Most of the biodiversity is found in natural forests, but a considerable number is also found in other natural ecosystems such as mountains, savannahs, wetlands, lakes and rivers. Protected Areas (PAs) in Uganda mainly fall under two resources, namely forestry and wildlife. Out of the total surface area Uganda, 10% is gazetted as wildlife conservation areas, 24% is gazetted as forest reserves and 13% is wetlands. Uganda has 10 National Parks, 12 Wildlife Reserves, 10 wildlife sanctuaries, 5 community wildlife areas, 506 central forest reserves and 191 local forest reserves.

Uganda's wildlife conservation areas are very rich in biodiversity comprised of 405 species of mammals, 177 species of reptiles, 119 species of amphibians and approximately 1,000 bird species in Uganda's wildlife conservation areas (UWA, 2012). There are three local extinctions among the large mammals, namely, Oryx, southern black rhino and Derby's eland (UWA, 2012).

#### 1.11 Wildlife population

Uganda is a home to many species of wild animals including the elephant (Figure 1.9), Giraffe (Figure 1.10), and the Buffalos (Figure 1.11). In the 1970s, wildlife in Uganda faced drastic decline due to heavy commercial poaching following breakdown of law and order that characterized the country in the 1970s and early 1980s. A number of aerial surveys conducted from 1980-1983 reported drastic decline in wildlife in general, and Elephants in particular, throughout the protected areas (Eltringham and Malpas 1980, 1983; Douglas Hamilton et al 1980). Throughout the 1970s, Elephants in Uganda were intensively hunted for their ivory to supply an expanding international ivory market (Eltringham and Malpas 1980). Over the period 1979-1985, there was continued and increased illegal killing of elephants and other wildlife in protected areas due to civil wars and political instability (Edroma 1984). By 1980 the elephant population in Queen Elizabeth National Park had declined from the 1960s estimates of 2,500-4,000 to just 150 and from 12,000 to 1,420 in Murchison Falls National Park (Douglas-Hamilton et al 1980).

When National Resistance Movement Government came into power in 1986, Uganda enjoyed greater political stability and peace. Government embarked on securing wildlife protected areas and rebuilding tourism infrastructure. This included expansion of a network of national parks in which six forest reserves namely Kibale, Semliki, Mount Elgon, Rwenzori Mountains, Bwindi Impenetrable and Mgahinga Gorilla hitherto managed by the defunct Uganda Forest Department were upgraded to national park status. To enhance protection, reduce encroachment and restore degraded habitats, Government implemented institutional reforms that saw the creation of Uganda Wildlife Authority (UWA) in 1996 through the merger of the defunct Uganda National Parks with the Uganda Game

Department. This was a key turning point in the conservation history of the country.

Wildlife Populations have steadily increased for some key species since 1980 despite the decline in numbers observed in the 1970s and early 1980s (Table 1.5). The elephant population has for instance increased from 2,000 in late 1983 to 7,975 individuals by 2020; buffaloes have increased from 25,000 (1983) to over 40,000 by 2020; giraffe population increased from an estimate of 250 individuals in 1995 to over 2,000 in 2020 while the population of the mountain gorilla increased from 320 in 2003 to 459 in 2022. Uganda has over the years implemented re-stocking programmes. The southern white subspecies were introduced into the country in 2006. To date, there are 38 southern white rhinos at Ziwa Rhino Sanctuary in Nakasongola District and another two (2) at Uganda Wildlife Education and Conservation Centre.



Figure 1.9: An elephant in Murchison Falls National Park (Photo credit: Uganda Wildlife Authority)

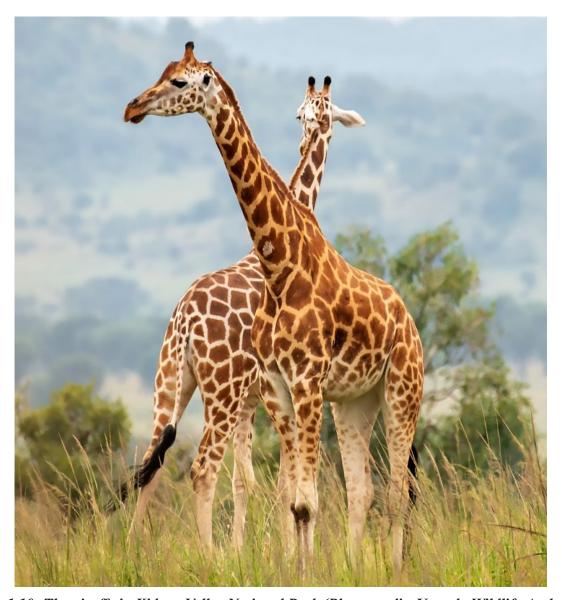


Figure 1.10: The giraffe in Kidepo Valley National Park (Photo credit: Uganda Wildlife Authority)



Figure 1.11: A buffalo in Lake Mburo National Park (Photo credit: Uganda Wildlife Authority)

#### 1.12 Biodiversity outside protected areas

It estimated that over 50% of Uganda's wildlife resources are outside designated protected areas, mostly on privately owned land which is of most urgent concern for protection and development. The existing land tenure systems of land holdings, leasehold and customary holdings offer little incentive for protection and management of biodiversity outside protected areas. The bulk of the forests (64%) in Uganda are found on private land (NFA, 2011) which is outside protected areas. Private landowners and communities could play a significant positive role in managing forest biodiversity in Uganda given the right incentives to do so. There are some restricted range species that are critical for example *Rytgyinia sp.* is confined to Iganga District in eastern Uganda whereas *Aloe tororoana* is only known on Tororo Rock, an area of only a few hectares. *Phoenix reclinata* is highly vulnerable outside protected areas, as it is heavily harvested as poles for fencing especially in urban areas.

#### 1.13 Biodiversity in aquatic ecosystems

About 20% of the surface area of Uganda is under water comprising lakes (46,900 sq. km), swamps (7,300 sq. km) and rivers (2,000 sq. km). Uganda's fisheries landscape therefore includes the diverse resources ranging from the five large lakes Victoria, Kyoga, Albert Edward, George and Kazinga Channel, over 160 small lakes, a network of rivers, swamps and flood plains all of which are critical habitats, breeding and nursery grounds for fish and potential sites for Aquaculture development.

#### 1.14 Belowground biodiversity

Little is known about the status of soil biodiversity because it has received less attention from researchers and planners (Rwakaikara, 2008). As far as biodiversity conservation is concerned, the most important of these is the soil bacteria (Okwakol, 2007). The major species of soil microflora are given in Table 1.5 below.

Table 1.5: Major species of soil micro flora in Uganda

Form	Genera	Species
Bacteria	37	92
Fungi	184	420
Algae	149	115

Source: NBSAP (2002)

#### 1.15 Conservation status of birds in Uganda

Over 1,057 bird species occur in Uganda mainly because of a high diversity of habitats that makes Uganda one of the countries with high bird species diversity compared to its size in Africa (MTWA, 2023). The habitats include forests, woodlands, grasslands, agricultural lands, wetlands and open waters. According to BirdLife International (2014), Uganda has 24 (2%) globally threatened bird species and 29 (3%) near-threatened species and the rest of the species are of least concern. The globally threatened species include 9 endangered species namely; the three vulture species, White-backed Vulture, Rüppell's Vulture and Hooded Vulture, and the Grey-crowned Crane species and 15 vulnerable species. The conservation status of the 1057 bird species (Table 1.7 and table 1.8).

Table 1.6: Conservation Status of Birds in Uganda

<b>Total Bird Species</b>	1,057
Extinct	0
Extinct in the Wild	0
Globally Threatened	24
Critically Endangered	0
Endangered	9
Vulnerable	15
Near Threatened	29
Least Concern	1,004
Land birds	847
Migratory Birds	236
Breeding Endemic	1
Water birds	140

(Source: NEMA, 2016)

Table 1.7: Globally threatened Birds of Uganda: EN= Endangered, VU= Vulnerable

Scientific name	Common name	Red List Category
Acrocephalus griseldis	Basra Reed-warbler	EN
Apalis karamojae	Karamoja Apalis	VU
Ardeola idea	Madagascar Pond-heron	EN
Balaeniceps rex	Shoebill	VU
Balearica regulorum	Grey Crowned-crane	EN
Bradypterus graueri	Grauer's Swamp-warbler	EN
Bucorvus leadbeateri	Southern Ground-hornbill	VU
Chloropeta gracilirostris	Papyrus Yellow Warbler	VU
Circaetus beaudouini	Beaudouin's Snake-eagle	VU
Cryptospiza shelleyi	Shelley's Crimson-wing	VU
Eremomela turneri	Turner's Eremomela	EN
Falco fasciinucha	Taita Falcon	VU
Gyps africanus	White-backed Vulture	EN
Gyps rueppelli	Rüppell's Vulture	EN
Hirundo atrocaerulea	Blue Swallow	VU
Muscicapa lendu	Chapin's Flycatcher	VU
Necrosyrtes monachus	Hooded Vulture	EN
Polemaetus bellicosus	Martial Eagle	VU
Pseudocalyptomena graueri	African Green Broadbill	VU
Psittacus erithacus	Grey Parrot	VU
Ptilopachus nahani	Nahan's Partridge	EN
Sagittarius serpentarius	Secretarybird	VU
Torgos tracheliotos	Lappet-faced Vulture	VU
Trigonoceps occipitalis	White-headed Vulture	VU

Source: BirdLife International (2014) Country PROFILE: Uganda. Available from: http://www.birdlife.org/datazone/country/uganda. Checked: 2018-05-23

There are seven species that are designated as rare, the majority of which are forest species and are mainly threatened by forest loss. These include the African green broadbill (*Pseudocalyptomena graueri*) and chapin's flycatcher (*Muscicapa lendu*) which occur in Bwindi forest. The forest ground thrush (*Zoothera oberlaenderi*) which has been recorded only in Semliki forest is also threatened by disturbance. Rare non-forest species include the endemic papyrus yellow warbler (*Chloropeta gracilirostris*), which occurs in papyrus swamps around lakes Edward, George, Bunyonyi and Mutanda, and is threatened by habitat loss and disturbance. The migrant corncrake (*Crex crex*) is also threatened.

The Grey Crowned Crane is also on the decline globally and is listed as Endangered on the IUCN Red List. In Uganda, its habitat (seasonally flooded wetlands) is seriously degraded and quickly disappearing. However, they are also under threat from illegal trade and domestication. Records since 2000 show signs of recovery due to increased public awareness, a national crane species action plan was developed and is being implemented to protect the species.



Figure 1.12:The African fish eagle in Lake Mburo National Park (Photo credit: NatureUganda)



Figure 1:13: The Shoebill in Mamaba wetlands, a Ramsar site (Photo credit: NatureUganda)

#### 1.16 Conservation status of insects in Uganda

Uganda has a wide spectrum of insects with over 1400 recorded butterfly species, over 100 species of Emperor months, over 115 species of hawkmoths, 240 species of dragonflies, 300 species of grasshoppers, several species of dung beetles, several species of bees (including honey bees and 3 stingless bee species) and several species of flies (MTWA, 2023). Insects (e.g. ants, beetles, Lepidoptera and grasshoppers, are potential ingredients for animal feed and human food, provide pollination services (e.g. bees, Lepidoptera, coleopterea and dipteral), biodegradation services (beetles such as Tenebrio molitor), commercial enterprises (bee hive products, pheromones and sericulture), ecotourism ('buttermonths' excursions, 'odontours' and green house exhibitions), biocontrol agents (e.g. dragoneflies), pests and vectors (veterinary, agriculture and medical) and forensic.

#### 1.17 Forests

Forests play a crucial role in human well-being and environmental health, providing essential goods such as medicines, edible fruits, and game meat, while also serving as a source of income for over a billion people worldwide. In Uganda, the significance of forests is evident through the presence of approximately 506 Central Forest Reserves (CFRs), covering an expansive 1,262,090 hectares. In 1990 over 24% of Uganda's land surface was covered by forests. This coverage declined to about 9.5% by 2015, However, the coverage increased to 12.3% in 2017 and is currently estimated to be 13.3% in 2019. Thus in terms of coverage Uganda's forests is on a positive trajectory.

Uganda's tropical forests are very rich in biodiversity and known to house some 1,259 species of trees and shrubs, 1,011 species of birds, 75 species of rodents, 12 species of diurnal primates and 71 butterfly specie. Among the key forest biodiversity species, 4 primates species, 2 other mammals species, 6 bird species, and 2 butterflies are listed in IUCN Red Data Book (2008) to be globally threatened with extinction (NFA, 2011). Four species of mammals (Chimpanzee, L'Hoest monkey, elephant and leopard), one species of birds (Grauers rush warbler) and one species of butterfly (Cream-banded swallowtail butterfly) are also listed as vulnerable. Four species of forest birds (Nahan's francolin, African green broadbill, Flycatcher and Forest ground thrush) are classified as rare.

#### 1.18 Wetlands

Uganda's wetlands are known to support 43 species of dragon flies (of which 20% are known to occur in Uganda only), 9 species of molluscs, 52 species of fish (which represent 18% of all fish species in Uganda), 48 species of amphibians, 243 species of birds, 14 species of mammals, 19 species of reptiles and 271 species of macrophytes (NBSAP, 2002). Papyrus and other wetland plants have commercial value, and many other plants are used for medicinal purposes (MWE, 2003).

The coverage of wetlands in 1994 was at 15.6%, 2015 at 13% and 2021 at 13.9% of Uganda's surface area (Figure 1.14). The intact wetland covers as recorded in 2021 was 9.3% compared to 8.9% intact cover in 2015 indicating a positive trend and this is attributed to several efforts including raising awareness, demarcation and restoration of wetlands.

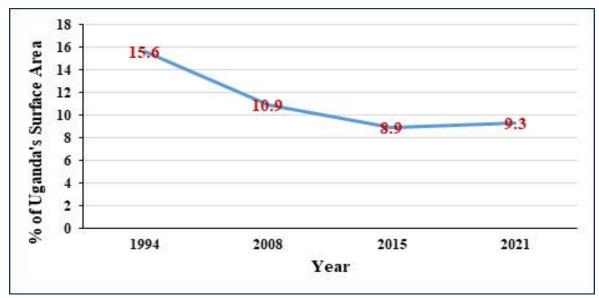


Figure 1.14: Coverage of intact wetlands in Uganda in 1994, 2008, 2015, and 2021(Source: State of wetland report, 2021).

# 2.0. BIODIVERSITY AND HUMAN WELLBEING IN UGANDA

#### 2.1 Introduction

Biodiversity is fundamental to human well-being, a healthy planet, and economic prosperity for all people, including for living well in balance and in harmony with Mother Earth. We depend on it for food, medicine, energy, clean air and water, security from natural disasters as well as recreation and cultural inspiration, and it supports all systems of life on Earth. Thus, biodiversity underpins human wellbeing through the ecosystem services are provides namely provisioning, regulating, supporting and cultural services. The Millennium Assessment (MA) report (2006) categorized them as: provisioning, regulating, supporting and cultural services. The provisioning services that are the most known provide basic needs for human survival such food, freshwater, wood and fibre and fuel. The regulating services on the other hand are responsible for functions such as water purification, climate regulation, flood control, carbon sequestration and control of disease. The Supporting services are the basis for the function and the maintenance of other services such as nutrient cycling, soil formation and primary production. While cultural services consist of aesthetic, spiritual, educational and recreational service.

Natural ecosystems provide many essential services such as the provision of clean water and air, prevention of soil erosion, pollination of crops, provision of medicinal plants, nutrient cycling, provision of food and shelter and the meeting of spiritual, cultural, aesthetic and recreational needs. Large portions of the country's economy are heavily dependent on biodiversity including the fishing industry, tourism (from wildlife biodiversity), livestock industry, commercial and subsistence use of medicinal plants and ecotourism, among others. Estimates put the gross economic output attributable to biological resource use in the fisheries, forestry, tourism, agriculture and energy sectors at US\$ 546.6 million a year and indirect value associated with ecosystem services and functions at over US\$ 200 million annually (Emerton and Muramira, 1999).

#### 2.2 Fisheries sector

The fishing industry is estimated to employ up to one million Ugandans. Fish and fish products have been the second highest export revenue earner in Uganda after coffee between 2015 and 2022. In terms of export revenue, fish and fish products earned Uganda US\$ 174.164 million in 2019, declining slightly to US\$ 124.9 in 2020/21 and US\$ 116.2 million in 2021/22 (Figure 2.1) (UBOS, 2023).

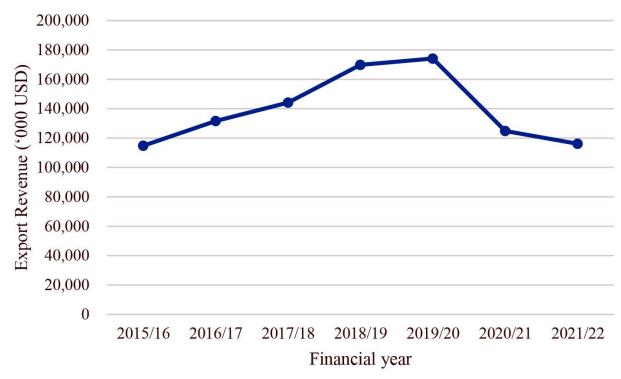


Figure 2.1: Trend in fish catches in Uganda from 2015 - 2021.

The fisheries sector contributes approximately 2.5% of the national GDP and 12% of the agricultural GDP. The total fish production in Uganda stands at about 560,000 metric tonnes annually with about 82% (460,000 MT) contribution from the five water bodies/several small lakes and only 18% (100,000 MT) from culture fisheries. The sub-sector has significantly contributed to food, health, economy, exports, employment and tourism of the country. In terms of aquaculture, the country has about 2,000 individual farmers or farmer groups with over 5,000 ponds, 750 cages and over 100 tanks.

In Uganda an estimated 1,000,000 - 1,500,000 people are directly engaged full time or part time in capture fisheries with about 5,000 working with industrial processing fisheries sector and an additional 2,000 in aquaculture. An estimated 300,000 people, including men and women, are directly involved in fishing, fish processing and trading in fish and nearly 5.3 million people (which is 15% of the total population) are directly dependent on the fisheries sector as one of their main sources of livelihoods.

Uganda holds the position of Africa's third-largest aquaculture producer, following Egypt and Nigeria, and secures the second-largest spot in Sub-Saharan Africa, as indicated by research by Egessa et al., 2022. The country has witnessed a significant shift in aquaculture dynamics, notably with the rise of Nile tilapia cage aquaculture. This transformation, coupled with a favorable international market standing, has attracted investor attention, leading to a notable increase in Nile tilapia production. Consequently, Nile tilapia has surpassed catfish production in Uganda.

The production landscape reflects this shift, with Nile tilapia currently standing as the foremost cultured species in the country. This trend has been consistent since 2016, with Nile tilapia consistently outpacing African catfish in terms of production volume. The estimated production figures for 2020 underscore this shift, with African catfish registering 37,488 tons, whereas Nile tilapia dominated with an estimated production of 86,011 tons (Figure 2.2).

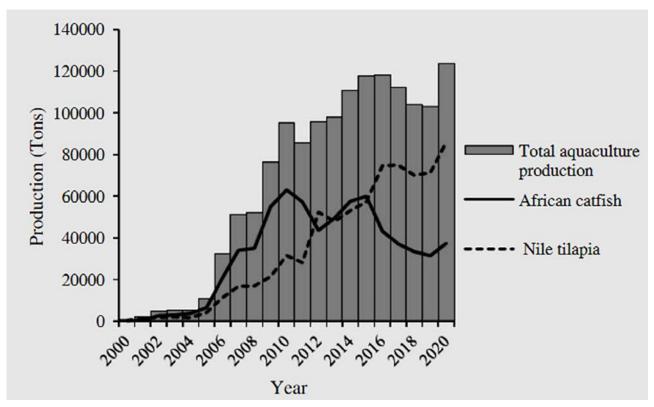


Figure 2.2: Trends in annual aquaculture production (tons) in Uganda (2000-2020) (Egessa et al., 2022).

#### 2.3 Agriculture

Uganda's enormous biodiversity is a major supporter of agriculture in Uganda, which sector is one of Uganda's biggest economic contributors, employing more than 70% of the population. The agricultural sector is composed of crop and animal production, forestry and fisheries and the associated trade and processing industries. The contribution of agriculture to Gross Domestic Product (GDP) is currently around 23%.

#### 2.3.1 Plant and animal genetic resources

Plant Genetic Resources for Food and Agriculture (PGRFA) for food are the biological basis of world food security. The PGRFA in Uganda range from little known indigenous wild fruits and vegetables, pastures and forages, medicines, indigenous staples like millets and sorghum to introduced crops such as maize, tobacco, cotton, and beans. These form the basis for the livelihoods of most Ugandans in terms of both food security and sources of income.

In terms of domestic animal diversity: livestock production in Uganda contributes 3.2% of the total gross domestic product (GDP) (Behnke and Nakirya, 2012). More than 5,000 seed accessions comprising vegetables, indigenous fruit species, gum, cereals, crop wild relatives, legumes, forage and oil crops are being conserved in the Uganda National Gene Bank operated by the center. The germplasm conserved ex-situ includes those of most traditional crops including sorghum, maize, finger millet, pearl millet, cowpea, beans, groundnuts, sweet potato and cassava.

Renowned for its diverse ecosystems, Uganda's wealth of genetic resources not only presents a promising avenue for driving socio-economic development, but also holds the key to fostering wealth

creation and improving the well-being of local communities (Snyman, 2021). People's daily lives are intricately connected with various semi-domesticated and wild plant species, distributed across the diverse ecological zones of Uganda (NEMA, 2016). Notably, research on Ugandan Robusta coffee has unveiled distinct genetic clusters, underscoring the nation's unique genetic diversity (Kiwuka et al., 2021).

#### 2.4 Forestry

Forests play an important role in soil and water management, carbon sequestration as well as habitat for biodiversity. In addition, forests contribute biomass energy as well as supporting the economy through forestry-related commercial products and services. These include timber products, ecotourism, arts & crafts, bee products, herbal medicine and rattan cane.

#### 2.5 Tourism

Wildlife resources yield direct benefits such as local and national income from tourism and are important sources bush meat, food, medicine, wildlife hunting, cropping and ranching. Queen Elizabeth and Murchison Falls and Kidepo Valley were the first three National Parks established in early 1950's. These parks became famous world-wide for their variety of scenery and spectacular concentrations of wildlife. Tourism is the leading foreign exchange earner and contributes significantly to employment, with foreign exchange earnings estimate at about USD1.5 billion per year. Tourist attractions include gorilla tracking, mountain climbing (Figure 2.3), nature-guided walks, village excursions, butterfly and bird watching, as well as the opportunity to explore rare fauna and flora species.



Figure 2.3: Tourist climbing the Rwenzori Mountains National Park (Photo credit: Speciation Clock)

#### 2.6 Wetlands

Wetlands also have intrinsic attributes, perform functions and services and produce goods of local, regional, national or international importance. Together, they represent considerable ecological, social and economic values. Wetlands in Uganda are known to support some 43 species of dragon flies (of which 8 are known to occur in Uganda only); 9 species of molluscs; 52 species of fish, 48 species of amphibians, 243 species of birds, 14 species of mammals, 19 species of reptiles, and 271 species of macrophytes. Eleven (11) sites have been gazetted as Ramsar sites and as such are being given special protection. Apart from providing seasonal breeding and reproductive ground for various fish species including Labeo sp., Barbus sp., Clarias sp., and Mormyrus sp., Uganda's wetlands also provide habitats for endangered fish species.

#### 2.7 Biodiversity and Health

Medicinal plants are of special importance to Uganda because of their wide application in traditional medicine by both the rural and urban population. It is estimated that approximately 80% of Ugandans depend on indigenous medicine. This is because they are less costly and more widely available than western medicine, and in Uganda, traditional health practitioners are widely supported within local cultures. With the emergence of HIV/AIDS and other non-communicable diseases like diabetes, cancer, and hypertension, and the lack of curative western medicine, many patients have turned to traditional healing systems (that predominantly depend on local medicinal plants) to treat related opportunistic diseases and infections. This is in addition to the treatment of zoonotic and other diseases like malaria, abdominal pain, skin diseases, headache, worms, ulcers, and epilepsy, among others.

As wildlife and human populations interact more closely, the risk of zoonotic spillover increases. This intersection of animal health, human health, and environmental factors exemplifies the interconnectedness of health systems in addressing zoonotic diseases, emphasizing the importance of a One Health approach that seeks to optimize health outcomes by recognizing the links among people, animals, plants, and their shared environment.

#### 2.8 Biotechnology and Biosafety

Uganda has taken measures to meet its obligations under the Cartagena Protocol on Biosafety. An interim biosafety system to regulate modern biotechnology research and development has been adopted in the absence of holistic legislation. Uganda National Council for Science and Technology (UNCST) was designated the Competent National Authority that provides regulatory oversight for genetic engineering research and development initiatives. The UNCST Act, 1990 gives it mandate to clear all scientific research and development activities in the country. As part of efforts to develop a holistic biotechnology and biosafety regulatory and development framework, Uganda adopted the National Biotechnology and Biosafety Policy in 2008. The Policy recognizes GE as a tool that can be used to enhance agricultural productivity, improve food and nutrition security, promote conservation and sustainable use of natural resources, and enhance human and environmental health.

The first application for research using genetic engineering was made in 1992 when Makerere University requested approval to test bovine somatotropin hormone developed using recombinant DNA technology. Biotechnology research in Uganda is also being done for environmental management, human and animal health. Genetic Modification pharmaceutical products such as insulin are already

being used and there was research conducted on HIV and Ebola vaccines which are also products of modern biotechnology. Similarly, there is research to use GMOs or their ingredients in the industrial sector and environmental management.

Medical biotechnology in health research efforts under the different institutions in Uganda are conducted in the production of medicines, hormones, vaccines, and other bio-engineered product. At the forefront of the research efforts are Makerere University, Joint Clinical Research Centre (JCRC), the Uganda Virus Research Institute (UVRI). National Agricultural Research Organisation and Makerere University are championing anti tick vaccine studies for effective control of ticks. The annual loss attributed to ticks and tickborne diseases (TTBDs) is estimated at USD 1.1 billion in Uganda.

# 3.0. THREATS TO BIODIVERSITY IN UGANDA

### 3.1 Causes of biodiversity Loss

Several factors are responsible for the trends in biodiversity in Uganda. The major threats to biodiversity in Uganda are the main thrust of the strategies and action plans in this NBSAP III and they are elaborated below.

### 3.1.1 Over-harvesting and exploitation of biological resources

Biodiversity is mainly lost through uncontrolled harvesting or removal without replacement and use of poor harvesting methods which affect regeneration of the species. Over-exploitation depletes Uganda's stock of animal and plant resources, lowering their populations, affecting the genetic diversity and increasing the risk of local extirpation and subsequent extinction. The conversion of trees in woodlands and forests on both public and private land into charcoal, fuel wood and timber thus depleting tree resources from these habitats. These actions continue to affect biodiversity associated with these habitats and yet forests contain the biggest pool of biodiversity in Uganda.

### 3.1.2 Agricultural expansion

The key agents of agricultural expansion into hitherto undisturbed landscapes and protected areas are small-scale farmers (over 70 % of the population of Uganda). Uganda's farmlands are dominated by subsistence farms. Agriculture a major driver of deforestation.

### 3.1.3 Poaching

Poaching has contributed to the loss of the country species richness. During the 1970s, elephant and buffalo populations declined drastically due to massive poaching (Aleper and Moe 2006). Wild animals are hunted for their products such as hides, ivory, horns and teeth. In other cases animals are poached for game meat and for cultural and medicinal values.

### 3.1.4 Diseases in wildlife

Disease spread and outbreaks pose a great threat to wildlife health and production. Some of the diseases are transmitted through human-wildlife interactions because of tourism or interaction with livestock. Disease outbreaks due to natural causes such as Anthrax continue to take their toll on wildlife populations. The Anthrax outbreak in Queen Elizabeth National Park in 2002 is reported to have killed over 300 hippos (UWA, 2003). There is no scientific documentation of significant outbreaks of plant diseases in natural forests although outbreaks have been recorded in soft wood plantations.

### 3.1.5 Livestock

In recent years, livestock numbers have been increasing, in line with human population trends. The increase in cattle population is attributed to general improved animal health as a result of nationwide disease control, improved breeding programmes and better management practices. The demand for milk directly and by milk processing plants has further stimulated animal production. Exotic and cross-breeds are however becoming increasingly popular. There is concern that indigenous breeds are being undermined and the demand for high-yielding breeds increases. It is believed that Uganda has lost 12 breeds of cattle, 3 breeds of goats and one breed of sheep over the last century leaving the current indigenous breeds which for the moment do not appear to be endangered, although systematic monitoring needs to be undertaken to discern future trends in species composition.

### 3.1.6 Loss of plant and animal genetic resources

Threats to Plant Genetic Resources (PGR) include the following:

- a) Replacement of local crop varieties by introduced commercial varieties (e.g. nematode and disease resistant varieties of banana, cassava, maize, beans);
- b) Loss or neglect of traditional varieties, including crop wild relatives and landraces e.g. millet, cowpeas, pigeon peas, Lima and Bambara beans, and wild medicinal plants and local fruits and vegetables (e.g. Solanum nigrum, Ginger lily through wetland destruction, Cape gooseberry by fire and overgrazing and introduction of exotic species such as tomatoes and cabbages);
- c) Loss of other indigenous species found in cultivated areas (e.g. *Crotolaria jaburnifloria, Thumbergia alarta and Eluophia streptopetala* (internationally protected), as well as increasing problems of invasive crop weeds (e.g. parasitic Striga, Couch grass and Lantana camara;
- d) Introduction of new varieties in preference to indigenous species;
- e) Genetic erosion of indigenous plant genetic resources due to changes in land use; and,
- f) Climatic change, leading to drought, diseases, pests, famine.

Threats to PGR can be addressed through many interventions including capacity building for plant inventory techniques, for developing and maintaining plant databases, for developing models for plant conservation and sustainable use, for boosting law enforcement and for plant conservation at technical and apprenticeship levels. Other interventions include the provision of incentives to taxonomists to retain staff in this valuable field, supporting domestication of useful plants, designing strategies and plans to protect threatened species on private lands, continuous collection and inventory of useful plant species, designing and maintaining a comprehensive database inclusive of species diversity, spatial distribution and taxonomic information to target collection sites and improvement of infrastructure and other working facilities for plant conservation. Creating awareness in communities is also key, as is learning from women's and men's indigenous and traditional knowledge and techniques toward the protection and safeguarding of PGR, such as through community and women-led seed banks.

### 3.1.7 Human wildlife conflict

The country continues to register an increase in cases of human – wildlife conflicts mainly emanating from crop destruction, livestock predation and human attacks by elephants, crocodiles, lions, leopards, chimpanzees, gorillas, baboons among others. Human- wildlife conflicts also emerge when individuals or communities invade wildlife conservation for poaching, illegal logging, cultivation,

grazing and other related illegal resource access practices. Such activities negatively impact on habitats and survival of wildlife. Several interventions have been employed by the government to address the increasing challenge of human-wildlife conflicts. In 2018 Government initiated a project aimed at constructing electric fences within Protected Areas. The initial phase of the project was executed in Queen Elizabeth National Park (QENP), followed by implementation in Murchison Falls National Park (MFNP). Presently, over 100 kilometers of electric fencing have been successfully installed and are operational in both MFNP and QENP, leading to a noticeable reduction in human-wildlife conflicts based on preliminary assessments.

In 2019 Government formulated the National Strategy to Manage Human-Wildlife Conflict in Uganda, with the overarching goal of fostering harmonious coexistence between wildlife and communities to contribute to national development. Various interventions have been implemented across different sections of Protected Areas, including the installation of electric fencing, trenches, crocodile cages, beehives, and the provision of support to community scouts. These collective efforts aim to mitigate human-wildlife conflicts and promote sustainable cohabitation between wildlife and local communities.

### 3.1.8 Invasive alien species

Invasive alien species (IAS) pose a global threat to the conservation of biodiversity through their proliferation and spread, displacing or killing native flora and fauna and affecting ecosystem services, including water and nutrient cycles and food chains. The introduction of exotic species into natural systems can affect biodiversity in many ways. Table 3.1 shows the distribution of what is considered the 30 species with the greatest impact in terms of transforming natural vegetation within Uganda (Witt et al. 2018). The habitats commonly impacted by invasive species include forests, savannahs, grasslands, forest plantation, farmlands or arable lands, wetlands and drylands, among others.

Major invasive species of concern in wildlife protected areas of Uganda are Lantana camara, Dichrostachys cinerea, Parthenium hysterophorus, Imperata cylindrical (omushojo), Leucaena leucocephala, Broussonetia papyrifera, Cymbopogon nardus, Senna spectabilis (Cassia), Mimosa pigra, Acacia hockii (Obugando) and Vossia cuspidate. The spread of Dichrostachys cinerea, Parthenium hysterophorus, Lantana camara and Imperata cylindrical is worrying and has affected most of the suitable habitats for grazers in the parks (NARO 2002).

Table 3.1: Distribution of what is considered the 30 species with the greatest impact in terms of transforming natural vegetation

	Growth	Distribution		Hab!4-4	
Species and family	form & invasive type	% of surveyed grid cells present	% of surveyed grid cells present	Habitat types invaded	Negative impacts
Cascabela thevelia	Tree or shrub	48.6	6.0	Sa, Tr, Rr, Ha, PA, Ws, Gr	Form dense thickets, especially in low-lying areas and along water courses, displacing native plants and animal species.
Chomolaena odorota	Shrub	1.9	1.5	Sa, Tr, Rr, Ha, PA, Ws, Wc	Displaces native plant species and alters fuel properties of vegetation, increasing fire intensities. Reduces the productivity of the rangelands and causes serious health problems in livestock and people
Parthenium hystero- phorus	Herb	31.6	25,4	Sa, Tr, Rr, Ha, PA, Ws, Wc	Allelopathic and able to suppress natural vegetation. Severely reduces the productivity of rangelands, and causes allergenic reactions (dermatitis, hay fever and asthma) in a large proportion of people who come into contact with it, as well as in livestock and wildlife.
Tithonia diversifolia	Shrub	29.4	23.5	Sa, Tr, Rr, Ha, Pl, Ar, PA, Ws, Wc	Displaces native vegetation and reduces species diversity and the productivity of rangelands. Contributes to the local extinction of valued native species.

Xanthium strumarium	Herb	34.1	28.4	Sa, Tr, Rr, Ar, Ws, Wc	Rapidly forms large stands, displacing other plant species. Toxic to livestock and can lead to death if eaten
Austrocylindropuntia subulata	Succu- lent tree or shrub	12.1	4.0	Sa, Rr, Ha, Pa, Wc, Dr	Forms impenetrable thickets that prevent access to grazing pastures and water resources. Infestations reduce the livestock-carrying capacities of pastures. Spines cause injuries to livestock, wildlife and people.
Bryophyllum delago- ense)	Succu- lent herb	5.2	2.5	Sa, Tr, Rr, Ha, Pa, Ws, Wc	Forms dense monotypic stands, which displace native plant species. Toxic to livestock and humans and probably also to wildlife.
Acacia mearnsii	Tree or shrub	15.4	6.4	Fo, Gr, Tr, Rr, Ha, Pl, Ws, Wc	Displaces natural vegetation, reducing native biodiversity and rangeland productivity. Reduces surface water runoff. Increases soil nitrogen levels, altering soil nutrient cycling.

				_	
Caesalpinia decapeta- la	Climber	35.6	12.6	Fo, Sa, TR, Rr, Ha, Pl, Pa, Ws, Wc	Climbs over vegetation, forming tangled, impenetrable thickets, detrimental to fauna and flora. Grows into forest and woodland canopies, causing canopy collapse. Impedes forest management operations and is a fire hazard. Reduces livestock-carrying capacities and inhibits the movement of livestock and people. The large spines on the stems can cause injuries to wildlife, livestock and people.
Leucaena leucoceph- ala	Tree or shrub	53.9	15.4	Sa, Tr, Rr, Ha, Pa, Ws, Wc	Forms large monocultures, displacing native plant and animal species. Invasions alter secondary succession processes and render areas unusable and inaccessible
Mimosa diplotricha Sauvalle	Tree or shrub	3.2	3.0	Fo, Sa, Gr, Tr, Rr, Ha, Pl, Ar, Pa, Ws, Wc	Smothers other plants, shading out light-demanding species and preventing their natural regeneration.  Dense stands may prevent or inhibit the movement of livestock and wildlife.  Toxic to both sheep and pigs.
Mimosa pigra	Tree or shrub	15.1	11.7	Sa, Tr, Rr, Ha, Ar, Pa, Ws, Wc, Wt	Dense infestations can eliminate native plant and animal species, and lead to steep declines in the abundance of others. Hampers fishing activities, and blocks access to waterbodies.

Senna spectabilis	Tree or shrub	36.0	4.5	Fo, Tr, Rr, Ha, Ws, Wc	Grows rapidly, dominating other species and displacing native flora and fauna. Inhibits regeneration of native plant species.
Psidium guajava	Tree or shrub	42.0	9.8	Fo, Sa, Tr, Rr, Ha, Pl, Pa. Ws, Wc	Establishes dense stands, displacing native plant and animal species. Allelopathic, impacting negatively on some crop species. Invasive in secondary forests.
Eichhornia crassipes	Aquatic	5.6	4.3	Wc, Wt	Forms thick mats which hamper water transport; inhibit or prevent fishing-related activities; blocks waterways; hampers hydroelectricity generation; and provides habitats for vectors of human and animal diseases.
Datura stramonium	Herb	45.2	34.1	Sa, Gr, Tr, Rr, Ha, Ar, Pa, Ws	Competes aggressively with native plants and crops, forming dense monospecific stands. Toxic to people and animals.
Solanum mauritianum	Tree or shrub	10.4	5.5	Fo, Tr, Rr, Ha, Pl, Ws, Wc	Displaces native plant and animal species. By producing copious amounts of edible seeds, it disrupts natural seed dispersal mechanisms, leading to declines in affected native plant species. The plant, if consumed, is toxic to livestock.

Lantana camara	Tree or shrub	54.4			Displaces natural
			38	Fo, Sa,	vegetation, impacting
				Gr, Tr,	negatively on
				Rr, Ha,	biodiversity. Toxic
				Pl, Ar,	to livestock, causing
				Pa, Ws,	animal deaths,
				Wc	reduced productivity,
					and loss of pasture.

Habitat types invaded (Fo, forest; Sa, savannah; Gr, grassland; Tr, transformed; Rr, road/rail side; Ha, around habitation; Pl, plantation; Ar, arable/ploughed land; Pa, pastoral; Ws, wasteland; Wc, watercourse; Wt, wetland; Dr, dryland/well drained; Kl, kloof/ravine; Ro, rocky site), and impacts. A full set of references to accounts of impact are contained in Witt and Luke (2017). Source: Witt et al. 2018

# 3.1.9 Emerging zoonotic diseases

There have been known outbreaks of zoonotic diseases like rinderpest and anthrax in wildlife protected areas. In the last fifteen years, QENP has experienced three outbreaks of anthrax that have affected most herbivores especially hippos and buffaloes. The cases of diseases recorded in wildlife include anthrax outbreak especially in hippos and Buffaloes, scabies in mountain Gorillas, skin disease in Giraffe, and brucellosis and canine distemper virus in lions. Other threats include avian flu, Marburg, Ebola that are not only a danger to wildlife but also humans and livestock. Experience from the outbreak of Anthrax in 2004 in Queen Elizabeth National Park (Environmental Brief No 1, 2004) showed the potential impacts of such disease outbreaks. Uganda is working with other partners under the One Health approach to address the disease pandemics and has also established a Biosafety level II laboratory in Queen Elizabeth National Park (Figure 3.1) to spearhead research in zoonotic diseases and their management. The facility was constructed with support from DITRA.



Figure 3.1: Biosafety Level Two Wildlife Veterinary Diagnostic Laboratory at Mweya (Photo credit: Uganda National Council for Science and Technology)

### 3.1.10 Climate Change impacts

Climate change and associated impacts like proliferation of invasive species has had an indirect impact on wildlife populations. In QENP, most formerly savanna areas have been invaded by Dichrostachys cinerea which is woody and no animal seems to eat it. This has therefore displaced many herbivores from their habitats and affected the breeding of wildlife. Other observed climate impacts include floods, landslides and mudslides that have destroyed wildlife habitats and affected wildlife populations.

Wildlife populations fluctuate seasonally and from year to year based on seasonal weather patterns. Climatic factors also regulate wildlife populations through changes in rainfall amounts, temperatures and levels of irradiation. These influence the quality and availability of food for wild animals resulting in high levels of inter and intra competition for food thereby affecting reproduction and survival rates and species shifts. Ponce-Reyes et al., 2017 noted that due to climate change, many of the habitats in the Albertine Rift region where endemic and threatened species occur are predicted to decline in this area over the next 70 years unless species adapt to warming temperatures, with predictions of 70% habitat loss. Fourteen (14) of Uganda's wildlife protected areas are found in the Albertine Rift, thereby constituting a significant portion of critical wildlife habitats that will be affected by changes in climate. Wild animals and plants able to adjust are shifting their ranges to higher altitudes as a means of adapting to rising temperatures. For instance, the three horned chameleon found on the Rwenzori Mountains has shifted to higher altitudes due to increases in temperatures at the lower altitudes (UWA report 2013).

Uganda's climate is predicted to change such that the distributions of many of its species and ecosystems will shift in tandem with drier or wetter parts of the country. Climate change also causes changes in the temperature and alkalinity of aquatic systems affecting the survival of biodiversity (DEAT 2006) and has also led to the melting of the snow on the mount Rwenzori (Figure 3.2). (Figure 3.2).



Figure 3.2: The legendary Mountains of the Moon in Rwenzori National Park. The snow on the mountain is receding due to climate change (Photo credit: Speciation Clock)

### 3.1.11 Poaching

Poaching remains a critical challenge for wildlife management in Uganda, with both subsistence and commercial activities posing significant threats. Uganda in collaboration with various partners, has implemented measures to combat poaching and reduce animal mortality.

### 3.1.12 Encroachment on forests and wetlands

Deforestation and wetland degradation cause for concern due to its adverse effects on the ability of ecosystems to provide essential ecological and socio-economic services, thereby posing a threat to the livelihoods of dependent communities. Furthermore, loses of these ecosystems increases the risk to impacts of climate change, drought, loss of habitats as well as loss of forest and wetland biodiversity

### 3.1.13 Pollution

There are various sources of pollution in Uganda including those due to agricultural, industrial, municipal waste discharges and dumping and e-waste. High nutrient contents caused by fertilizers or other nutrients reaching aquatic ecosystems result in eutrophication where the system becomes anaerobic depriving many organisms of oxygen necessary for their very survival. The use of polythene bags and plastics poses a big threat not only to soils but also to soil biodiversity, particularly in the urban areas. Pollution from solid waste also deteriorates environmental health in a region, particularly when citizens openly burn solid waste and emit toxic gases into the air.

# 3.2. Policy and legal framework for biodiversity management

Uganda has elaborate policies and laws that guide biodiversity management. These policies are laws will support the implementation of the Kunming-Montreal Global Biodiversity Framework in Uganda. The sections below provide a summary description of the policies and laws.

### 3.2.1 National Policies

The key national policy framework for management of biodiversity in Uganda is the National Environment Management Policy (1994). The specific objectives of the policy are to:

- a) Enhance the health and quality of life of all Ugandans and promote long-term sustainable economic development through sound environmental and natural resources management and use.
- b) Integrate environmental concerns in all development-oriented policies, planning and activities at national, district and local levels, with participation of the people.
- c) Conserve, preserve and restore ecosystems and maintain ecological processes and life support systems, including conservation of national biodiversity.
- d) Optimize resource use and achieve sustainable level of resource consumption.
- e) Raise public awareness to understand and appreciate linkages between environment and development.
- f) Ensure individual and community participation in environmental improvement activities. Sectoral Policies: Sectoral policies regulating the management of Uganda's natural resources provide measures for Biodiversity management in the various sectors of Government (Table 3.2).

Table 3.2: Sectoral Policies relevant to biodiversity management in Uganda

Policy	Relevance	Provision for Biodiversity Management
Uganda Wildlife Policy, 2014  Forestry Policy	Promotes the long-term conservation of the country's wildlife and biodi- versity in a cost-effective manner which maximizes the benefits for the people of Uganda.  Promotes management	<ul> <li>Enhance health and quality of life of all Ugandans and promote long-term sustainable economic development through sound environmental and natural resources management and use.</li> <li>Integrate environmental concerns in all development-oriented policies, planning and activities at national, district and local levels, with participation of the people,</li> <li>Conserve, preserve and restore ecosystems and maintain ecological processes and life support systems, including conservation of national biodiversity.</li> <li>Optimize resource use and achieve sustainable level of resource consumption.</li> <li>Raise public awareness to understand and appreciate linkages between environment and development.</li> <li>Ensure individual and community participation in environmental improvement activities.</li> <li>Protect and manage sustainably the Permanent</li> </ul>
(2001)	of forestry resources	<ul> <li>Forest Estate.</li> <li>Promote the development and sustainable management of natural forests on private and customary land.</li> <li>Promoting profitable and productive forests plantation business.</li> <li>Promote collaborative partnerships with rural communities for the sustainable management of forests.</li> <li>Promote tree growing on farms in all farming systems and innovative methods for delivering forestry extension and advisory services through decentralized and farmer - driven mechanisms.</li> <li>Conservation and management of biodiversity in support of local, national social and economic development and international obligations.</li> <li>Establish, rehabilitate and conserve watersheds.</li> <li>Promote urban forestry</li> <li>Support sustainable forest sector development through education, training and research</li> <li>Promote innovative mechanisms for the supply of high quality tree seed and improved planting stock</li> </ul>

Uganda National Land Policy (2013)	Promotes the land use and physical planning	<ul> <li>Grants ownership of land-to-land owners and bona fide occupants of land in Uganda</li> <li>Grants the use of land and all resources in accordance with other laws</li> </ul>
National Wetlands Policy (1995)	Promote the conservation of Uganda's wetlands in order to sustain their ecological and socioeconomic functions for the present and future well being of the people.	<ul> <li>Establish the principles by which wetland resources can be optimally used, and their productivity can be maintained into the future.</li> <li>End existing unsustainable exploitative practices in wetlands to avert the decline in their productivity.</li> <li>Maintain a biological diversity in wetlands either in the natural community of plants and animals or in the multiplicity of agricultural activity.</li> <li>Maintain the functions and values derived from wetlands resources throughout Uganda.</li> <li>Promote the recognition and integration of wetland functions in resource management and economic development decisions making about sector policies and programmes such as forestry, agriculture, fisheries, and wildlife and sound environmental management</li> </ul>
Uganda Tourism Policy (2015)	Ensure that tourism becomes a vehicle for poverty reduction	<ul> <li>Develop tourism in a sustainable manner, focusing on Agenda 21 issues in respect of the development of tourism facilities and encouraging nature friendly product development</li> <li>Ensure that conservation programmes between Government Agencies (UWA, NFA and Wetlands Department) are well coordinated.</li> <li>Develop facilities and products in the national parks in accordance with the park management plans.</li> <li>Provide for channeling of tourism revenues towards the protection of the natural resource base</li> </ul>

National Fisheries and Aquaculture Policy (2017)	Conserve and manage sustainably fisheries and other aquatic resources for sustainable production	biodiversity resources, species distribution and role in aquatic systems for all waters.
		<ul> <li>Contain over-exploitation, the destruction of habitat and control species introduction through strengthened research efforts and better planning and monitoring.</li> <li>Identify and map critical and sensitive habitats and take appropriate steps (gazetting) to minimize damage and disturbance to breeding, nesting, aestivation and feeding areas of al! Aquatic species.</li> <li>Put in place mechanisms, including research, planning and monitoring, to encourage the revival of endangered fish species in the waters and ensure sustainable utilization.</li> <li>Regulate the disposal of water and wastes from fish processing areas, plants and other industries.</li> <li>Increase training opportunities, develop more appropriate curricula and develop better local capacity in the fisheries manpower sector.</li> <li>Collaborate and participate with the neighboring countries to harmonize the management and development of shared aquatic resources.</li> </ul>

National Agriculture Policy (2013)	Promote farming systems and land-use practices that conserve and enhance land productivity in an environmentally sustainable manner	<ul> <li>Enhance and strengthen the environmental concerns in the agricultural extension system, including research and training for extension workers, NGOs and land-users</li> <li>Place greater emphasis on environmentally friendly means of increasing agricultural production</li> <li>Undertake a national soil survey and mapping programme and formulate a national soil policy</li> <li>Where appropriate and practicable, offer land users tax incentives for soil and water conservation and good husbandry practices.</li> <li>Support researches to develop farming systems that combine optimum production with land resources conservation and which are compatible with the socio-economic conditions of the target population.</li> </ul>
Decentralization Policy (1993)	Districts are empowered to plan for development in the district and to manage the environment and Sectoral natural resources such forestry, wetlands, wildlife,	<ul> <li>Transfer political, administrative, financial and planning authority from the center to local governments.</li> <li>Promote popular participation, empower local people to make own decisions and enhance accountability and responsibility.</li> <li>Introduce efficiency and effectiveness in the generation and management of resources, and in the delivery of services.</li> </ul>
Uganda Gender Policy (2007)	Integrate gender concerns in environmental policy planning, decision making and implementation at all levels to ensure sustainable social and economic development.	related to the environment including the human factors.  • Includegenderroles and analysis in environmental management training programmes tit all levels.

Uganda National Culture Policy (2006)	Conserve, protect and promote Uganda's tangible and intangible cultural heritage	<ul> <li>Manage Uganda's cultural heritage (Cultur sites, Monuments and Antiquities) and associate biodiversity values</li> <li>Promote cultural practices and norms including those dependent on a variety of biologic resources.</li> </ul>	ed ng
National Population Policy (2020)	Involve a society that is both informed and conscious of population and development issues at all levels		of ge ent tal ss.  n ss.  ne d cy n, ch of ees
Education Sector Policy as contained in the Government White Paper on Education (1992)	Promotes human resources development	<ul> <li>Promote education that is relevant to Uganda development priorities</li> </ul>	a's
National Community Development Policy (2015)	To guide on identification of inclusive projects in communities to improve citizen participation in Uganda's development process.	Communities playing a greater role in designing programs for their infrastructure, healt education and agri-business needs  Small-scale industries and other value addition initiatives directly linked to the unique agricultural raw materials and other inpurpoduced in the different parts of Uganda.  Mass sensitization of communities and other stakeholders undertaken to ensure that the new Policy translates into deliverables that reduce poverty levels further, and ensure rapid nation development and modernization.	th, on ue uts er ew ce

### 3.2.2 National legal Frameworks

Besides the above Policy frameworks, there are also elaborate legal regimes for the management of biodiversity in Uganda. These are grounded in the Constitution of the Republic of Uganda, 1995. Objective XIII of the Constitution requires the State to protect important natural resources, including land, water, wetlands, minerals, oils, fauna, and flora on behalf of the people of Uganda. Article 245 provides for Parliament to enact laws intended to protect the environment from abuse, pollution and degradation as well as for managing the environment for sustainable development. Parliament has, in conformity with Article 245 of the Constitution, enacted both national and sectoral laws on the management of the environment, some of which are discussed below.

The National Environment Act Cap 153 provides for the over-all management, coordination and monitoring of environment management and conservation in Uganda. It provides for the protection and conservation of natural resources in Uganda as well as promotion of international cooperation in the field of the environment. Requirements for biodiversity management by the different sectors are provided in several legislations (Table 3.3).

Table 3.3: Sectoral laws for biodiversity management in Uganda

Framework	Provisions for biodiversity management
National Forestry and Tree Planting Act (Cap. 160)	<ul> <li>Declaration of forest reserves for purposes of protection and production of forests and forest produce</li> <li>Sustainable use of forest resources and the enhancement of the productive capacity of forests</li> <li>Promotion of tree planting</li> <li>Consolidation of laws relating to forest sector and trade in forest produce</li> <li>Establishment of a National Forest Authority</li> <li>Establishment of District Forest Services</li> <li>Recognition of privately owned forests through, registration and requirement for such forests to be managed according to approved management plans</li> </ul>
Uganda Wildlife Act Cap. 315	<ul> <li>Conservation of wildlife throughout Uganda, so that the abundance and diversity of their species are maintained at optimum levels commensurate with other forms of land use. In order to support sustainable utilization of wildlife for the benefit of the people of Uganda</li> <li>Sustainable management of wildlife conservation areas</li> <li>Conservation of selected wildlife communities in Uganda</li> <li>Protection of rare, endangered and endemic species of wild plants and animals</li> <li>Ecologically acceptable control of problem animals</li> <li>Enhancement of economic and social benefits from wildlife management by establishing wildlife use rights and the promoting of tourism</li> <li>Control of import, export and re-export of wildlife species and specimens</li> <li>Implementation of relevant international treaties, conventions, agreements or other ar- rangements to which Uganda is a party</li> <li>Public participation in wildlife management</li> </ul>

Local Governments Act, Cap. 138	<ul> <li>Planning and management of environment and wetlands</li> <li>Management of Local Forest Reserves and for over-all development of forestry resource within the district</li> </ul>
Land Act, Cap. 236	<ul> <li>Acquisition of land by government for purposes of common good, which would include biodiversity management</li> <li>Management and use of privately owned land in accordance with laws governing forestry, mining, environment, water, wildlife and other such laws</li> <li>Holding in trust for the people of Uganda and protecting environment sensitive areas such as natural lakes, rivers, wetlands, forest reserves, national parks and any other land reserved for ecological and touristic purposes.</li> </ul>
Water Act, Cap. 164	<ul> <li>Use, protection and management of water resources and supply</li> <li>Promoting the rational management and use of water resources, including management of</li> <li>water resources for preservation of flora and fauna</li> <li>Recreation m ways that minimize harmful effects to environment</li> <li>Control pollution of water resources</li> <li>Water and Sanitation Subsector Gender Strategy (2010-2015) aims to empower women, men and vulnerable groups by ensuring equity in access and control of resources in the water and sanitation sector in order to reduce poverty</li> </ul>
Plant Protection and Health Act - (CAP. 39)	<ul> <li>Prevention of the introduction and spread of diseases destructive to plants.</li> <li>Regulating introduction of exotic plant materials and managing the spread of plant disease or those plants capable of out competing dangerous plants (invasive species)</li> </ul>
Animal Breeding Act, Cap 47	<ul> <li>Promoting, regulating and controlling, marketing and quality assurance of animal and fish genetic materials and generally for implementing the breeding policy</li> <li>Establishment of National Genetic Resources Centre and Databank</li> </ul>
Fisheries and Aquaculture Act, Cap 314	<ul> <li>Controlling fishing, conservation of fish, purchase and marketing fish</li> <li>Regulating the introduction or transfer of fish species or their eggs or progeny not indigenous to Uganda</li> <li>Gender and equity as guiding principles and priority in fisheries sector</li> </ul>
Uganda Tourism Act, Cap 82	<ul> <li>Formulating and implementing the marketing strategy(s) for tourism in which ought to be done in consultations and cooperation of the private sector and other relevant entities</li> <li>Promoting domestic tourism</li> <li>Encouraging investments in the tourism sector, targeting, among others, less developed tourism areas</li> <li>Developing tourism revenues management strategies</li> <li>Provision of financial support and incentives to promote private entities in tourism sector</li> </ul>

The Animal Dis-eases Act, Cap 48	<ul> <li>Prevention of introduction and spread of diseases that may endanger the lives of Animals and Humans</li> <li>Rules and regulations for disease control and compensation for purposes of disease control and procedures for importation or exportation of animals and their products</li> </ul>
The Animals (Prevention of Cruelty) Act, Cap 49	O Provides measures for modes of transportation of animals to prevent cruelty and expo- sure to diseases
Agricultural Chemicals (control) Act, Cap 35	O Control and regulation of the manufacture, storage, distribution and trade in, use, im- portation and exportation of, agricultural chemicals and for other purposes connected therewith

In alignment with the policy and legal sections above, coherence and collaboration across sectors will be key to successful implementation of NBSAP III and conservation efforts more broadly

### 3.2.3 Multilateral Environmental Agreements and Protocols

Uganda is a signatory to many international Conventions, Protocols and Agreements relating to biodiversity management. These include the Convention on Biological Diversity (1992); the Cartagena Protocol on Biosafety (2000); the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) (1973); Convention on Wetlands of International Importance Especially as Water Fowl Habitat (the RAMSAR Convention); the United Nations Convention to Combat Desertification (UNCCD) (1994); the United Nations Framework Convention on Climate Change (UNFCCC) (1992); Convention on the Protection of the World Cultural and Natural Heritage (1972), Paris; the Convention Relating to the Preservation of Flora and Fauna in their Natural State (1933), London.

African Convention on the Conservation of Nature and Natural Resources (1968), Algiers; Lusaka Agreement on Cooperative Enforcement Operations Directed at Illegal Trade in Wild Fauna and Flora (1994); the International Treaty on Plant Genetic Resources for Food and Agriculture (2001) and the World Trade Organization (Sanitary and Phytosanitary Rules). Each Convention is implemented through a national Focal Point in a designated Ministry or Lead Agency in Uganda.

Uganda is also a signatory to a number of regional protocols and agreements including the East African Community Treaty, East African Community Protocol on Environment and Natural Resources Management, Protocol for Sustainable Development of Lake Victoria Basin, Convention for the Establishment of the Lake Victoria Fisheries Organization (LVFO), East African Community Protocol on Wildlife Conservation and Law Enforcement, Tripartite Management Agreement for Trans- boundary Wildlife Protected Area and Cooperative Framework Agreement on the River Nile. Each regional framework is implemented through a National Focal point in a Government Ministry or Lead Agency.

One of the biggest challenges in the implementation of the Conventions and Agreements is the coordination among the Focal Points which results in frequent duplication of effort. NEMA will provide overall coordination of the stakeholders.

# 4.0. BIODIVERSITY STRATEGY AND ACTION PLAN III 2025-2030

### 4.1 Introduction

Uganda signed and ratified the Convention on Biological Diversity (CBD) on 12th June 1992 and 8th September 1993, respectively. The CBD has three objectives namely: the conservation of biological diversity, its sustainable use and the fair and equitable sharing of the benefits arising from the utilization of genetic resources. Article 6 (a) of the CBD requires Parties to the Convention to develop national strategies, plans or programmes for the conservation and sustainable use of biological diversity.

The National Biodiversity Strategy and Action Plan (NBSAP) is the main instrument for implementation of the Convention at country level. NBSAP provides Government with a framework for implementing its obligations under CBD as well as the setting of conservation priorities, channeling of investments and building of the necessary capacity for the conservation and management of biodiversity in the country.

### 4.2.1 Lessons learnt from implementing NBSAPII for Uganda

Lessons learnt from implementation of NBSAPII (2016-2025) include the following:

- a) Successful integration of NBSAP targets into national and sectoral plans is essential, yet further efforts are needed to ensure similar integration at the district level.
- b) Engaging a diverse range of stakeholders is critical to effectively mainstreaming biodiversity considerations at all levels of governance.
- c) Advocacy efforts have resulted in improved funding for biodiversity initiatives, demonstrating the importance of collaborative platforms like NBSAP for resource mobilization.
- d) NBSAP functions as a valuable forum for resource mobilization.
- e) Establishing expert working groups enhances efficiency and effectiveness in service delivery by addressing diverse themes, including gender, Indigenous Peoples and Local Communities (IPLCs), youth, and collaboration with private sectors, NGOs, and civil society.
- f) Limited mainstreaming of NBSAP within local governments severely hinders effective implementation and results in diminished local impact.
- g) The availability of comprehensive data is crucial for bridging gaps between policy and biodiversity, helping to identify needs and inform decision-making.
- h) Improved data accessibility facilitates better research proposal writing and financial planning, ensuring projects align with biodiversity targets.
- i) Understanding financial requirements for biodiversity projects is essential to secure necessary funding and ensure sustainability.
- i) Ongoing monitoring and evaluation of biodiversity initiatives are vital for assessing progress,

adapting strategies, and ensuring effective implementation of the NBSAP objectives.

The key obstacles to NBSAPII implementation included:

- a) Inadequate financial resources for implementation
- b) Inadequate human and infrastructure capacity in relevant fields of biodiversity conservation such as taxonomy, biotechnology and capacity to carry out conservation and characterization of germplasm
- c) Limited information on indigenous farm plant and animal genetic resources
- d) Inadequate managerial and technical capacity in the district and lower local Government levels for implementation of the NBSAP; and,
- e) Inadequate mainstreaming of biodiversity into sectoral plans, programmes and strategies..

# 4.3. Guiding Principles for the Development of NBSAPIII

While addressing any gaps in the implementation of NBSAP III, the development of NBSAPIII was based on the following guiding principles:

- a. NBSAPs are key implementation tools for the Convention on Biological Diversity and NBSAPIII will therefore address all three objectives of the Convention.
- b. The NBSAPIII will highlight and seek to maintain the contribution of biodiversity and ecosystem services to human wellbeing, poverty eradication, gender equality and national development as well as the economic, social, cultural and other values of biodiversity
- c. NBSAPIII will be used to identify and prioritize the actions required in order to meet the objectives of the CBD at national level, and to devise a plan of how to implement those actions.
- d. In order to be effective, NBSAPIII will be jointly developed, adopted, and owned by a full range of stakeholders involved.
- e. NBSAPIII will also include measures to mainstream biodiversity into sectoral and cross-sectoral policies and programs.

### 4.4. Linking NBSAPIII to Uganda's Vision 2040, NDP, SDGs and KMGBF

Uganda Vision 2040 provides development paths and strategies to operationalize Uganda's Vision statement which is "A Transformed Ugandan Society from a Peasant to a Modern and Prosperous Country within 30 years" as approved by Cabinet in 2007. It aims at transforming Uganda from a predominantly peasant and low-income country to a competitive upper middle-income country. NBSAPIII will assist Uganda to reach its long-term goals as outlined in its Vision 2040, National Development Plans and the Sustainable Development Goals (SDGs) as illustrated in the Figure 4.1 and Table 4.1 below; demonstrating the linkage of the National Vision 2040, NDPIV and SDGs that implementation of NBSAPIII contributes to their achievement.

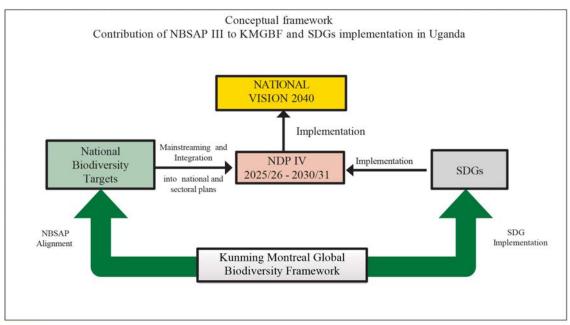


Figure 4.1: Conceptual framework of the linkage between NBSAP III, the Strategic Plan for Biodiversity, SDGs, NDPIV and National Vision 2040

Table 4.1 Linking the Strategic Objectives of NBSAPIII to the Kunming Montreal Global Biodiversity Framework and Implementation Plan for the Cartagena Protocol on Biosafety

No	Strategic Objective of NBSAPIII	Linkage to Goals of KMGBF <sup>1</sup> and Goals of the IPCPB <sup>2</sup>	Linkage to the KMGBF targets
1	To increase the connectivity, integrity and resilience of ecosystems	KMGBF Goals A; IPCPB Goal A.6	Global targets 1, 2, 3, 4, 5, 6, 7, 9, 10, 11, 12, 14
2	To harness biotechnology for socio- economic transformation with adequate safety measures for human health and environment	KMGBF Goals B; IPCPB Goals A.4, A.5, A.7, A.8 and A.9	Global target 17
3	To promote the sustainable use and equitable sharing of costs and benefits of biodiversity	KMGBF Goal C	Global targets 9, 13, 14, 15, 18
4	To strengthen stakeholder co-ordination and frameworks for biodiversity management	KMGBF Goal D; IPCPB Goals A.2 and B.4	Global targets 14 and 21
5	To facilitate and build capacity for research, monitoring, information management and exchange on biodiversity	KMGBF Goals D; IPCPB Goals A.1, A.10 and B.1	Global targets 20, 21 and 22
6	To enhance awareness and education on biodiversity issues among the various stakeholders	KMGBF Goals D; IPCPB Goals A.3 and B.3	Global target 14, 15, 16, 20, 21
7	To promote innovative sustainable funding mechanisms to mobilize resources for implementing NBSAPIII	KMGBF Goal D; IPCPB Goal B.2	Global targets 18, 19

(IPCPB = Implementation Plan for the Cartagena Protocol on Biosafety, 2022).

Table 4.2 NBSAP key contribution areas towards Vision 2040, NDP and the SDGs

	NBSAP III: Key contribution areas to Vision 2040, NDPIII and SDGs	
Vision 2040	NDPIV	SDGs
O Green Economy: poverty eradication, sustained economic growth, creating opportunities for employment, maintaining the healthy functioning of ecosystems	<ul> <li>Theme: Sustainable Industrialization for inclusive growth, employment and wealth creation</li> <li>Goal: Higher household incomes and employment for sustainable socio-economic transformation.</li> </ul>	Goal 1. End poverty in all its form everywhere Goal 2. End hunger, improve nutrition and promote sustainable agriculture
<ul> <li>O Protection and sustainable use of natural resources: promoting reforestation, afforestation, tree planting and green agriculture practices; restoration of wetlands, hilltops and other fragile ecosystems</li> <li>O Sharing of environmental costs and benefits: conservation of ENR and cultural diversity; adoption of environmental patterns of production and consumption; promotion of the development, adoption and equitable transfer of environmentally sound technologies</li> </ul>	<ul> <li>Strategic Objectives: <ol> <li>Sustainably increasing production, productivity and value addition in agriculture, minerals, oil and gas.</li> <li>Tourism, ICT &amp; financial services.</li> <li>Enhancing human capital development.</li> <li>Supporting private sector to drive growth.</li> <li>Building &amp; maintaining strategic sustainable infrastructure</li> <li>Strengthening good governance, security and role of the state in development.</li> <li>Priority sectors: Agriculture, tourism, minerals, oil and gas</li> <li>ENR Objectives</li> <li>Ensure availability of adequate and reliable quality freshwater resources for all uses;</li> <li>Increase forest, tree and wetland coverage, restore bare hills and protect mountainous areas and rangelands;</li> <li>Strengthen land use and management;</li> <li>Maintain and/or restore a clean, healthy, and productive environment;</li> <li>Promote inclusive climate resilient and low emissions development at all levels;</li> <li>Reduce human and economic loss from natural hazards and disasters;</li> <li>Increase incomes and employment through sustainable use and value addition to water, forests and other natural resources.</li> </ol> </li> </ul>	Goal 5. Attain gender equality, empower women and girls everywhere. Goal 6. Ensure availability and sustainable use of water and sanitation for all Goal 12. Promote sustainable consumption and production patterns Goal 13. Tackle climate change and its impacts Goal 14. Conserve and promote sustainable use of oceans, seas and marine resources Goal 15. Protect and promote sustainable use of terrestrial ecosystems, halt, desertification, land degradation and biodiversity loss

The linkage between the Strategic Objectives of NBSAPIII, the Kunming Montreal Global Biodiversity Framework and its 23 targets as well as linkage to the Implementation Plan for the Cartagena Protocol on Biosafety is provided in Table 4.2 above.

# 5.0.THE NATIONAL BIODIVERSITY STRATEGY AND ACTION PLAN 2025-2030

# 5.1 Overarching principles for implementation of NBSAPIII

NBSAPIII will be implemented in line with the following overarching principles:

- 1. Inclusive and participatory approach through application of the whole of government and whole of society approach to bring all stakeholders board, including indigenous peoples and local communities, women and youth in the planning, implementation, and monitoring of biodiversity conservation efforts.
- 2. Recognize and respect the diverse values and perspectives of different cultures and societies in the country.
- 3. Gender equality that recognizes the different roles and contributions that men and women, girls and boys, youth and elderly people play in biodiversity conservation and sustainable development.
- 4. Human rights-based approach to biodiversity conservation by respecting and protecting human rights of all individuals to participate in decision-making processes related to biodiversity conservation and sustainable development.
- 5. Ecosystem approach recognizing that ecosystems are interconnected systems with multiple components interacting with each other, hence considering the broader ecological context in which species live, including habitats, landscapes, ecosystem services, and the impacts of human activities on these systems.
- 6. Inter-generational equity by balancing short-term needs (human well-being) with long-term needs (conservation) and considering the needs of future generations in decision-making processes related to biodiversity conservation efforts.
- 7. Ensuring gender equality and empowerment of women, girls and the youth including boys.
- 8. Integration with other national development plans and policies, such as the National Development Plan, the National Poverty Reduction Strategy, and the National Environment Policy.
- 9. The implementation of the NBSAP III will involve application of science, technology and

innovation and traditional knowledge and practices.

- 10. NBSAP III acknowledges interlinkages between biodiversity and health. It thus be implemented with consideration of the One Health Approach
- 11. The goals and targets of the KMGBF are to be implemented in accordance with national circumstances, priorities and capabilities
- 12. Monitoring and evaluation to track progress towards biodiversity conservation goals and targets, based on robust indicators for tracking changes in species populations, ecosystem health, and ecosystem services, as well as evaluating the effectiveness of conservation actions.
- 13. Capacity building and training for conservation staff, researchers, and stakeholders to enhance their skills and knowledge in biodiversity conservation.
- 14. Public awareness and education on biodiversity issues to engage citizens in conservation efforts and promote behaviour change.
- 15. Collaboration and cooperation with other biodiversity-related conventions to promote synergies among the multi-lateral environmental agreements as well as regional and sub-regional strategies on KMGBF.
- 16. Budgeting and financing through diverse sources to ensure that sufficient resources are available to support conservation activities. Several financing mechanisms are mentioned in the Financing and Resource mobilisation section of this NBSAP.

### 5.2 Vision, Goal and Strategic Objectives of NBSAPIII

### **5.2.1** Vision

Rich biodiversity benefiting the present and future generations

### 5.2.2 Goal

To enhance biodiversity conservation, reduce biodiversity loss and ensure equitable sharing of benefits arising from utilization of genetic resources

### **5.2.3** Strategic Objectives

- 1. To increase the connectivity, integrity and resilience of ecosystems
- 2. To harness biotechnology for socio-economic transformation with adequate safety measures for human health and environment
- 3. To promote inclusive, fair and equitable sharing of benefits arising from utilization of genetic resources, including digital sequence information on genetic resources, and of traditional knowledge associated with genetic resources
- 4. To strengthen stakeholder co-ordination, inclusive participation, partnerships and frameworks for biodiversity conservation

- 5. To facilitate and build capacity for research, technology development, innovation, monitoring and knowledge management
- 6. To enhance stakeholder awareness, education and stewardship of biodiversity conservation
- 7. To promote innovative and sustainable funding solutions for implementing NBSAPIII

### **5.3** The National Strategies and Action Plans

Thematic area one: Connectivity and integrity of ecosystems

Strategic Objective 1: To increase connectivity, integrity and resilience of ecosystems (Corresponds to KMGBF Goal A: Protect and Restore).

The strategies are to:

- 1. Improve management effectiveness of protected areas
- 2. Implement climate change mitigation and adaptation for biodiversity conservation including disaster risk reduction from climate change impacts
- 3. Identify and implement measures for protection of threatened and vulnerable species
- 4. Institute and implement place measures for protection of genetic diversity cultivated plants and domesticated animals
- 5. Institute and implement measures to stop further loss of natural habitats
- 6. Improve management of agricultural practices, and forests for biodiversity conservation and sustainable use
- 7. Institute and implement measures for management of pollution and waste in vulnerable ecosystems
- 8. Institute and implement measures for eradication and control measures of alien invasive species
- 9. Sustainably manage fisheries resources
- 10. Promote sustainable harvesting of fish and invertebrate stocks
- 11. Support ecosystem conservation in oil rich regions of Uganda

# Table 4.3: Strategic Objective 1: To reduce and manage negative impacts while enhancing positive impacts on biodiversity

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	1.1	By 2030, at least 30% of terrestrial	Corresponding KMGBF target 1: Plan and manage all areas to reduce biodiversity loss.
		and inland water ecosystems in	Corresponding KMGBF target 2: Restore 30% of all degraded ecosystems.
		Uganda are conserved through	Corresponding KMGBF target 3: Conserve 30% of land, waters and seas.
		effectively and equitably managed,	Corresponding KMGBF target 10: Enhance biodiversity and sustainability in agriculture, aquaculture, fisheries, and
		ecologically representative and	forestry.
		well-connected systems of protected	Corresponding KMGBF target 11: Restore, maintain and enhance nature's contributions to people.
		areas and other effective area based	Corresponding KMGBF target 12: Enhance green spaces and urban planning for human well-being and biodiversity.
		conservation measures for socio-	
		economic benefit of the population	
- 1			

### **National Indicators**

The proportion of area under terrestrial and inland water ecosystems effectively and equitably managed

National forest cover as a proportion of the total land area

National wetland covers as a proportion of the total land area

Trends in the area of corridors connecting protected areas

Trends in abundance of selected species

Trends in coverage of protected areas

#### Headline Indicators

- A.1 Red List of Ecosystems
- A.2 Extent of natural ecosystems
- A.3 Red List Index
- 3.1 Coverage of protected areas and other effective area-based conservation measures
- 12.1 Average share of the built-up area of cities that is green/blue space for public use for all

# **Component Indicators**

Red List of Ecosystems

Connectivity Indicator

Species Protection Index

Area of forest under sustainable management

Annual mean levels of fine particulate matter like PM<sub>2.5</sub> and PM10) in cities

Recreation and cultural ecosystem services provided

# **Complimentary Indicators**

Biodiversity Habitat Index

Red List Index

Red List of Ecosystems

Living Planet Index

Species habitat Index

Extent of indigenous peoples and local communities' lands that have some form of recognition

Species Protection Index

Strategy	Action	Proposed Activities	Baseline 2023	Output indicators	Lead Agency (target champion)	Partner institutions	Costs in US\$
Improve management effectiveness of Protected Areas	Effectively and equitably manage protected areas in Uganda	1.1.1. Develop and/or review, update and implement participatory protected area management plans	Presently few protected areas (Pas) especially central forest reserves (CFRs) are effectively managed	Number of PA management developed and implemented	UWA, NFA, Local governments	MWE, MDAs NGOs CBOs Private sector	300,000
		1.1.2. Application of the mitigation hierarchy (MH) of proposed developments in critical habitats and recognizing limits to what can be lost and compensated	Presently few projects in Uganda have considered adequate application of Mitigation Hierarchy	Number of projects that have adequately applied the Mitigation Hierarchy  Number of biodiversity offsets projects in progress	UWA, NFA, NEMA, local governments, UIA, MDAs	NGOs, CBOs	300,000

1.1.3 Promote protected areas as core drivers for nature-based tourism development in the local economy	Few PAs especially CFRs have adequate tourism development contributing to the local economy	-Number of visitors to protected areas -Tourism revenue generated form protected areas -Tourism related infrastructure in place	UWA, NFA	NEMA, MTWA, MWE, Local governments, NGOs, CBOs	500,000
1.1.4 Establish/ maintain viable wildlife/ biodiversity corridors with respect to community safeguards	Many PAs lack connectivity which is important for gene dispersal	number of wildlife/ biodiversity corridors established through community- government dialogue	UWA, NFA, NEMA, Local government	MTWA, MWE ,NGOs, CBOs	200,000
1.1.5 Support gender-responsive alternative livelihood options for communities adjacent to Pas	There is massive encroachment especially for agriculture in PAs	Number of women and men with livelihood improvement initiatives in place Trends in revenue shared with communities	UWA, NFA, MGLSD	MoFPED, MWE, NEMA, NGOs, CBOs	800,000

1.1.6 Identify and implement PA networks to conserve ecologically sensitive vegetation types, habitats, species and genetic diversity	There quite a number of PAs with conservation concerns that need to be addressed	Number of PA networks with well-protected ecosystems, species and genetic resources	UWA, NFA, Local governments	NEMA, MWE, NGOs, CBOs	500,000
1.1.7 Mitigate human wildlife conflicts	There are PAs with alarming human wildlife conflicts	-Number of incidences of human wildlife conflicts in previously vulnerable areas -Number of human wildlife mitigation initiatives in place	UWA	MTWA, NFA, NEMA, NGOs, CBOs	600,000
1.1.8 Strengthen partnerships with adjacent communities to PAs for mutual benefits (Supporting REDD+)	Such partnerships are weak or non-existent with communities adjacent to Central Forest Reserves (CFM)	-Number of partnerships with community groups	FSSD	NFA, CCU, UWA, NEMA, Local governments, NGOs, CBOs	250,000

			1.1.9 Develop and	No guidelines	Number of	MEMD	MDAs	150,000
			operationalize	form mitiga-tion	guide-lines for	NEMA	CSOs	
			guidelines for	hierarchy in place	the Miti-gation		Private Sector	
			the Mitigation		Hierarchy in			
			Hierarchy in		the Extractives			
			the Extractives		In-dustry			
			Industry		developed			
			1.1.10 Use	A number of	-Number	MEMD	UWA, MWE,	120,000
			improved and	protected areas	of KMs	NEMA	NGO, CBOs,	
			safe pole lines in	with the im-	constructed in		LG	
			sensitive mapped-	proved pole lines	these protected			
			out ecological	present	areas			
			areas					
1.2	By 2030, at least 30% of degraded	Corresponding	KMGBF target 2: Re	estore 30% of all de	graded ecosystems	S.		
	ecosystems are restored to	Corresponding	KMGBF target 8: M	inimize the impacts	of climate change	on biodiversity	and build resilier	nce.

# ecosystem services National Indicators

The proportion of the area of degraded ecosystems restored

Status and trends in extent and condition of habitats that provide carbon storage

### **Headline Indicators**

- A.1 Red List of Ecosystems
- A.2 Extent of natural ecosystems

enhance biodiversity conservation,

connectivity, resilience and

A.3 Red List Index

# **Component Indicators**

Extent of natural ecosystems by type

Maintenance and restoration of connectivity of natural ecosystems

Red List of Ecosystems

Ecosystem Intactness Index

Species Habitat Index

National greenhouse inventories from land use and land-use change

# **Complimentary Indicators**

Forest area as a proportion of total land area

Forest distribution

Wetland Extent Trends Index

Biomass of selected natural ecosystems

Biodiversity Habitat Index

Red List Index

Red List of Ecosystems

Species habitat Index

National greenhouse inventories from land use and land-use change

Carbon stocks and annual net greenhouse gas emissions, by land-use category, split by natural and non-natural land cover

Strategy	Action	Proposed Activities	Baseline 2023	Output indicators	Lead Agency (target champion)	Partner institutions	Costs in US\$
Implement climate change mitigation and adaptation for biodiversity conservation including disaster risk reduction from climate change impacts	Enhance ecosystem resilience, including community resilience, to climate change	1.2.1 Reduce deforestation, increase timber stocks including energy woodlots countrywide to reduce pressure on current stocks, especially in natural forests and promote technologies	Rampant forest destruction is being promoted due to inadequate timber resources and/or lack of access to affordable energy sources	-Reduced emissions from deforestation -Reduced emissions from forest degradation -Conservation of forest carbon stocks -Enhancement of forest carbon stocks Improved livelihoods of adjacent communities	NFA, UWA, Local governments	FSSD CCU NGOs NEMA	500,000

	1225	N 111 C	-Improved air quality -Improved household health Guidelines	T (E) (E)	NOVE	100,000
	1.2.2 Develop guidelines for phasing out Polychlorinated biphenyls (PCBs) in the energy sector	No guidelines for PCB in place	devel-oped and opera-tionalized	MEMD, NEMA	MWE, MDAs	100,000
	1.2.3 Develop guidelines and capacities for ensuring gender-responsive, equitable and transparent implementation of REDD+ in partnership with CSOs, including women's organizations	Close collaboration between government institutions and CSOs is weak with re-spect to REDD+ implementation	Guidelines developed -Numbers of beneficiaries of REDD+ trained	MWE	CBOs, NGOs, CSOS, NFA, NEMA, CCU, Local governments	150,000
	1.2.4 Enhance carbon stocks and storage by mainstreaming climate change into the REDD+ strategy as well as in sector policies, plans and projects	There is limited mainstreaming of REDD+ in sector plans and policies with respect to biodiversity and ecosystem protection	Number of sector policies and plans that have mainstreamed climate change	MWE	NFA, CCD, NEMA	4,500,000

1.2.5 Support	-This is on-going	Acreage	FSSD NFA	NEMA NGOs	192,000,
afforestation,	on some parts of	afforested	Local	CBOs	000
tree planting and	the country	Plant a least	governments		
re- forestation	-About 200,000	200,000 ha			
activities at all	ha of forest are	trees annually			
levels	lost annually,	to contribute to			
	3,769,235 ha	national target			
	have been lost by	in Vision 2040			
	2014 since 1990,				
	and only 3%				
	of this restored				
	since 1990				
1.2.6 Promote and	This is on-going	Wetland	WMD,	NGOs	3,500,000
support restoration	on some parts	areas restored	NEMA,		
of degraded	of the country	Restore at	Local		
wetlands	but on a small	least 11,250	governments		
	scale and is not	ha annually			
	commensurate	to contribute			
	with the level of	to the			
	degradation	achievement			
		of the national			
		target in Vision			
		2040			
1.2.7 Enhance	Policy makers,	Number of	FSSD	UWA, NFA,	400,000
biodiversity and	technocrats	Policy makers,		NEMA	-
ecosystems'	and local	technocrats			
resilience to	communities find	and local			
climate change	it difficult linking	communities			
especially in	climate				

biodiversity	change impacts	appreciate			
hotspots	to biodiversity	the linkage			
	conservation	between			
	and ecosystem	biodiversity			
	resilience	conservation			
		and climate			
		change			
1.2.8 Develop	No systems for	DRRM and	MEMD,	OPM, NEMA,	80,000
disaster risk	DRRM in place	monitoring sys-	MWE	MDAs	
reduction and		tems developed			
management					
(DRRM) and					
monitoring					
systems for ener	gy				
and extractive					
industries					
1.2.9 Establish	Some buffer	-Number of	UWA,	NEMA	400,000
buffer zones for	zones impacted	protected areas	NFA, Local		
protection of	negatively by	with buffers	governments		
critical conservati	on climate change	-Area under			
areas with high	might require	Buffers			
biodiversity withi	n adjustments				
Pas					
1.2.10. Monitor	Uncontrolled fires	Number of	Local	NEMA ,MEMD	600,000
and control bush	is common in many	fire control	governments		
burning in fire pro	one biodiversity rich	mechanisms put	UWA, NFA		
areas including	areas	in place			
establishment of		-Trends in			
fire-lines in forest		acreage affected			
reserves		by fires			
		-Reduced fire			
		cases			

			1.2.11 Collect and	Drought resistant	Number of	NARO	UWA,	200,000
			store diverse gene	plant varieties are	accessions of		NFA, Local	
			pools, including	not yet adequately	drought resistant		governments,	
			through community	collected and	crop varieties		IPLCs, NGOs	
			and women-led seed	stored for	in adequate			
			banks as a basis of	distribution to	quantities in gene			
			genetic adaptation	farmers	banks/seed banks			
			to climate change					
			and for enhancing					
			food and nutritional					
			security					
1.3	By 2030, the extinction of known	Corresponding KMGBF target 2: Restore 30% of all degraded ecosystems.						
	threatened species of plants and	Corresponding KMGBF target 4: Halt species extinction, protect genetic diversity, and manage human-wildlife						
	animals inside and outside protected	conflicts.						
	areas has been prevented and their	Corresponding KMGBF target 5: Ensure sustainable, safe and legal harvesting and trade of wild species.						
	conservation status improved	Corresponding KMGBF target 9: Manage wild species sustainably to benefit people.						
		Corresponding KMGBF target 11: Restore, maintain and enhance nature's contributions to people.						

### **National Indicators**

Number of species delisted from the IUCN Red List

Trends in genetic diversity of selected species

### **Headline Indicators**

A.1 Red List of Ecosystems

A.2 Extent of natural ecosystems

A.3 Red List Index

5.1 Proportion of fish stocks within biologically sustainable levels

## **Component Indicators**

Extent of natural ecosystems by type

Maintenance and restoration of connectivity of natural ecosystems

Red List of Ecosystems

Ecosystem Intactness Index

Species Habitat Index

Living Planet Index for used species

Sustainable use of wild species

Ecosystem Intactness Index

Red List Index (species used for food and medicine)

Living Planet Index for used species

## **Complimentary Indicators**

Forest area as a proportion of total land area

Forest distribution

Wetland Extent Trends Index

Biomass of selected natural ecosystems

Biodiversity Habitat Index

Red List Index

Red List of Ecosystems

Species habitat Index

Tree cover loss

By-catch of vulnerable and non-target species

Proportion of fish stocks within biologically sustainable levels

Strategy	Action	Proposed Activities	Baseline 2023	Output indicators	Lead Agency (target champion)	Partner institutions	Costs in US\$
Identify and implement measures	Prevent	1.3.1 Protect	There are a	Reduction in	UWA,	Academia,	2,500,000
for protection of threatened and	extinction of	threatened,	number of	the number	NEMA,	Cultural	
vulnerable species	threatened	endemic and	anthropogenic	nationally	NFA, Local	institutions,	
	species	vulnerable species	factors which	extinct,	governments	NGOs,	
		inside and outside	are threatening	threatened and		CBOs,	
		protected areas	species survival	vulnerable		Private Sector	
			in various	species			
			ecosystems	Number			
				of Species			
				Management			
				Plans under			
				implementation			
				Number of			
				previously			
				extinct species			
				re-introduced			

	1.3.2 Prioritise	Inadequate	Project	NEMA	MDAs, NFA,	
	avoidance or	consideration	alternatives	UWA	UWA, local	
	prevention	of project	sites considered	NFA	governments	
	of impacts in	alternatives to	to avoid			
	the areas of	avoid impacts	adverse impacts			
	irreplaceable	on irreplaceable	on irreplaceable			
	biodiversity	biodiversity areas	biodiversity			
	(ecosystems,		hotspots			
	species,					
	internationally					
	recognised areas					
	of importance					
	to conservation					
	such as Key					
	Biodiversity					
	Areas, Ramsar					
	sites, World					
	Heritage Sites)					
	outside protected					
	areas					
	1.3.3 Support ex-	Inadequate	Number of	NARO	UWCEC,	2,000,000
	situ conservation	conservation	functional ex	UWA	MAAIF,	
	of plant and	measures for	situ institutions	NFA	NEMA,	
	animal resources	plant and wildlife			MUK	
		conservation			Herbarium	
		ex-situ				

1.3.4 Enga	ige Illegal trade in	Number of	UWA,	NGOs,	500,000
local comr	nunities   wildlife and	strategies	NEMA, NFA,	CBOs,	
including v	women, charcoal burning	developed and	FSSD, Local	Cultural	
men and y	outh is increasing	implemented	governments	leaders	
in curbing	leading to loss	Number			
destructive	e use of of ecosystems,	of women			
threatened	plant species and	and men			
species	ecosystem	participating			
	services	enforcement			
		measures			
1.3.5 Effec	ctively Poaching and	-Deterrent laws	UWA,	NFA, NEMA,	2,500,000
combat po	aching illegal trade	in place	MTWA	Local	
and illegal	in wildlife is	-Number		governments	
wildlife tra	ade and still rampant in	of points of			
trafficking	through Uganda	entry and exit			
strengthen	ing law	controlled			
enforceme	ent	-Number			
		of cases			
		reported and			
		successfully			
		prosecuted			
		-Number of			
		well trained,			
		motivated,			
		equipped and			
		coordinated law			
		enforcement			
		personnel			

			1.3.6 Strengthen	Capacities	-Number	MTWA,	UWA, MWE,	300,000
			the capacity	of CITES	of cases	MWE,		
			of CITES	Management	reported and	UWE		
			Management	Authority	successfully			
			Authority and	and CITES	prosecuted			
			CITES Competent	Competent	-Number			
			Authorities	Authorities	of trophies			
				are presently	confiscated at			
				inadequate	border points			
			1.3.7 Strengthen	UWA has	Availability	UWA	MWE, NFA,	500,000
			PA institutional	inadequate	of up-to-date		NEMA	,
			capacity and	capacity for	data on wildlife			
			coordination	effective	species trends			
			for effective	monitoring of	_			
			monitoring of	wildlife				
			wildlife					
			1.3.8 Develop	No environmental	Environmental	MEMD,	Local	200,000
			Guidelines	-flow guidelines	flow guidelines	NEMA,	government	
			environmental	for aquatic	for aquatic	MWE	and MDAs	
			-flow for aquatic	ecosystems exist	ecosystems in			
			ecosystems	-	place			
1.4	By 2030, the genetic diversity of	Corresponding	KMGBF target 4: H	alt species extinction	n, protect genetic	diversity, and n	nanage human-wil	dlife
	cultivated plants and domesticated	conflicts.	C	•		•	G	
	animals including their wild relatives							
	and other socio-economically							
	and culturally valuable species is							
	conserved							

Number of cultivated plant species in genebanks

Number of domesticated animal species in genebanks

Number of cultivated plants in-situ

Area under in-situ conservation

#### **Headline Indicators**

A.1 Red List of Ecosystems

A.2 Extent of natural ecosystems

A.4 The proportion of populations within species with an effective population size  $\geq 500$ 

### **Component Indicators**

Species Habitat Index

Living Planet Index

Number of plant and animal genetic resources secured in medium or long-term conservation facilities

Trends in effective and sustainable management of human-wildlife conflict and coexistence

Conservation status of species listed in the CITES Appendices has stabilized or improved

# **Complimentary Indicators**

Living Planet Index

Number of plant and animal genetic resources secured in medium or long-term conservation facilities

Trends in effective and sustainable management of human-wildlife conflict and coexistence

Conservation status of species listed in the CITES Appendices has stabilized or improved

Percentage of threatened species that are improving in status

Red List Index (wild relatives of domesticated animals)

Rate of invasive alien species establishment

Strategy	Action	Proposed	Baseline 2023	Output	Lead Agency	Partner	Costs in
		Activities		indicators	(target	institutions	<b>US\$ Costs</b>
					champion)		in US\$

Put in place measures for protection	Minimize loss	1.4.1 Collect	Information on	Information	NARO,	UWA, NFA,	200,00
of genetic diversity cultivated plants	of genetic	through local and	availability of	on germplasm	MAAIF	FSSD,	
and domesticated animals	diversity of	gender-responsive	PGR germplasm	documented		NEMA, Local	
	cultivated	approach	presently			governments,	
	plants and	information on	inadequate			Academia	
	domesticated	availability of					
	animals	plant and animal					
		germplasm					
		1.4.2 Support	The repositories	Fully functional	NARO,	Academia,	250,000
		national and local	are not well	national	MAAIF	NEMA,	
		repositories for	facilitated	and local		UWEC,	
		plant and animal		repositories		NARO	
		genetic resources		for plant and			
				animal genetic			
				resources			
		1.4.3 Identify,	Species and	Important	NARO,	NFA, UWA,	200,000
		collect and	varieties ex-situ	species and	MAAIF	Academia,	
		conserve	conservation	varieties are		Local	
		indigenous species	presently	adequately		governments,	
		and varieties	inadequate	conserved		NEMA	
		1.4.4 Reintroduce	A number	Number of	NARO,	NFA, UWA,	300,000
		germplasm of	of Ugandan	germplasm	MAAIF	NEMA	
		species extinct in	germplasm are	reintroduced			
		the country	held outside the				
			country				

			1.4.5 Strengthen	Presently there	Genetic	NARO,	UWA, NFA,	350,000			
			human and	is inadequate	resources	MAAIF	NEMA, Local				
			infrastructural	capacity for PGR	conservation		governments				
			capacity for		and						
			genetic resources		management is						
			conservation and		effective						
			management								
			1.4.6 Educate	Local	Number	NARO,	Local	100,000			
			local farmers	communities,	of local	MAAIF	governments,				
			including women,	women, men	community		CBOs,				
			men and youth on	and youth	groups, women,		NGOs,				
			the importance of	have limited	men and youth		NEMA				
			preserving genetic	knowledge on	trained on						
			diversity	the importance	issue, risks						
				and benefits	and benefits						
				of preserving	of genetic						
				genetic diversity	diversity						
1.5	By 2030, the rate of loss of all	Corresponding	KMGBF target 1: Pl	an and manage all a	reas to reduce bio	diversity loss.					
	natural habitats, including forests,	Corresponding	KMGBF target 2: R	estore 30% of all de	graded ecosystems	s.					
	is at least halved and where feasible	Corresponding	KMGBF target 3: C	onserve 30% of land	l, waters and seass	3.					
	brought close to zero	Corresponding	sponding KMGBF target 10: Enhance biodiversity and sustainability in agriculture, aquaculture, fisheries, and								
		forestry.									
		Corresponding	KMGBF target 12: I	Enhance green space	es and urban plann	ing for human v	well-being and bio	odiversity.			

Trends in change in extent of selected forests, grasslands and savannah, wetlands

Trends in the proportion of degraded land

Trends in the extent of protected areas

#### **Headline Indicators**

- A.1 Red List of Ecosystems
- A.2 Extent of natural ecosystems
- A.3 Red List Index
- 3.1 Coverage of protected areas and other effective area-based conservation measures
- 10.1 Proportion of agricultural area under productive and sustainable agriculture
- 10.2 Progress towards sustainable forest management
- 12.1 Average share of the built-up area of cities that is green/blue space for public use for all

# **Component Indicators**

Extent of natural ecosystems by type

Maintenance and restoration of connectivity of natural ecosystems

Extent of natural ecosystems by type

Maintenance and restoration of connectivity of natural ecosystems

Protected area coverage of key biodiversity areas

Protected Area Management Effectiveness (PAME)

Red List of Ecosystems

Connectivity Indicator

Species Protection Index

Area of forest under sustainable management

Recreation and cultural ecosystem services provided

Annual mean levels of fine particulate matter like PM<sub>2.5</sub> and PM10) in cities

### **Complimentary Indicators**

Biodiversity Habitat Index

Red List Index

Red List of Ecosystems

Living Planet Index

Species habitat Index

Extent of indigenous peoples and local communities' lands that have some form of recognition

Species Protection Index

Strategy	Action	Proposed Activities	Baseline 2023	Output indicators	Lead Agency (target champion)	Partner institutions	Costs in US\$
Institute and implement measures to	Restore	1.5.1 Identify,	Information	Trends in extent	FSSD, NFA,	Academia,	200,000
stop further loss of natural habitats	degraded	map and prioritize	on mapping is	of selected	WMD,	NGOs CBOs	
	natural	degraded habitats	incomplete	forests and	NEMA,		
	habitats	including natural		wetlands	Local		
		forests and			governments		
		wetlands					

1.5.2 Assess the rate of conversion of the degraded/ threatened habitats by human activities	Some information is available but incomplete	Trends in the proportion of natural habitats converted	NFA, MWE, NEMA	UWA, Academia MDAs	150,000
1.5.3 Estimate the productivity of the degraded/ threatened habitats	Some information is available but incomplete	Trends in primary productivity	Academia NARO	UWA, NFA, FSSD, WMD	400,000
1.5.4 Determine the proportion of land affected by desertification	Some information is available but incomplete	Trends in the proportion of land affected by desertification	Academia, MAAIF	UWA, NFA, WMD, NEMA	150,000
1.5.5 Promote awareness on regulations that protect fragile ecosystems	Lack of awareness of the general population about regulations which protect fragile ecosystems	Increased awareness of laws and regulations regarding the protection of fragile ecosystems	NEMA, Local governments	NGOs, CBOs, Cultural leaders,MDA	300,000
1.5.6 Sensitize policy makers on drivers of habitat loss, and for support to reverse the rate of habitat loss	There is awareness among policy makers on the importance of protecting ecosystems	Number of policy makers advocating for protection of ecosystems	NEMA, NFA UWA, WME	Local governments, NGOs, CSOs	200,000
1.5.7 Put in place species recovery plans for the degraded/ threatened habitats	Some information is available but incomplete	Extinction risk trends of habitat dependent species	UWA, NFA, Local governments	NGOs, NEMA. MEMD	250,000

1.5.8 Apply the application of the Mitigation Hierarchy to manage impacts on biodiversity, i.e. to avoid, minimize, repair/restore and compensate/offset, with offsets as the final mitigation option to counterbalance residual negative	Presently few projects in Uganda have considered adequate application of Mitigation Hierarchy	Number of projects that have adequately applied the Mitigation Hierarchy	NEMA, local governments, UIA, MDAs	NGOs, CBOs	300,000
impacts  1.5.9 Restore and safeguard ecosystems that provide essential services, including services relatedto water, and contribute to health, livelihoods and well- being	Inadequate protection of ecosystems that provide essential services, including services related to water, and contribute to health, livelihoods and well-being	Vulnerable areas restored and protected	NEMA, NFA, UWA, WMD, Local governments	NGOs, CSOs, Cultural institutions	10,000,

			1.5.10 Develop	No mechanisms	Number of	NEMA,	NFA, FSSD	400,000
			mechanisms for	exist for sharing	cost and	WMD	UWA, Local	
			fair and equitable	the costs and	benefit sharing		government	
			sharing of costs	benefits of	mechanisms			
			and benefits of	wetlands	implemented			
			using wetlands					
1.6	By 2030, integrated management	Corresponding	KMGBF target 1: Pl	an and manage all a	reas to reduce bio	diversity loss.		
	plans for areas under agriculture,	Corresponding	KMGBF target 10: I	Enhance biodiversity	and sustainability	y in agriculture,	aquaculture, fish	eries, and
	forestry, fisheries and livestock,	forestry.						
	including protected areas, are in	Corresponding	KMGBF target 14: I	ntegrate biodiversit	y in decision-mak	ing at every leve	el.	
	place and supported by spatial							
	planning technologies and tools							

Number of integrated land use plans in place

Trends in area and productivity of agricultural land, forests under sustainable management

### **Headline Indicators**

- A.1 Red List of Ecosystems
- A.2 Extent of natural ecosystems
- 10.1 Proportion of agricultural area under productive and sustainable agriculture
- 10.2 Progress towards sustainable forest management

# **Component Indicators**

Species Habitat Index

Area of forest under sustainable management

Forest Certification

# **Complimentary Indicators**

Agrobiodiversity Index

Changes in soil organic carbon stocks

Red List Index (wild relatives of domesticated animals)

Red List Index (pollinating species)

Proportion of local breeds classified as being at risk of extinction

Proportion of land that is degraded over total land area

Percent of total land area that is under cultivation

Extent of natural ecosystems by type

Ecosystem Integrity Index

Strategy	Action	Proposed Activities	Baseline 2023	Output indicators	Lead Agency (target champion)	Partner institutions	Costs in US\$
Improve management of agricultural	Sustainably	1.6.1Promote	There are a	Measures put	NARO,	NEMA,	200,000
practices, and forests for biodiversity	manage	agricultural	number of	in place to	MAAIF,	NGOs,	
conservation and sustainable use	areas under	practices which	agricultural	ensure a win-	Local	CBOS, CSOs	
	agriculture,	minimize the	practices	win situation	governments		
	aquaculture	negative impacts	which threaten	for agricultural			
	and forestry in	of agricultural	biodiversity e.g.	production and			
	an equitable	production on	rice cultivation	biodiversity			
	manner	biodiversity	and large-scale	conservation			
		and ecosystem	commercial				
		functioning	farming				
		1.6.2 Developing	At present zero	No. of national	MLHUD	MDAs	200,000
		integrated spatial	land use plans all	and/or sub-			
		land use plans at	over the country	national land			
		national and sub-		use plans			
		national (regional,		developed			
		district) levels to					

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	direct particular types of development and land or resource use to areas best suited to support and sustain them in the long term					
	1.6.3 Promote agro-forestry practices among local communities with particular focus on women and men farmers (supporting REDD+)	Agro-forestry practices still confined to certain regions of Uganda	Significant increase in area and distribution of agro-forestry practices in the country Number of women and men engaged in agroforestry practices	NARO, FSSD, MAAIF, Local governments	NEMA, NGOs, CBOs, CSOs	400,000
	1.6.4 Strengthen tenure rights, including of women farmers to support sustainable land management (SLM) practices that conserve agro-biodiversity	SLM practices still confined to certain regions of Uganda	Significant increase in area and distribution of SLM practices in the country	NARO, MAAIF, MGLSD	Local governments, CSOs, NGOs, CBOs	200,000

	: 1 1 :	1.6.5 Promote sustainable management practices to support the conservation and sustainable use of biodiversity in forests	Biodiversity conservation and sustainable use in forests still face a number of challenges	Mechanisms put in place to protect biodiversity in forests	NFA, FSSD, Local governments		300,000
		1.6.6 Apply Strategic Environment Assessments (SEA) on a landscape level as part of spatial planning frameworks for Agricultural projects	Most development projects, plans consider independent project based ESIA rather than SEA on entire landscape	SEA considered on a landscape level for large projects such as industrial parks	NEMA, UIA,	MDAs, Local governments, CSOs, NGOs, CBOs	300,000
	1	1.6.7 Support local communities including IPLCs, women and men to diversify their livelihoods through biodiversity friendly enterprises which ease pressure on the resource base	Over-harvesting of resources is rampant in key ecosystems such as forests	Livelihoods initiatives put in place	MTIC, MGLSD, Local governments	NEMA, MWE, IPLCs, NGOs, CBOs, Private sector	400,000

1.6.8 Pro	omote	It is unknown	Number of	MGLSD,	NEMA,	500,000
women's	s i	if women's	women's	UEPB, MTIC	NGOs, CSOs,	
enterpris	ses to	enterprises exist	enterprises		NFA, UWA,	
enhance	their	to specifically	promoted		MWE	
participa	tion	promote	_			
and lead	ership	leadership in				
in biodiv	_	conservation.				
conserva	ntion					
1.6.9 Imp	plement	Over-harvesting	-Reduced	NFA, FSSD	NFA, FSSD	200,000
forest		of resources is	emissions from			
managen	nent 1	rampant in key	deforestation			
planning	that	ecosystems such	- Reduced			
zones an	d protects	as forests	emissions			
timber pr	roduction		from forest			
to meet o	demand		degradation			
whilst re	stocking		-Conservation			
for future	e needs		of forest carbon			
(supporti	ing		stocks			
REDD+)	)					
1.6.10 In	corporate	Inadequate	Strategic risks	NPA, local	CBOs,	
biodivers	sity as	consideration	considered in	governments,	NGOs,	
a strategi	ic risk	of biodiversity	planning for	NFA, UIA	MDAs	
in planni	ing and	conservation as	biodiversity			
decision	making	a strategic risk in	conservation			
in the pri	ivate	planning				
sector, an	nd ensure					
the regul	lar,					
transpare	ent					

			disclosure of their impacts, mitigation measures taken, and compliance with legal requirements and condition  1.6.11 Improve forest timber harvesting and utilization technologies (supporting REDD+)	Over-harvesting of resources is rampant in key ecosystems such as forests	-Reduced emissions from deforestation - Reduced emissions from forest degradation -Conservation of forest carbon stocks	NFA, FSSD	UWA, NEMA, CCU	200,000
1.7	By 2030, all sources of pollution, including those in critical agricultural and urban ecosystems, extractive industries and energy that threaten biodiversity in both terrestrial and aquatic systems, effectively managed to levels that do not detrimentally impact ecosystem functions and biodiversity.	Corresponding forestry.	KMGBF target 7: Ro KMGBF target 10: I KMGBF target 12: I	Enhance biodiversit	y and sustainabilit	y in agriculture,	aquaculture, fishe	

The national pollution index (air, water and soil quality indicators)

The proportion of urban land under green and blue belts

#### **Headline Indicators**

- A.2 Extent of natural ecosystems
- 12.1 Average share of the built-up area of cities that is green/blue space for public use for all
- 10.1 Proportion of agricultural area under productive and sustainable agriculture

# **Component Indicators**

Species Habitat Index

Percent of total land area that is under cultivation

Extent of natural ecosystems by type

Ecosystem Integrity Index

Fertilizer use

Proportion of domestic and industrial wastewater flow safely treated

Red List Index (impact of pollution)

Agrobiodiversity Index

Changes in soil organic carbon stocks

Red List Index (wild relatives of domesticated animals)

Red List Index (pollinating species)

Proportion of local breeds classified as being at risk of extinction

Proportion of land that is degraded over total land area

### **Complimentary Indicators**

Municipal solid waste collected and managed

Hazardous waste generation

Agrobiodiversity Index

Changes in soil organic carbon stocks

Red List Index (wild relatives of domesticated animals)

Red List Index (pollinating species)

Proportion of local breeds classified as being at risk of extinction

Proportion of land that is degraded over total land area

Total number of permits, or their equivalent, granted for access to genetic resources

Strategy	Action	Proposed Activities	Baseline 2023	Output indicators	Lead Agency (target champion)	institutions	Costs in US\$
Institute and implement measures for management of pollution and waste in vulnerable ecosystems	Reduce pollution levels that are detrimental to biodiversity	1.7.1 Monitor and enforce compliance to effluent standards requirements	Management of pollution is still confined to very few vulnerable ecosystems e.g. Lake Victoria	Trend in pollution levels Management Enhanced capacity (infrastructure, human resources and financial) to detect and manage pollution in place	WQMD, WRMD, Municipality authorities, City Authorities	NARO, Local governments, NEMA, Academia	500,000
		1.7.2 Monitor the impact of agrochemicals on selected pollinators	Not much data is available in the country regarding the impact of agrochemicals on pollinators which are important for agricultural production	More data is available on the impact of agrochemicals on pollinators	NARO, MAAIF	NEMA, Academia	150,000

	1.7.3 Manage all	Emerging waste	Effective and	MDAs, Cities	MoH, NGOs,	7,500,000
	forms of waste in	productions such	efficient options	and urban	CSOs, Private	
	an effective and	as e-waste and	for managing	authorities	sector,	
	efficient manner to	from oil and	all forms of		UNBS,	
	reduce its negative	gas are not yet	waste are under		NEMA	
	impact on the	being adequately	implementation			
	environment,	managed	Increased			
	including through	Some CSOs/	number			
	local-level waste	NGOs currently	of waste			
	management	promoting	management/			
	and recycling	recycling and	recycling			
	initiatives	ready to scale.	options being			
			adopted			
			Number of			
			new facilities			
			operating (or			
			planned)			

1.7.4 Manage use of hazardous chemicals including mercury and mercury compounds to reduce their negative impact on the environment, including through development and implementation of phase down and phase out plans (including development or review of guidelines for waste management in key sectors like energy and extractives industries	Use of hazard- ous chemicals including mer- cury and mer- cury com-pounds not ad-equately re-stricted	Development and implementation of National action plans for phase down and phase out use of hazardous chemicals includ-ing mercury and mercury com-pounds undertaken	NEMA MEMD	MoH, NGOs, CSOs, Private sector, UNBS	500,000
1.7.5 Monitor the implementation of the National Oil Spill Contingency Plan (including simulation exercises in biodiversity-sensitive areas)	The National Oil Spill Contingency Plan (NOSCP) is in place	NOSCP effectively implemented	MEMD, PAU, NEMA	MDAs, Private sector, CSOs	300,000

	1.7.6 Develop	There is the	The Energy	MEMD,	MDAs,	80,000
	energy and	Albertine Gra-	and Ex-tractive	NEMA, PAU	Private	
	extractives	ben Environ-	Industry		Sector, CSOs	
	industry	ment Monitor-	Monitoring			
	monitoring plan	ing Plan under	Plan developed			
		implementa-tion				
Promote	1.7.7 Develop	Ministry of	Mindset	MEMD	PAU	300,000
sus-tainable	and operate	energy has	change model			
small scale	mindset change	communica-	developed		NEMA	
and artisanal	model: stra-tegic	tion strategy				
mining for	public educa-tion	that could be			MWE	
biodiversity	and awareness	reviewed to			300,000	
health and	programs;	in-clude sustaina-				
human live-	dissemi-nate	ble mining for				
lihoods	information,	biodiversity				
	education and	health and hu-				
	communication	man liveli-hoods				
	1.7.8 Develop	MEMD pro-vides	Number of	MEMD	MFPED	350,000
	and operate a	subsidies for	credits and			
	business model	clean cook-ing	biodiversity-		NEMA	
	for sustaina-ble	energy that could	positive			
	mining: provide	be en-hanced to	incentives		The Private	
	credits and biodi-	in-clude biodiver-	established		Sector	
	versity-positive	sity-positive				
	in-centives like	incentives in				
	subsi-dies	energy and ex-				
		tractive indus-				
		tries				

	1.7.9 Develop and	There are no such	Number	MEMD	NEMA	2,500,000
	operate a greening	alterna-tives in	of green		The Private	, , , , , , , ,
	model: promote	the en-ergy and	technologies		Sector	
	green technologies		and organic			
	and green chemis-	tries in the sec-tor				
	try (use of organic		promoted			
	chemicals to		1			
	re-place mercury					
	through scientific					
	research and inno-					
	vations					
	1.7.10 Promote	No land use	Number of	MEMD	MLHUD	450,000
	efficient resource	spatial plans	land use spatial			
	management:	and CAPs exist	plans and CAPs		NEMA	
	land use planning	in energy and	developed and			
	(spatial planning),	extractive in-	implemented		The Private	
	community action	dustries			Sector	
	plans (CAPs);					

			1.7.11 Promote	There is no	Governance	MEMD	MDAs	300,000
			governance	governance	effectiveness			
			effectiveness:	effectiveness	strategy in		The private	
			develop and	strategy in energy	place (ESBAP,		sector	
			implement energy	and extractive	compliance			
			and extractive	industries	assistance and			
			sector biodiversity		enforcement			
			action plan		strategy)			
			(EESBAP);					
			policies,					
			legislation,					
			compliance					
			assistance and					
			enforcement					
			strategy, and					
			create strong					
			institutions and					
			self-governance					
			system within					
			the mining					
			communities and					
			sites					
1.8	By 2030, invasive alien species	Corresponding	KMGBF target 2: Re	estore 30% of all de	graded ecosystem	s.		
	harmful to biodiversity, socio-	Corresponding	KMGBF target 6: Re	educe the introduction	on of invasive alie	en species by 50°	% and minimize	their impact.
	economic transformation and human	Corresponding	KMGBF target 10: H	Enhance biodiversity	and sustainabilit	y in agriculture,	aquaculture, fish	eries, and
	health are managed	forestry.						

Number of known invasive alien species managed

Type of invasive alien species managed

Area under invasive alien species

#### **Headline Indicators**

- A.2 Extent of natural ecosystems
- 6.1 Rate of invasive alien species establishment
- 10.1 Proportion of agricultural area under productive and sustainable agriculture
- 10.2 Progress towards sustainable forest management

## **Component Indicators**

Extent of natural ecosystems by type

Maintenance and restoration of connectivity of natural ecosystems

Rate of invasive alien species spread

Number of invasive alien species introduction events

Rate of invasive alien species spread

Number of invasive alien species introduction events

Area of forest under sustainable management

Forest Certification

# **Complimentary Indicators**

Increase in secondary natural forest cover

Annual tropical primary tree cover loss

Forest Landscape Integrity Index

Percentage of cropped landscapes with at least 10 per cent of natural land

Status of key biodiversity areas

Biodiversity Habitat Index

Red List Index

Red List of Ecosystems

Living Planet Index

Species habitat Index

Agrobiodiversity Index

Strategy	Action	Proposed Activities	Baseline 2023	*	Lead Agency (target champion)	Partner institutions	Costs in US\$
Institute and implement measures	Control IAS	1.8.1 Develop	Alien invasive	-National	NARO,	FSSD, NGOs,	5,000,000
eradication and control of alien	that have	and implement	species are	guidelines on	NEMA,	CSOs, CBOs	
invasive species	adverse	management plans	seriously	invasive species	MAAIF,		
	impacts on	to prevent the	affecting	in place	WMD,		
	biodiversity	establishment	biodiversity in	-Adequate	NFA, Local		
	and human	and introduction	agricultural	measures	governments		
	health and	of alien invasive	landscapes,	to contain			
	gender-	species	aquatic	alieninvasive			
	differentiated		ecosystems	species in			
	livelihoods			vulnerable			
				ecosystems are			
				in place			
				-An inventory			
				of alien			
				invasive species			
				Management			
				plans			
				developed and			
				implemented			
		1.8.2 eradication	Bottlenecks such	-Capacity	NARO,	URA, NGOs,	7,000,000
		or control existing	as inadequate	(personnel,	NEMA,	CBOs, CSOs,	
		alien invasive	monitoring of	equipment	MAAIF,	Cultural	
		species	seeds at Uganda's	and human	NFA, Local	institutions	
			border control	resource) built	governments		
			points still	for monitoring			
			inadequate	alien invasive			
				species			
				-Trends in alien			
				invasive species			

			1.8.3 develop and	No strategy for	Strategy for	MEMD	NEMA,	50,000
			operationalize	the control and	the control and		MWE	
			a strategy for	management of	man-agement			
			the control and	invasive spe-	of inva-sive			
			management of	cies in biomass	species in bi-			
			invasive species in	energy exists	omass energy			
			biomass energy		de-veloped			
1.9	By 2030, the impacts of fisheries	Corresponding	KMGBF target 5: E1	nsure sustainable, sa	ife and legal harve	esting and trade	of wild species.	
	activities on fish stocks, species	Corresponding	KMGBF target 9: M	anage wild species	sustainably to ben	efit people.		
	and ecosystems are within safe	Corresponding	KMGBF target 10: I	Enhance biodiversity	y and sustainabilit	y in agriculture,	aquaculture, fish	eries, and
	ecological limits and recovery plans	forestry.						
	and measures are in place for all							
	depleted species							

Trends in fish stocks of different species

Trends in fish species

Conditions of fisheries ecosystems

Fish catch recorded

Number of species-specific recovery plans of depleted species in place

### **Headline Indicators**

- 5.1 Proportion of fish stocks within biologically sustainable levels
- 10.1 Proportion of agricultural area under productive and sustainable agriculture
- 10.2 Progress towards sustainable forest management

## **Component Indicators**

Red List Index (species used for food and medicine)

Living Planet Index for used species

Living Planet Index for used species

Sustainable use of wild species

# **Complimentary Indicators**

Proportion of fish stocks within biologically sustainable levels

Sustainable watershed and inland fisheries index

Agrobiodiversity Index

S	Strategy	Action	Proposed Activities	Baseline 2023	Output indicators	Lead Agency (target champion)	Data sources Partner institutions	Costs in US\$
S	Sustainably manage fisheries	Put in place	1.9.1 Put in place	No control	-Trends in fish	MAAIF	NARO,	400,000
re	esources	measures	effective control	measures are in	catch		NEMA,	
		to control	measures to	place to protect	-Measures put		CBOs, CSOs,	
		illegal fishing	manage fishing	other fish species	in place to		NGOs, Local	
		and over	and alien fish		control alien		governments	
		exploitation	species such		fish species			
			as the Nile					
			Perch Salvinia					
			molesta including					
			promoting					
			awareness					
			of existing					
			regulations					
			Identify, map	10 freshwater	No. of	NaFiRRI	MAAIF,	
			and effectively	KBAs have been	freshwater		MDAs,	
			manage or protect	identified and	KBAs		NGOs	
			all fresh water	mapped so far	submitted to the			
			Key Biodiversity		Global KBA			
			Areas		secretariat			
			1.9.2 Put in place	Water Hyacinth is	Reduced	MAAIF,	MAAIF,	800,000
			and implement	still abundant in	surface area	Local	NEMA,	
			control measures	some open waters	under Water	governments	NARO,	
			for the Water	such as lakes	Hyacinth,		NGOs, CSOs,	
			Hyacinth, and the		congress weed		CBOs	
			congress weed		and Salvinia			
					molesta			

1.9.3 Promote	Number of	Trends in	MAAIF,	NEMA,	600,000
sustainable	farmers engaged	farmers	Local	NARO,	
aquaculture for	in aquaculture is	(women and	governments	NGOs,	
local communities	low compared to	men) and local		CBOs, CSOs	
including women	its potential	community			
and men for		groups engaged			
socio-economic		in aquaculture			
development		Trends in catch			
1.9.4 Undertake	Some key	All key	NEMA	NARO,	200,000
SEA or EIA on	projects and	projects and		MAAIF,	
policies, plans	programmes	programmes		Local	
and programmes	have not been	are subjected to		governments	
or projects	subjected to EIA	SEA/EIA			
respectively that					
are likely to have					
significantly					
negative impacts					
on aquatic					
biodiversity					
1.9.5 Develop	Habitat	Number of	MAAIF,	NARO,	300,000
and or implement	degradation	mitigation	MWE, Local	NEMA	
appropriate	of open water	Measures put in	governments		
mitigation	resources is	place to restore			
measures	rampant due to	degraded open			
against habitat	poverty and lack	water habitats			
degradation of	of alternative	Number of			
open water	livelihoods	alternative			
		livelihood			

			resources		options			
					identified and			
			including by					
			identifying		promoted			
			and promoting					
			alternative					
			livelihood sources					
			for women and					
			men					
			1.9.6 Promote	Presently the	Trends in	MAAIF	NARO,	400,000
			private sector	interest of	private sector		Private sector,	
			investment and	private sector is	investment		NEMA	
			participation	more towards	in aquatic			
			in aquatic	commercial	biodiversity			
			biodiversity	fishing operations	conservation			
			conservation					
			1.9.7 Support	Transboundary	-Harmonized	MAAIF,	NEMA,	1,000,000
			transboundary	management	fisheries	Local	NARO,	
			management of	of fisheries	legislations and	governments	NGOs, CBOs	
			fisheries resources	resources is still	management			
				inadequate	practices			
					-Transboundary			
					fisheries			
					management			
					initiatives in			
					place			
1.10	By 2030, fish are managed and	Corresponding	KMGBF target 5: En	nsure sustainable, sa	1	sting and trade	of wild species.	
	harvested sustainably, legally,		KMGBF target 6: Re		~		•	heir impact.
	overfishing is avoided and recovery		KMGBF target 9: M					
	plans and measures are in place for		KMGBF target 10: I		· · · · · · · · · · · · · · · · · · ·	• •	aquaculture, fishe	eries, and
	all depleted species	forestry.		·			•	,

Trends in fish stocks of different species

Trends in fish species

Fish catch recorded

#### **Headline Indicators**

- 5.1 Proportion of fish stocks within biologically sustainable levels
- 6.1 Rate of invasive alien species establishment
- 10.1 Proportion of agricultural area under productive and sustainable agriculture
- 10.2 Progress towards sustainable forest management

### **Component Indicators**

Proportion of legal and illegal wildlife trade consisting of species threatened with extinction

Illegal trade by CITES species classification

Rate of invasive species impact and rate of impact

Rate of invasive alien species spread

Number of invasive alien species introduction events

Number of people using wild resources for energy, food or culture (including firewood collection, hunting and fishing, gathering, medicinal use, craft making, etc.)

Red List Index (species used for food and medicine)

Living Planet Index for used species

Area of forest under sustainable management

## **Complimentary Indicators**

Rate of invasive species impact and rate of impact

Rate of invasive alien species spread

Number of invasive alien species introduction events

Number of invasive alien species in national lists as per the Global Register of Introduced and Invasive Species

Trends in abundance, temporal occurrence, and spatial distribution of non-indigenous species, particularly invasive, non-indigenous species, notably in risk areas (in relation to the main vectors and pathways of spreading of such species)

Red List Index (impacts of invasive alien species)

Proportion of fish stocks within biologically sustainable levels

Agrobiodiversity Index

Strategies	Action	Proposed Activities	Baseline 2023	Output indicators	Lead Agency (target champion)	partner institutions	Costs in US\$
Promote sustainable harvesting of fish and invertebrate stocks	Strengthen measures for sustainable harvesting of fish and other aquatic life	1.10.1 Strengthen community and resource use groups participation in fisheries management, including by identifying gender-differentiated roles across the sector	There is still inadequate participation of local communities in fisheries management Gender roles are changing because of different roles along the value chain.	Number of fishing communities groups including women and men in landing sites actively participating in fisheries management Documentation of gender- differentiated roles	MAAIF, Local governments	NEMA, NARO, NGOs, CBOs, CSOs	500,000
		1.10.2 Regulate and control importation and usage of fishing gears	There is still rampant use of illegal fishing gears in lakes and rivers	-Number of reported and successfully prosecuted cases -Trends in fish population structure	MAAIF, Local governments	NARO	150,000
		1.10.3 Strengthen monitoring, control and surveillance fishing activities	There is inadequate monitoring of fishing activities in the major water bodies	-Number of reported and successfully prosecuted cases -Trends in fish population structure	MAAIF, Local governments	NARO, CBOs, NGOs	500,000

			1.10.4 Develop	Community	Number of	MAAIF,	NARO,	400,000
			and implement	management	community	MGLSD,	NEMA	
			gender-responsive	plans are lacking	fisheries	Local		
			community	in most landing	management	governments		
			fisheries	sites	plans			
			management plans		Number			
					of women			
					and men			
					participating			
					in the plan			
					development			
					and			
					implementation			
			1.10.5 Provide	Managers	Number	MAAIF,	NARO	800,000
			adequate	of Beach	of BMUs	Local		
			support to Beach	Management	supported	governments		
			Management	Units lack				
			Units (BMU)	resources to				
				efficiently				
				perform their				
				duties				
1.11	By 2030, impacts of extractive		KMGBF target 1:Pla			•		
	industries and energy are mitigated	Corresponding	KMGBF target 6: Re	educe the introducti	on of invasive alie	en species by 50°	% and minimize	their impact.
		Corresponding KMGBF target 7: Reduce pollution to levels that are not harmful to biodiversity.						
		Corresponding	KMGBF target 14: I	Integrate biodiversit	y in decision-maki	ing at every leve	el.	
		Corresponding	KMGBF target 15: I	Businesses assess, d	isclose and reduce	biodiversity-rel	lated risks and no	egative
		impacts						

Trends in the species and abundance within oil and gas exploration and production areas

Pollution index (water, soil and air indicators within oil and gas exploration and production areas

#### **Headline Indicators**

A.1 Red List of Ecosystems

A.2 Extent of natural ecosystems

6.1 Rate of invasive alien species establishment

### **Component Indicators**

Rate of invasive species impact and rate of impact

Rate of invasive alien species spread

Number of invasive alien species introduction events

Fertilizer use

Red List Index (impact of pollution)

# **Complimentary Indicators**

Extent of natural ecosystems by type

Ecosystem Integrity Index

Rate of invasive species impact and rate of impact

Rate of invasive alien species spread

Number of invasive alien species introduction events

Number of invasive alien species in national lists as per the Global Register of Introduced and Invasive Species

Trends in abundance, temporal occurrence, and spatial distribution of non-indigenous species, particularly invasive, non-indigenous species, notably in risk areas (in relation to the main vectors and pathways of spreading of such species)

Red List Index (impacts of invasive alien species)

Municipal solid waste collected and managed

Hazardous waste generation

Number of companies publishing sustainability reports

Strategies	Action	Proposed Activities	Baseline 2023	Output indicators	Lead Agency (target champion)	Partner institutions	Costs in US\$
Support ecosystem conservation in oil rich regions of Uganda	Manage negative impacts of oil and gas development on biodiversity	1.11.1Set up environmental standards to limit the production or discharge of harmful (hazardous) wastes or products in sensitive ecosystems	Some of the standards are not yet in place	Ensure that all the required standards have been formulated	NEMA	UWA, NFA, MDAs, UNBS, Local governments	250,000
		1.11.2 Strengthen compliance to ESIAs for all petroleum explorations and extractive industries	EIAs being undertaken for all oil activities and communities	All oil and gas activities are being subjected to EIA Communities are aware of EIA results	NEMA	UWA NFA MDAs Local governments	200,000
		Develop Strategic Environment Assessment (SEA) for the Energy and Ex-tractives Industries	Strategic Envi- ronment As- sessment has not yet been conducted	SEA for the En-ergy and Extrac-tives Industries developed	NEMA, MEMD	UWA, UNRA, PAU, CSOs	200,000
		1.11.3 Support protection and restoration measures for degraded ecosystems, threatened species and migratory routes in oil exploration and production regions	Some of the ecosystems and species may be ad-versely affected by oil activities	Affected degraded ecosystem put under restoration ac-tivities and spe-cial species are protected	NEMA, UWA, MEMD NFA	MDAs, Local governments, Private sector	300,000

	1.11.4 Routinely	The 2010 ver-	The Atlas is	NEMA	UWA NFA,	200,000
	improve/update	sion is current-ly	rou-tinely		MDAs Local	
	the Sensitivity	being up-dated	updated		governments	
	Atlas for the		_			
	Albertine Graben					
	1.11.5 Support	Awareness and	Awareness and	NEMA	UWA, NFA,	200,000
	comprehensive	information flow	information		MDAs,	
	awareness	is often lacking	flow is		NGOs	
	programmes	especially to the	adequately			
	and information	communities	managed			
	flow regarding	adjacent to the oil				
	petroleum	exploration areas				
	processes and					
	biodiversity					
	1.11.6 Build the	Some DEOs/	Resources	NEMA	MoEMD,	200,000
	capacity and	MEOs lack	allocated to		UWA,	
	mobility of district	resources	DEO/MEOs		MoLoG,	
	and municipal	(transport,			Local	
	environment	equipment,			governments	
	officers (DEO/	budget) for				
	MEO) to	regulation and				
	effectively	thus less effective				
	monitor oil and					
	gas activities					
	1.11.7 Set up	Uganda	Biodiversity	NEMA	UWA NFA	500,000
	a biodiversity	Biodiversity	offset trust fund	MEMD	MDAs NGOs	
	offset trust fund	Fund has been	is available		Local	
	to ensure no net	established but is	for use when		governments	
	loss biodiversity	not specifically	needed			
	due to petroleum	for biodiversity				
	activities	offsets				

1.11.8 Examine	This has not yet	Translocation	UWA	MoEMD,	400,000
and implement	been necessary	to other areas		NEMA,	
opportunities		effected where		NFA, MDAs,	
for translocation		necessary		NGOs,	
of animals				NEMA, Local	
from sensitive				governments	
areas where oil					
exploration is					
already taking					
place to other PAs					
1.11.9 Update	NAP of 2019	NAP reviewed	NEMA,	MDAs,	100,000
the current	exists	and updated	MEMD	Private sector	
National Action				and NGOs	
Plan (NAP) for					
Artisanal and					
Small-Scale Gold					
Mining in Uganda					

## 5.4 Thematic area Two: Harnessing benefits from modern biotechnology

Strategic Objective 2: To harness biotechnology for socio-economic transformation with adequate safety measures for human health and environment (Corresponds to KMGBF GOAL B: Prosper with Nature) (Table 4.4).

Uganda has made significant progress in biotechnology Research and Development (R&D) compared to many countries in Sub-Saharan Africa. There has been steady increase in the number of applications for research on genetically modified (GM) crops received by UNCST and reviewed and approved by the National Biosafety Committee (NBC) over the years. This trend shows a positive prospect for development and application of modern biotechnologies in the country for the years to come. Uganda is also a signatory to the Cartagena Protocol on Biosafety and, is therefore, mandated to promote, preserve, conserve, protect and develop her biodiversity. Despite the remarkable progress Uganda has made in biotechnology and Biosafety, a number of bottlenecks still prevail including the following:

- a. There is lack of capacity for implementation
- b. There is presently no Biotechnology Clearing House Mechanism
- c. Limited application of biotech tools for biodiversity conservation
- d. Low public awareness and low level of participation in Biosafety and Biotechnology matters
- e. There is limited infrastructural and human capacity for biotechnology in the country
- f. There is inadequate legal environment for Biotech development and application
- g. Capacity for management of transboundary movements of GMOs is also generally limited

At present, GMOs have not been officially approved beyond confined field trials, so socio-economic considerations have therefore not been high on the national agenda. Strategies for biotechnology and biosafety in Uganda include:

- a. Communication, Education & Public Awareness (CEPA) strategy implemented for biotechnology and biosafety
- b. Support capacity building for biotechnology and Biosafety
- c. Support the passing into law of a national biosafety law
- d. Develop an Integrated Risk Assessment and Management Framework for establishment of safety protocols for handling, storage and disposal of biotechnology products and waste
- e. Domesticate the Nagoya-Kuala Lumpur Supplementary Protocol on liability and redress
- f. Support biotechnology applications and use for national development

Table 4.4: Objective 2. To harness biotechnology for socio-economic transformation with adequate safety measures for human health and environment

2.1	By 2030, public av	wareness, educa	tion and participation	in biotechnology	Corresponding 1	KMGBF target	17: Strengthen	biosafety and
	and biosafety are	enhanced			distribute the ben	efits of biotechno	ology.	
	<b>National Indicat</b>	ors						
	Proportion of the	population awa	re of biotechnology/b	iosafety				
	Yes/No the necess	ary measures ar	nd means for the detect	tion and identifica	ation of products of	biotechnology ar	e in place and bei	ng implemented
	Yes/No implement	nting the relevan	nt provisions of the Ca	artagena Protoco	l on Biosafety			
	Headline Indicat	tors						
	N/A							
	Component Indi	cators						
	N/A	cutors						
	Complimentary In	ndicators						
	Yes/No the necess	sary biosafety le	egal and administrativ	e measures in pl	ace			
	Yes/No biosafety	measures imple	emented					
	Yes/No the necess	sary measures a	nd means for the dete	ection and identif	ication of products	of biotechnology	7	
	-		ound risk assessments		fety decision-maki	ng		
		•	risk management mea					
	-	_	nt provisions of the Ca	_				
			ures for restoration an	-	-			
			oration and compensat		conservation and	sustainable use of	f biological dive	rsity
		•	risk management mea					
			itate the sharing of an	d access to inform	nation on potential	adverse impacts	of biotechnology	on biodiversity
	and human health	l .						
	Strategies	Action	Proposed Activities	Baseline 2023	Output indicators	Lead Agency (target Champion)	Partner institutions	Costs in US\$

Communication,	Create	2.1.1Conduct a	Low level	Increased	UNCST,	Local	100,000
Education &	awareness on	baseline study on	of public	stakeholder	NEMA,	governments	
Public Awareness	the benefits	level of public	awareness and	involvement in	NARO		
(CEPA) Strategy	of modern	awareness and	participation in	biotechnology			
strategy	biotechnology	education on the	Biosafety and	and Biosafety			
implemented for		benefits and risks	Biotechnology	practices			
biotechnology		of biotechnology	matters				
and biosafety		and Biosafety					
		2.1.2	No BCH	A National	UNCST	NARO,	200,000
		Establish and		Biosafety		NEMA	
		operationalize		Clearing House			
		Biosafety		Mechanism or			
		Clearing House		similar entity in			
		(BCH)		place			
		2.1.3 Conduct	Limited	Increased	UNCST	NARO,	200,000
		specialized	trained	number		NEMA,	
		trainings in	Technical	of trained		UNBS,	
		Biosafety for	Personnel on	Technical		Academia	
		regulators and	biotechnology	Personnel in			
		inspectors	and Biosafety	biotechnology			
				and Biosafety			
		2.1.4 Conduct	Imbalanced	Balanced	UNCST	NARO,	100,000
		specialized	and low	and informed		NEMA	
		biotechnology	reporting on	reporting by		,UNBS,	
		communication	Biotechnology	the media on		Academia	
		for media	and Biosafety	Biotechnology			
		specialists	by the Media	and Biosafety.			

			2.1.5 Conduct	Low level of	Increased	UNCT	NARO NEMA	150,000
			trainings in	awareness on	levels of		UNBS	
			biotechnology	Biotechnology	appreciation on		Academia	
			and biosafety for	and Biosafety	Biotechnology			
			women and men	in the general	and Biosafety in			
				Public	communities			
2.2	By 2030, natio	nal capacity f	for biotechnology	Corresponding	KMGBF target 17	: Strengthen bios	safety and distrib	ute the benefits
	applications and	use contribute	to socio-economic	of biotechnolog	y.			
	transformation							

Yes/No- biotechnology integrated into sector strategies and plans

Yes/No the necessary measures and means for the detection and identification of products of biotechnology are in place Percentage contribution of biotechnology to GDP

#### **Headline Indicators**

N/A

## **Component Indicators**

N/A

## **Complimentary Indicators**

Yes/No the necessary biosafety legal and administrative measures in place

Yes/No biosafety measures implemented

Yes/No the necessary measures and means for the detection and identification of products of biotechnology

Yes/No carry out scientifically sound risk assessments to support biosafety decision-making

Yes/No establish and implement risk management measures

Yes/No implementing the relevant provisions of the Cartagena Protocol on Biosafety

Yes/No legal and technical measures for restoration and compensation are in place

Yes/No systems in place for restoration and compensation of damage to conservation and sustainable use of biological diversity

Yes/No establish and implement risk management measures

Yes/No with mechanisms to facilitate the sharing of and access to information on potential adverse impacts of biotechnology on biodiversity and human health

Strategies	Action	Proposed Activities	Baseline 2023	Output indicators	Lead Agency (target champion)	Partner institutions	Costs in US\$
Support capacity	Build capacity	2.2.1Assess	Capacity	National	UNCST	NEMA,	80,000
building for	on the	national	has not been	capacity for		MAAIF,	
biotechnology	application of	capacities in	assessed	biotechnology		мон,	
and Biosafety	biotechnology	biotechnology		and Biosafety		Academia	
		and Biosafety		assessed			
		2.2.2 Support the	National	Number of	UNCST	UNCST,	300,000
		development of	capacity is low	scientists		NARO,	
		skilled human		trained in		NEMA,	
		resources for		Biotechnology		Academia	
		biotechnology		and Biosafety			
		and Biosafety					
		2.2.3 Promote	Inadequate	Accredited	UNCST	NEMA,	400,000
		infrastructural	infrastructure	Biotechnology		MOFPED,	
		Development		and Biosafety		MAAIF, MOE	
		and Research on		infrastructure			
		biotechnology		developed.			
		and Biosafety.					
		2.2.4 Develop	Inadequate	Adequate tools	UNCST	NEMA,	300,000
		and apply	tools in place	developed for		NARO,	
		biotechnology		identification,		ACADEMIA,	
		tools for		characterization		UNBS	
		identification,		and conservation			
		characterization		of biodiversity			
		and conservation					
		of biodiversity					

2.3 By 2030, the national biotechnology and biosafety law Corresponding KMGBF target 17: Strengthen biosafety and distribute the benefits in place of biotechnology. **National Indicators** Yes/No-Biotechnology and Biosafety law in place Yes/No the necessary measures and means for the detection and identification of products of biotechnology **Headline Indicators** N/A **Component Indicators** N/A **Complimentary Indicators** Yes/No the necessary biosafety legal and administrative measures in place Yes/No biosafety measures implemented Yes/No the necessary measures and means for the detection and identification of products of biotechnology Yes/No carry out scientifically sound risk assessments to support biosafety decision-making Yes/No establish and implement risk management measures Yes/No implementing the relevant provisions of the Cartagena Protocol on Biosafety Yes/No legal and technical measures for restoration and compensation are in place Yes/No systems in place for restoration and compensation of damage to conservation and sustainable use of biological diversity Yes/No establish and implement risk management measures Yes/No with mechanisms to facilitate the sharing of and access to information on potential adverse impacts of biotechnology on biodiversity and human health Lead Agency Proposed Output Partner Costs in US\$ Strategies Baseline 2023 (target Action Activities indicators institutions champion) 2.3.1 Undertake UNCST Support the Expedite There is Increased UNCST, 100,000 passing into approval of the | widespread appreciation of MFPED, limited Bill biotechnological MAAIF, law of the awareness on the awareness and benefits and risks developments Biotechnology knowledge of MOES and Biosafety biotechnology associated with

Bill

biotechnology

2.3.2 Popularize the Biotechnology and Biosafety Policy	Limited awareness and knowledge on the Biotechnology and Biosafety policy, 2008	Increased Awareness and knowledge on Biotechnology and Biosafety policy.	UNCST	NEMA, MFPED, MOLG, MAAIF, MOES, MWE	100,000
2.3.3 Advocate for the approval of the National Biotechnology and Biosafety Bill to enable regulation of Biotechnology and Biosafety developments in the country.	The Bill has not been passed by parliament.	A Biotechnology and Biosafety law in place.	UNCST	NEMA, MOJCA, MWE, MAAIF, MOH	300,000
2.3.4 Popularize the Biosafety and Biotechnology Policy and Bill/ Act	Many stakeholders and the general population understand little of the benefits of the law	Stakeholders and the general population develop a positive attitude towards the law	UNCST	NEMA MWE	150,000
2.3.5 develop guidelines on compliance to biosafety	No guidance on Biosafety compliance at the moment	Guidance on Biosafety compliance in place	UNCST	NEMA, MDAs, MWE	80,000

			2.3.6 Enhance the regulatory performance of the National Biosafety Committee (NBC) and the Institutional Biosafety Committees (IBC)	The NBC and IBCs are inadequately remunerated.	The NBC and IBCs are adequately remunerated and perform their duties diligently.	UNCST	MWE, NEMA, MAAIF, Academia, MOH	150,000
			2.3.7 Promote public- private partnerships (PPP) in biotechnology development	There are limited public- private partnerships in Biotechnology development.	development.	UNCST	NARO, MAAIF, Academia, Private sector	200,000
2.4		age and dispos	ent safety protocols al of biotechnology	Corresponding of biotechnolog	KMGBF target 17 y.	: Strengthen bio	safety and distril	oute the benefits
	National Indicate Yes/No- safety pro	ors otocols on stora ary measures ar	ge and disposal are in	-	ication of products	of biotechnology	y are in place	

# **Complimentary Indicators**

Yes/No the necessary biosafety legal and administrative measures in place

Yes/No biosafety measures implemented

Yes/No the necessary measures and means for the detection and identification of products of biotechnology

Yes/No carry out scientifically sound risk assessments to support biosafety decision-making

Yes/No establish and implement risk management measures

Yes/No implementing the relevant provisions of the Cartagena Protocol on Biosafety

Yes/No legal and technical measures for restoration and compensation are in place

Yes/No systems in place for restoration and compensation of damage to conservation and sustainable use of biological diversity

Yes/No establish and implement risk management measures

Yes/No with mechanisms to facilitate the sharing of and access to information on potential adverse impacts of biotechnology on biodiversity and human health

Strategies	Action	Proposed Activities	Baseline 2023	Output indicators	Lead Agency (target champion)	Partner institutions	Costs in US\$
Integrated Risk Assessment and Management Framework for establishment of safety protocols for handling,	Develop a handling and reporting system for conditions related to biotechnology products and waste.	2.4.1.Conduct Risk Assessment and Management for biotechnology products and waste	No study undertaken	Report on risk assessment	UNCST	NARO, MAAIF, NEMA Academia, Private sector	200,000

		2.4.2.Develop detailed SOPs and emergency response plans for all processes involving biotechnology products and waste.	SOPs for CFTs exist	Comprehensive SOPs biotech- nology products and waste	UNCST	NARO, MAAIF, NEMA Academia, Private sector	200,000
		2.4.3.Establish protocols for the segregation, labeling, and disposal of biotechnology products and waste	No protocol for labelling biotechnology products and waste	Protocol on labelling biotechnology products and waste	UNCST	NARO, MAAIF, NEMA Academia, Private sector	200,000
		2.4.4. Clearly classify waste types and align them with appropriate disposal methods as per local regulations.	Biotechnology products and waste not classified	System for classification of biotechnology waste	UNCST	NARO, MAAIF, Academia, Private sector	200,000
2.5	By 2030, the Nagoya–Kual Protocol on Liability and Re Protocol on Biosafety in ope	edress under the Cartagena	Corresponding of biotechnolog	KMGBF target 17 y.	: Strengthen bio	safety and distri	oute the benefits
	National Indicators Yes/No-protocol under impl Yes/No the necessary measu		ection and identifi	cation of products	of biotechnolog	y are in place	

**Headline Indicators** 

N/A

**Component Indicators** 

N/A

**Complimentary Indicators** 

Yes/No the necessary biosafety legal and administrative measures in place

Yes/No biosafety measures implemented

Yes/No the necessary measures and means for the detection and identification of products of biotechnology

Yes/No carry out scientifically sound risk assessments to support biosafety decision-making

Yes/No establish and implement risk management measures

Yes/No implementing the relevant provisions of the Cartagena Protocol on Biosafety

Yes/No legal and technical measures for restoration and compensation are in place

Yes/No systems in place for restoration and compensation of damage to conservation and sustainable use of biological diversity

Yes/No establish and implement risk management measures

Yes/No with mechanisms to facilitate the sharing of and access to information on potential adverse impacts of biotechnology on biodiversity and human health

Strategy	Action	Proposed Activities	Baseline 2023	Output indicators	Lead Agency (target champion)	Partner institutions	Costs in US\$
Domesticate the Nagoya- Kuala Lumpur Supplementary Protocol on liability and redress	Create awareness on biosafety	2.5.1 Organize and conduct gender-responsive national and local stakeholder awareness creation campaigns on biosafety	Limited knowledge on benefits to be shared, low capacity to review prepare and negotiate material transfer agreement MTA including mutually agreed terms and prior informed consent	Increased understanding of ABS issues by the Government and communities	UNCST	MDAs MGLSD NGOs CBOs CSOs NEMA	250,000

Create awareness on biosafety	2.5.2 Organize and conduct gender-responsive national and local stakeholder awareness creation campaigns on biosafety	Limited knowledge on benefits to be shared, low capacity to review prepare and negotiate material transfer agreement MTA including mutually agreed terms and prior informed consent	Increased understanding of ABS issues by the Government and communities	UNCST NEMA Local governments	MDAs MGLSD NGOs CBOs CSOs	250,000
	2.5.3 Support tertiary Institutions to run short courses on biosafety	No tertiary Institution training on ABS	Increased capacity to support scientific research and development in genetic resources	UNCST	NEMA MOES URA MOLG	200,000
	2.5.4 Support the full implementation of the Nagoya Supplementary Protocol on Liability and Redress	Uganda acceded to the Nagoya Protocol in June 2014	The Protocol on Liability and Redress is enforced	UNCST	NEMA MDAs NGOs Development partners	200,000

2.6	By 2030, there is	s increased appl	ication and use of	Corresponding	KMGBF target 17	: Strengthen bios	safety and distrib	oute the benefits
		d its products f	for socio-economic	of biotechnolog	У			
	transformation							
	<b>National Indicate</b>	ors						
	Proportion of biot	echnology produ	cts available on the	market				
	Proportion of the	target beneficiary	population accessing	ng biotechnology	products for socio	o-economic transf	formation	
	Yes/No the necess	sary measures and	d means for the dete	ection and identifi	ication of products	of biotechnology	are in place	
	<b>Headline Indicat</b>	ors						
	Yes/No the necess	sary biosafety leg	gal and administrativ	e measures in pla	ace			
	Yes/No biosafety	measures implen	nented					
	Yes/No the necess	sary measures an	d means for the dete	ction and identifi	cation of products	of biotechnology	7	
	Yes/No carry out	scientifically sou	nd risk assessments	to support biosaf	fety decision-makin	ng		
	Yes/No establish a	and implement ri	sk management mea	isures				
	Yes/No implemen	ting the relevant	provisions of the Ca	artagena Protocol	on Biosafety			
	Yes/No legal and	technical measur	es for restoration an	d compensation	are in place			
	Yes/No systems in	n place for restora	ation and compensation	tion of damage to	conservation and	sustainable use o	of biological diver	rsity
	Yes/No establish a	and implement ri	sk management mea	isures				
	Yes/No with mech	nanisms to facilita	ate the sharing of an	d access to inform	nation on potential	adverse impacts	of biotechnology	on biodiversity
	and human health							
	<b>Component Indi</b>	cators						
	N/A							
	Complimentary I	Indicators						
	IN/A					т 1 м	<u> </u>	
	Strategies	Action	Proposed Activities	Baseline 2023	Output indicators	Lead Agency (target	Partner institutions	Costs in US\$
			Activities		indicators	champion)	institutions	

Support	Carry out	2.6.1 Promote	Limited	Vibrant	UNCST	NEMA,	400,000
biotechnology	research on	management-	modern	biotechnology		MWE,	
applications and	biotechnology	oriented research	biotechnology	and Biosafety		MAAIF,	
use for National		and development	research is	research applied		NARO, MoH	
development		in medical,	on-going in	in the fields			
		agricultural	agricultural	of medicine,			
		land industrial	sector mainly	agriculture and			
		biotechnology.		Industry			
		2.6.2 Undertake	The third	ESIAs	UNCST	NEMA	100,000
		ESIA or risk	schedule of	conducted and		MoLoG,	
		assessments on	the National	complied with		MWE,	
		biotechnology	Environment	by developers in		MAAIF,	
		plans,	Act requires	biotechnology,		NARO,	
		programmes and	EIA to be			Private sector	
		projects	undertaken				
		2.6.3 Establish	Inadequate	A strong	UNCST	NEMA,	200,000
		a strong and	human,	monitoring		Private sector,	
		effective	physical and	system in		MLG	
		monitoring	financial	place for			
		system for	infrastructure	biotechnology			
		biotechnology	to effectively	use and			
		use and	and efficiently	applications			
		applications	monitor				
			biotechnology				
			use and				
			applications.				

2.6.4 Develop	Mechanisms	Effective	UNCST	NEMA,	400,000
and implement	for sharing	mechanisms		MDAs,	
mechanisms for	costs and	in place for		NARO,	
sharing costs	benefits of	sharing costs		MAAIF	
and benefits of	biotechnology	and benefits of			
biotechnology	are not yet in	biotechnology			
	place				
2.6.5 Promote	No	Biotechnology	UNCST	NPA	200,000
integration of	socioeconomic	applications		NEMA,	
biotechnology	study so far	mainstreamed		NARO,	
values into	conducted in	in National		UNCST,	
macroeconomic	biotechnology,	macroeconomic		MDAs	
frameworks		programmes.			

## 5.5 Thematic area three: Benefit sharing from utilisation of genetic resources

Strategic Objective 3: To promote inclusive, fair and equitable sharing of benefits arising from utilisation of genetic resources, including digital sequence information on genetic resources, and of traditional knowledge associated with genetic resources (Corresponds to KMGBF GOAL C: Share Benefits Fairly)

. The strategies include the following

- :
- 1. Implement incentives for conservation and sustainable use of biodiversity
- 2. Promote Public Private Partnership (PPP) for sustainable use of biodiversity
- 3. Promote synergies in the implementation of International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA), CBD and the Nagoya Protocol on ABS
- 4. Domesticate the Nagoya Protocol on ABS, with consideration of social safeguards
- 5. Develop and implement a comprehensive incentive program that includes subsidies or tax breaks for farmers and businesses adopting eco-friendly agricultural practices and technologies
- 6. Develop and implement a national agroecological systems strategy for sustainable farming practices, integrated support services, and financial incentives.

Table 45: Strategic Objective 3: To promote inclusive, fair and equitable sharing of benefits arising from utilisation of genetic resources, including digital sequence information on genetic resources, and of traditional knowledge associated with genetic resource

3.1	By 2030, appropriate incentives for biodiversity	Corresponding KMGBF target 13: Increase the sharing of benefits from genetic
	conservation and sustainable use are in place and	resources, digital sequence information and traditional knowledge.
	applied	Corresponding KMGBF target 14: Integrate biodiversity in decision-making at every
		level.
		Corresponding KMGBF target 15: Businesses assess, disclose and reduce biodiversity-
		related risks and negative impacts.
		Corresponding KMGBF target 18: Reduce harmful incentives by at least \$500 billion
		per year, and scale up positive incentives for biodiversity.

Number of incentives repurposed/reformed for biodiversity conservation or eliminated or phased out

Number of companies publishing sustainability reports

Yes/No biodiversity-relevant taxes

Yes/No biodiversity-relevant charges and fees

Yes/No biodiversity-relevant tradable permit schemes

### **Headline Indicators**

- C.1 Indicator on monetary benefits received
- C.2 Indicator on non-monetary benefits
- 18.1 Positive incentives in place to promote biodiversity conservation and sustainable use
- 18.2 Value of subsidies and other incentives harmful to biodiversity that have been eliminated, phased out or reformed

# **Component Indicators**

Number of permits or their equivalents for genetic resources (including those related to traditional knowledge) by type of permit Value of subsidies and other incentives harmful to biodiversity, that are redirected, repurposed or eliminated

# **Complimentary Indicators**

Total number of permits, or their equivalent, granted for access to genetic resources

Number of companies publishing sustainability reports

Yes/No biodiversity-relevant taxes

Yes/No biodiversity-relevant charges and fees

Yes/No biodiversity-relevant tradable permit schemes

Trends in potentially environmentally harmful elements of government support to agriculture (producer support estimate)

Trends in the number and value of government fossil fuel support measures

Amount of fossil-fuel subsidies per unit of gross domestic product (production and consumption)

Strategies	Action	Proposed Activities	Baseline 2023	Output indicators	Lead Agency (target champion)	partner institutions	Costs in US\$
Implement incentives for conservation and sustainable use of biodiversity	Phase out incentives harmful to biodiversity	3.1.1 Develop economic instruments to encourage activities that enhance biodiversity conservation and discourages activities that impact negatively on biodiversity	Economic instruments are still inadequately being used to manage biodiversity in Uganda	Number of economic instruments supporting biodiversity conservation and sustainable use	NEMA	MoFPED, NPA, MDAs, EPRC, Academia	150,000
		3.1.2 Identify and support women groups to adopt more sustainable alternatives for household and income-generating activities to enhance livelihoods and biodiversity conservation	There are limited initiatives to target women's sustainable use of natural resources but women are key users, and. thus drivers of degradation	Number of women's alternative strategies identified and promoted Number of alternative practices adopted/ promoted by women	MGLSD, Local governments	NEMA, NGOs, CBOs, CSOs	500,000

3.1.3 Introduce pro-poor environmental taxes and levies and market-based instruments	Environmental taxes and market-based instruments are still inadequately being used to manage biodiversity in Uganda	Effective taxes and other instruments to manage biodiversity are under implementation	MoFPED	NEMA, NPA, EPRC, Local governments	300,000
3.1.4 Promote and support Green Procurement through purchasing of environmentally preferable products or services, taking into consideration the necessity, not only for quality and price, but also for biodiversity conservation-conscious business	Green procurement is still a relatively new concept in Uganda for protecting biodiversity and its sustainable use	Green procurement is being widely used to protect biodiversity and its sustainable use	PPDA	NEMA, MoFPED, MDAs, Local governments	250,000
3.1.5 Undertake Environmental Impact Assessments (EIA) of all policies,	Some policies, programmes and projects have not been subjected to EIAs	Number of EIAs completed for policies, programmes and projects	NEMA	MDAs, Local governments	150,000

		programmes or projects which have the potential for negative—or positive—impacts on biodiversity		Number of EIA processes that include community participation			
		3.1.6 Integrate biodiversity accounting into national accounting and reporting processes	Biodiversity accounting not included national accounting and reporting	Biodiversity accounting reflected national accounting and reporting processes	NEMA, NPA MWE	UWA, NFA, MEMD, MDAs	300,000
3.2	By 2030, at least 2 partnerships			MGBF target 9: M			
	that wild harvested flora and faun sourced sustainably	a-based products are	Corresponding K related risks and i	MGBF target 15: But negative impacts.	usinesses assess, d	lisclose and reduc	e biodiversity-

Number of partnerships established

Number of companies publishing sustainability reports

### **Headline Indicators**

- 9.1 Benefits from the sustainable use of wild species
- 9.2 Percentage of the population in traditional occupations

# **Component Indicators**

Number of people using wild resources for energy, food or culture (including firewood collection, hunting and fishing, gathering, medicinal use, craft making, etc.)

Red List Index (species used for food and medicine)

Living Planet Index for used species

# **Complimentary Indicators**

Proportion of fish stocks within biologically sustainable levels

Degree of implementation of international instruments aiming to combat illegal, unreported and unregulated fishing Number of companies publishing sustainability reports

	1	tames of companies pasienting sustainant, repetit								
	Strategy	Action	Proposed Activities	Baseline 2023	Output indicators	Lead Agency (target champion)	Partner institutions	Costs in US\$		
	Promote Public Private Partnership (PPP) for sustainable use of biodiversity	Establish PPP	3.2.1 Promote PPP to collect, harvest and process plant-based products for commercialization	Private companies currently collect and process some plant-based products in isolation of important public institutions	Evidence of collaborative ventures between the private sector and public institutions	UNCST, NARO	NEMA, NFA, FSSD, Private sector	400,000		
			3.2.2 Support value addition on plant-based products for commercialization by local community groups	Very limited processing of plant-based products such as medicinal plants is undertaken particularly with local communities	Private sector and local communities engaged in processing for value addition on plant-based products	MTIC, UEPB, NEMA, Local governments	UNCST, NGOs, CBOs, CSOs, Private sector	1,000,000		
3.3	By 2030, a well-established framework for implementing the Multilateral System of accessing and sharing of benefits arising from access to genetic resources, and from digital sequence information on genetic resources, as well as traditional knowledge associated with genetic resources, in place and operational			resources, digital	MGBF target 13: sequence informat MGBF target 9: M	ion and traditiona	ıl knowledge.	C		

Yes/No-well established framework on ABS in place

Number of people using wild resources for energy, food or culture (including firewood collection, hunting and fishing, gathering, medicinal use, craft making, etc.)

#### **Headline Indicators**

- C.1 Indicator on monetary benefits received
- C.2 Indicator on non-monetary benefits
- 9.1 Benefits from the sustainable use of wild species
- 9.2 Percentage of the population in traditional occupations

# **Component Indicators**

Number of permits or their equivalents for genetic resources (including those related to traditional knowledge) by type of permit Number of people using wild resources for energy, food or culture (including firewood collection, hunting and fishing, gathering, medicinal use, craft making, etc.)

Red List Index (species used for food and medicine)

Living Planet Index for used species

# **Complimentary Indicators**

Total number of transfers of crop material from the Multilateral System of the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA) received in a country

Total number of permits, or their equivalent, granted for access to genetic resources

Proportion of fish stocks within biologically sustainable levels

	Strategy	Action	Proposed Activities	Baseline 2014	Output indicators	Lead Agency (target champion)	Partner institutions	Costs in US\$	
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Promote synergies in the implementation of ITPGRFA, CBD and the Nagoya Protocol on ABS	Develop a framework for sharing of benefits from access to PGR including from digital sequence information on genetic resources that does not run counter to other related international instruments	3.3.1 Develop and implement mechanisms for sharing the benefits from access to PGR, including from access to DSI on PGR, in the country	Presently there are no clear mechanism for sharing benefits from access to PGR, including from access to DSI on PGR,	Effective and documented mechanisms for sharing benefits from access to PGR, including from access to DSI on PGR, put in place and are being implemented	NARO, NEMA, UNCST	MDAs, Local governments	200,000
		3.3.2 Document traditional knowledge, innovations and practices in PGR	There is limited documentation of indigenous knowledge, innovations and practices in PGR	-Detailed documentation of traditional knowledge, innovations and practices in PGR available	NARO	UNCST, NEMA, NCRI, Local government, Academia	250,000
		3.3.3 Disseminate traditional knowledge information/documents to enhance sustainable use of biodiversity (planning for	Documents not distributed	Documents on indigenous knowledge distributed to relevant stakeholders	NCRI	UNCST, NEMA, Local governments, Academia	150,000

		food security and					
		health care, i.e.					
		medicinal plants)					
		3.3.4 Initiate	PGR	Some PGR	NARO, Local	UNCST,	350,000
		and support	management	management	governments	NEMA, NCRI	
		community-based	initiatives are	activities			
		PGR management	absent up-	initiated in some			
		initiatives in	country	parts of the			
		various parts of		country			
		the country					
3.4	By 2028, the Nagoya Protocol of	n Access to Genetic	Corresponding K	MGBF target 13:	Increase the sha	aring of benefits	from genetic
	Resources and Benefit Sharing	in force and being	resources, digital	sequence informati	ion and traditiona	ıl knowledge.	
	implemented including fair an	d equitable sharing					
	arising from utilization of genetic	resources, associated					
	traditional knowledge, and digital	sequence information					

Yes/No-Nagoya protocol being implemented

## **Headline Indicators**

C.1 Indicator on monetary benefits received

C.2 Indicator on non-monetary benefits

## **Component Indicators**

Number of permits or their equivalents for genetic resources (including those related to traditional knowledge) by type of permit

# **Complimentary Indicators**

Total number of transfers of crop material from the Multilateral System of the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA) received in a country

Total number of permits, or their equivalent, granted for access to genetic resources

	Strategy	Action	Proposed Activities	Baseline 2023	Output indicators	Lead Agency (target champion)	Partner institutions	Costs in US\$
	Domesticate the Nagoya Protocol on ABS, with particular consideration	Enforce the Nagoya Protocol on ABS	3.4.1 Review the ABS Regulations and incorporate relevant elements of the Nagoya Protocol	ABS Regulations have not been reviewed since 2005	ABS Regulations reviewed incorporating elements of the Nagoya Protocol	NEMA	UNCST, MDAs, Local governments, NGOs, IPLCs, CSOs	200,000
	of social safeguards		3.4.2 Build capacity to enforce the Nagoya protocol on ABS	There is limited capacity for enforcement of the Nagoya Protocol on ABS	Number of institutions trained	NEMA	UNCST, Local governments	2,500,000
			3.4.3 Promote and regulate bioprospecting and biotrade activities	Biotrade activities are presently not regulated	Both bioprospecting and biotrade are regulated for the benefit of the local communities	UNCST	UEPB, NEMA, MDAs, Local government	300,000
			3.4.4 Support the establishment of a functional Intellectual Property (IP) regime on ABS	No functional IP regime specific to genetic resources	Joint ownership of patents and other IP rights reserved	UNCST	NEMA, MDAs, Districts	150,000
3.5	By 2030, appropriate incentives for biodiversity conservation and sustainable use, including subsidy redesign strategies on the importation, purchase, and use of agrochemicals harmful to biodiversity, are in place and applied			1 -	MGBF target 18: Re up positive incent		<u> </u>	st \$500 billion

Number of incentives/subsidies repurposed for biodiversity conservation or the harmful ones eliminated or phased out

Trends in potentially environmentally harmful elements of government support to agriculture (producer support estimate)

Trends in the number and value of government fossil fuel support measures

Amount of fossil-fuel subsidies per unit of gross domestic product (production and consumption)

### **Headline Indicators**

- 18.1 Positive incentives in place to promote biodiversity conservation and sustainable use
- 18.2 Value of subsidies and other incentives harmful to biodiversity that have been eliminated, phased our or reformed

# **Component Indicators**

Value of subsidies and other incentives harmful to biodiversity, that are redirected, repurposed or eliminated

### **Complimentary Indicators**

Yes/No biodiversity-relevant taxes

Yes/No biodiversity-relevant charges and fees

Yes/No biodiversity-relevant tradable permit schemes

Trends in potentially environmentally harmful elements of government support to agriculture (producer support estimate)

Trends in the number and value of government fossil fuel support measures

Amount of fossil-fuel subsidies per unit of gross domestic product (production and consumption)

		<del>_</del>				·	
Strategy	Action	Proposed	Baseline 2023	Output	Lead Agency	Partner	Costs in US\$
		Activities		indicators	(target	institutions	
					champion)		

Develop and	Implement	3.5.1. Develop	Uknown	Number	MAAIF	MFEPD,	300,000
implement a	measures to	subsidies or tax	number (few)	of farmers		NOGAMU,	
comprehensive	lower the	incentives for	farmers who	receiving		NARO	
incentive	volumes	farmers who use	have obtained	subsidies or			
program	of harmful	environmentally	subsidies or	tax incentives			
that includes	agrochemicals	friendly	tax incentives	for adopting			
subsidies or	used and	agrochemicals	for use of	environmentally			
tax breaks for	promote the	and sustainable	environmentally	friendly			
farmers and	adoption of	farming	friendly	agrochemicals			
businesses	sustainable	technologies.	agrochemicals	and sustainable			
adopting	agricultural		and sustainable	farming			
eco-friendly	practices		farming	technologies.			
agricultural	among farmers		technologies.				
practices and	to reduce	3.5.2. Provide	Very few	Number of	MAAIF	MFEPD,	300,000
technologies	environmental	training to farmers	farmers trained	farmers trained		NOGAMU,	
	impact.	about sustainable	in sustainable	in sustainable		NARO	
		agricultural	agricultural	agricultural			
		practices,	practices,	practices,			
		integrated pest	integrated pest	integrated pest			
		management,	management,	management,			
		and the benefits	and the benefits	and the benefits			
		of reducing	of reducing	of reducing			
		agrochemical use.	agrochemical	agrochemical			
			use	use.			
		3.5.3. Establish	Few farms have	Number of	MAAIF	MFEPD,	300,000
		certification	been certified	farms certified		NOGAMU,	
		programs for	locally (some	under organic		NARO	
		organic or	internationally)	or sustainable			
		sustainable	for organic or	farming			
		farming practices	sustainable	certification			
			farming	programs.			
			practices				

			3.5.4. Provide on-farm technical assistance to farmers in sustainable practices and effective agrochemical use.	Very few farms have received technical assistance to farmers in sustainable practices and effective agrochemical use.	Number of farms receiving onfarm technical assistance in implementing sustainable practices and managing agrochemical use.	MAAIF	MFEPD, NOGAMU, NARO	300,000
3.6	Systems Strategy resilience, and pro- scale farmers esta	y for enhancing roductivity of small blished and fully	onal Agroecological the sustainability, allholder and large- operational		MGBF target 14: In	ntegrate biodivers	ity in decision-m	aking at every
	Component Indi	ity of national agro	o-ecological system s Economic Accounting					
	Strategy	Action	Proposed Activities	Baseline 2023	Output indicators	Lead Agency (target champion)	Partner institutions	Costs in US\$
	Develop and implement a national agroecological systems strategy for sustainable farming practices, integrated support services, and financial incentives.	Implement measures to increase the overall sustainability and resilience of agricultural systems	3.6.1. Provide training and technical support to farmers on agroecological practices and their benefits.		Number of farmers trained and receiving technical support in agroecological practices.	MAAIF	NOGAMU, NARO	300,000

3.6.2. Implement soil health improvement programs that include soil testing, organic matter application, and crop rotation practices.	Number of farms participating in soil health improvement programs and implementing recommended practices.	MAAIF	NOGAMU, NARO	300,000
3.6.3. Establish and promote biodiversity enhancement projects, such as planting cover crops, creating habitat patches, and introducing beneficial insects.	Area (in hectares) of farms where biodiversity enhancement projects have been established and promoted.	MAAIF	NOGAMU, NARO	300,000
3.6.4. Introduce and support climate-resilient crop varieties and adaptive farming techniques to improve yield stability and resilience.	Number of farms adopting climate-resilient crop varieties and adaptive farming techniques.	MAAIF	NOGAMU, NARO	300,000

### 5.6 Thematic Area Four: Coordination framework for biodiversity management

Strategic Objective 4: To strengthen stakeholder co-ordination, inclusive participation, partnerships and frameworks for biodiversity conservation (Corresponds to KMGBF GOAL D: Invest and Collaborate)

The strategies are to:

- 1. Mainstream biodiversity issues in the National Development Plans, Sectoral Plans, District Development Plans, District/Urban Environment Action plans
- 2. Develop MEAL framework for monitoring implementation of NBSAP III
- 3. Implement a comprehensive multi-stakeholder engagement framework for biodiversity conservation and management
- 4. Establish a Multi-Stakeholder Platform for private sector, development partners, civil society, indigenous peoples and local communities, cultural, and faith-based institutions
- 5. Enhancing networking by scientists, policymakers, non-governmental organizations and local communities from both the Global North and South to share knowledge, research, and best practices related to biodiversity, conservation technologies, and sustainable practices

Table 46: Strategic Objective 4: To strengthen stakeholder co-ordination, inclusive participation, partnerships and frameworks for biodiversity conservation

4.1	By 2028, biodiversity values integrated into the
	National Development Plan, Sector Strategic Plans,
	Local Government Development Plans, Budget
	Framework Papers, Ministerial Policy Statements,
	regulatory instruments and budgets.

Corresponding KMGBF target 14: Integrate biodiversity in decision-making at every level.

### **National Indicators**

Yes/No-integration of biodiversity into the National Development Plan

Number of sectors and local governments that have integrated biodiversity in their development plans and budgets
Proportion of the national, sector program and local governments' budgets allocated for biodiversity conservation
Proportion of the national, sector program and local governments' budgets allocated for biodiversity released/disbursed and spent

# **Component Indicators**

Yes/No System of Environmental-Economic Accounting in place

Strategy	Action	Proposed Activities	Baseline 2023	Output indicators	Lead Agency (Target Champions) <sup>4</sup>	Partner institutions <sup>2</sup>	Costs in US\$ 3
National Developmen Plans, Sector	biodiversity issues in the National Development measures to enhance inclusive and equitable stakeholder	4.1.1 Strengthen the capacity of the biodiversity coordination mechanism	CBD Focal Point is currently overstretched	Collaboration and information flow among stakeholders improved	NEMA, NPA, Local governments	UWA, NFA, MoLoG, MWE, MAAIF, MoEMD	800,000
Plans, District Development Plans, District Urban Environment Action plans	t t	4.1.2 Develop an integrated biodiversity management policy framework	Biodiversity related polices are disjointed	A national Biodiversity policy framework in place	NEMA	MWE, MDAs, Local governments	100,000

4.1.3 Map relevant stakeholders (women and men) at different levels, and establish/ reinforce networks and task forces, including especially on gender and women's empowerment	Limited stakeholders have been identified and engaged. Thematic working groups/ networks can benefit from wider inclusion, especially of women and women's representatives.	Stakeholders and stakeholder groups are identified and established Gender disaggregated database of stakeholders	NEMA, MGLSD, Local governments	MDAs, CBOs NGOs CSOs	125,000
4.1.4 Conduct capacity building sessions on the NBSAP, gender and biodiversity, and implementing conservation plans and initiatives with a gender perspective across the environmental sector	Limited coordination and capacity to address gender issues in environment sector	Number of women and men trained	NEMA MGLSD	MDAs, NGOs, CSOs, Cultural institutions	100,000

4.1.5 Lobby Government and other relevant stakeholders to put in place a coordination mechanism for implementation of Multilateral Environmental Conventions	Weak coordination among biodiversity related conventions	A coordinated mechanism put in place for enhanced information sharing across sectors	NEMA	MWE, MDAs, Local governments	150,000
4.1.6 Develop and utilize biodiversity and ecosystem services valuation tools to quantify and monitor the environmental, economic and social value of biodiversity	Examples of biodiversity valuation is limited in Uganda	Integration of biodiversity issues in the NDP, sectoral and District Development Plans	NEMA, Academia	MDAs, NGOs, Local governments	80,000
4.1.7 Develop guidelines for mainstreaming biodiversity into national, sectoral and district plans	No guidelines for mainstreaming biodiversity exist	Biodiversity issues planned and budgeted for at National and Local levels	NEMA	NPA, MDAs, Local governments, Cultural institutions	100,000

Ensure that priority areas for biodiversity vital for ecosystem services provisions such as KBAs, Ramsar Sites are mainstreamed in sectoral, cross-sectoral and district development	Inadequate incorporation of biodiversity priority areas in the sectoral, cross-sectoral and district development plans	Integration of irreplaceable biodiversity hotspots such as KBAs, Ramsar sites in the NDP, sectoral and District Development	NEMA	NPA, MDAs, Local governments,	200,000
plans  4.1.8  Undertake and utilize biodiversity and ecosystem services valuations to mainstream biodiversity into decision making and to develop a business case for biodiversity	Limited integration of biodiversity in local, sector and national plans	Biodiversity issues planned and budgeted for at National and Local levels	NEMA	NPA, UWA, NFA, MoFPED, Local governments, Academia	250,000

		4.1.9 Undertake mapping of the status and trends of ecosystems (especially forests, wetlands and rangelands)	Limited spatial data/ information available to guide decision making	Number of maps produced and disseminated	UWA NFA	NEMA, Local governments, Academia, NGOs	500,000
		4.1.20 Facilitate the mainstreaming of NBSAPIII actions in national, sectoral and district plans and programmes	Not yet done	Key issues in NBSAPIII mainstreamed and budgeted for in national, sectoral and district plans and programmes	NEMA,	MDAs NPA, Local governments	150,000
4.2	Learning strategy for III in line with nation	g, Evaluation, Accountability and for the implementation of NBSAP onal reporting guidelines reviewed			1		
	National Indicator Yes/No-Availability Headline Indicator N/A Component Indicator N/A Complimentary In N/A	y of Monitoring, Evaluation, Accounts  ators	ntability and Lear	rning (MEAL) Fra	nmework for NI	BSAPIII	

Strategy	Action	Proposed Activities	Baseline 2023	Output indicators	Lead Agency (target champion)	Partner institutions	Costs in US\$
Develop MEAL framework for monitoring implementation of NBSAP III	Review and update MEAL Framework	_	MEAL Framework for NBSAP II exist	MEAL framework	NEMA	MDAs, Local governments, Cultural institutions	100,000
		4.2.2 Disseminate NBSAPIII to stakeholders	NBSAPIII development completed	-Number of stakeholders with NBSAPIII -Devise a monitoring and feedback mechanism on NBSAP information on consumption	NEMA	MDAs, Local governments, NGOS, IPLCs, Cultural institutions	80,000
		4.2.3 Undertake regular cross- sectoral consultations on NBSAPIII implementation	Not yet done	Reports of consultations on implementation	NEMA	MDAs, Academia, Local governments	200,000

	Put in place a monitoring and evaluation framework for NBSAP	Carry out periodic monitoring and evaluation of NBSAPIII	4.2.4 Develop and implement a gender responsive NBSAPIII Monitoring and Evaluation strategy with SMART indicators 4.2.5	An M&E yet to be prepared Gender data in sectors is limited	A Monitoring and Evaluation Strategy in place Disaggregated data and gender-specific indicators exist as part of M&E	NEMA, MGLSD	MDAs, Districts, Academia, IPLCs, NGOs, CSOs, CBOs	150,000
			Undertake Monitoring and Evaluation of the implementation of NBSAPIII	The year done	monitoring and evaluation of NBSAPIII	1 (21)11	governments	100,000
4.3	representation ar	By 2030, ensure the inclusive and meaningful representation and participation by IPLCs, women and girls, children and youth, and persons with disabilities			KMGBF target 2 and information 1 KMGBF target 23 diversity action	related to biodive	ersity for all.	sion-making and ender-responsive
	National Indicators  Number of MOUs signed (partnerships established with children, youth, and persons with disabilities).			n special interest g	groups (organized	groups of or resp	oonsible for IPL	Cs, women, girls,

Yes/No MOUs available and implemented

Yes/No-participation of the different interest groups

#### **Headline Indicators**

N/A

# **Component Indicators**

Proportion of total adult population with secure tenure rights to land, (a) with legally recognized documentation, and (b) who perceive their rights to land as secure, by sex and type of tenure

# **Complimentary Indicators**

Percentage of positions in national and local institutions, including: (a) the legislatures; (b) the public service; and (c) the judiciary, compared to national distributions, by sex, age, persons with disabilities and population groups

Yes/No systems to track and make public allocations for gender equality and women's empowerment

Proportion of total agricultural population with ownership or secure tenure rights over agricultural land, by sex; and share of women among owners or rights-bearers of agricultural land, by type of tenure

Yes/No legal framework (including customary law) guarantees women's equal rights to land ownership and/or control

Number of protected areas that have completed a site-level assessment of governance and equity (SAGE)

Trends in number of environmental human rights defenders killed annually, disaggregated by country and gender; and number of indigenous environmental human rights defenders killed

Land tenure of indigenous peoples and local communities by sex and type of tenure

Proportion of population who believe decision-making is inclusive and responsive, by sex, age, disability and population group

	Strategy	Action	Proposed Activities	Baseline 2023	Output indicators	Lead Agency (Target Champions) <sup>4</sup>	Partner institutions <sup>5</sup>	Costs in US\$6
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Implement a comprehens multi-stakeholder engagement framework fi biodiversity conservation and managemen	ive implement an inclusive biodiversity stewardship platform that includes IPLCs, women and girls,	4.3.1 Develop inclusive community-centric capacity building events to empower IPLCs, women, girls, children, and persons with disabilities with knowledge and skills related to biodiversity conservation and stewardship	Although community capacity building events are held, they do not cover all disadvantaged categories of people	Number of participants from IPLCs, women, girls, children, and persons with disabilities who actively engage in capacity-building events focused on biodiversity conservation	NEMA	MGLSD, UNCST, MWE MDAs NGOs MEMD	200,000
		4.3.2 Develop and implement interactive biodiversity action projects involving IPLCs, women and girls, children and youth, and persons with disabilities in biodiversity conservation efforts.	The current biodiversity actions need to be enhanced to include more IPLCs, women and girls, children and youth, and persons with disabilities	Number of interactive biodiversity action projects developed and implemented that include the participation of Indigenous Peoples and Local Communities (IPLCs), women and girls, children and youth, and persons with disabilities	NEMA	MWE. MDAs NGOs	200,000

			4.3.3 Create	The current	Number of	NEMA	MGLSD,	200,000
			inclusive	stakeholder	inclusive		UNCST,	
			stakeholder	engagement	stakeholder		MWE	
			engagement	forums need	engagement			
			forums to	to be enhanced	forums held			
			ensure the	further	that actively			
			voices and	for more	involve IPLCs,			
			concerns of	engagement	women and			
			IPLCs, women	of IPLCs,	girls, children			
			and girls,	women and	and youth, and			
			children and	girls, children	persons with			
			youth, and	and youth, and	disabilities.			
			persons with	persons with				
			disabilities are	disabilities				
			specifically					
			addressed					
4.4	-	_	rships strengthened			: Ensure that kno	owledge is availa	ble and accessible
	-		artners, civil society,	to guide biodive	rsity action.			
		and faith-based ins	titutions					
	National Indica							
	-	-	d (MOUs signed and	implemented) wi	th the private sect	or, development	partners, civil so	ociety, cultural and
	faith-based instit	utions						
	Headline Indica	itors						
	N/A							
	<b>Component Ind</b>	icators						
	N/A	1000013						
	1111							
	Complimentary	Indicators						

Strategy	Action	Proposed	Baseline 2023	Output	Lead Agency	Partner	Costs in US\$ 9
		Activities		indicators	(Target	institutions 8	
					Champions) <sup>7</sup>		
Establish	Define and	4.4.1 Organize	The current	Number of	NEMA	MWE,	200,000
a Multi-	implement shared	collaborative	sessions need	collaborative		NFA, UWA,	
Stakeholder	goals, identify key	sessions that	to be enhanced	sessions		MAAIF,	
Alliance	issues, and create	bring together	to include more	organized		NARO,	
Platform.	an actionable	stakeholders	stakeholders,	that include		UNCST,	
to serve as	roadmap for	from the	including the	representatives		Academia,	
a structured	collaboration	private sector,	private sector,	from the		Industry	
forum for	in biodiversity	civil society,	civil society,	private sector,		MEMD	
stakeholders	conservation.	and Indigenous	and Indigenous	civil society,		Private Sector	
from the		Peoples	Peoples	and Indigenous			
private sector,		and Local	and Local	Peoples			
development		Communities	Communities	and Local			
partners,		(IPLCs).	(IPLCs).	Communities.			
civil society,							
Indigenous							
Peoples							
and Local							
Communities							
(IPLCs),							
cultural, and							
faith-based							
institutions							

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4.4.2 Establish regular forums and dialogues to facilitate open communication among private sector players, development partners, civil society organizations, and faith-based institutions.  4.4.3 Develop and implement	The current forums and dialogues are not frequent enough for adequate communication among private sector players, development partners, civil society organizations, and faith-based institutions.  The current collaborative	Number of forums and dialogues held per year to facilitate open communication among the diverse stakeholders in biodiversity conservation	NEMA	MWE, NFA, UWA, MAAIF, NARO, UNCST, Academia, Industry MEMD Private Sector  MWE, NFA, UWA,	200,000
collaborative programs that involve participation of the private sector, government, and philanthropic organizations that benefit communities and the environment.	programs need to be ahanced and increased for more participation of the private sector, government, and philanthropic organizations that benefit communities and the	programs developed and implemented involving private sector, government, and philanthropic organizations.		MAAIF, NARO, UNCST, Academia, Industry MEMD Private Sector	

4.5	including sout cooperation, is scientific, techni-	ational cooperation the south cooperation of the co	on, north-south ance and foster on advancements	and scientific an			•	chnology transfer,
	National Indica	tors						
	Yes/No- internat	ional cooperation ag	reements available	e				
	Number of intern	national cooperation	partnerships estab	olished				
	Headline Indica N/A	ators						
	<b>Component Ind</b>	licators						
	N/A							
	Complimentary	<b>Indicators</b>						
	N/A							
	Strategy	Action	Proposed	Baseline 2023	Output	Lead Agency	Partner	Costs in US\$
			Activities		indicators	(Target	institutions	
						Champions)		

Enhance networking by scientists, policymakers, non- governmental organizations (NGOs), and local communities from both the Global	Promote communication and collaboration among diverse stakeholders from both the Global North and South	4.5.1 Organize periodic workshops that bring together scientists, policymakers, NGOs, and community leaders from both the Global North and South.	There have been little attempts to organise deliberate workshops for networking between the global north and south	Number of collaborative research projects initiated as a result of networking at these conferences, tracked annually.	NEMA	UNCST, Academic, Research institutions, NGOs, CBOs, IPLCs, Youth, Women, Girls	300,000
North and South to share knowledge, research, and best practices related to biodiversity, conservation technologies, and sustainable practices.		4.5.2 Create an online platform that serves as a hub for stakeholders to share research, resources, and best practices about biodiversity conservation.	There exists online platforms but these are not specifically focused on supporting biodiverity conservation	Number of registered users from diverse stakeholder groups (scie	NEMA	UNCST, Academic, Research institutions, NGOs, CBOs, IPLCs, Youth, Women, Girls	300,000
		4.5.3 Develop and implement training programs aimed at enhancing the skills of stakeholders in biodiversity conservation and sustainable practices.	There exists some training programs for skills enhancement in biodiversity conservation but this still needs enhancement	Percentage increase in training participants reporting improved knowledge and skills related to biodiversity conservation and sustainable	NEMA	UNCST, Academic, Research institutions, NGOs, CBOs, IPLCs, Youth, Women, Girls,MDAs	300,000

# 5.7 Thematic Area Five: Knowledge Management, Monitoring and Research

Strategic Objective 5: To facilitate and build capacity for research, technology development, innovation, monitoring and knowledge management (Corresponds to KMGBF GOAL D: Invest and Collaborate)

# The strategies are to:

- 1. Support research in strategic areas of biodiversity conservation and sustainable use
- 2. Build capacity for biodiversity monitoring and information management
- 3. Strengthen the role of indigenous peoples and local communities and gender in biodiversity conservation and management
- 4. Implement artificial intelligence and data analytics for enhanced decision making in biodiversity conservation

Table 4.7: Strategic Objective 5: To facilitate and build capacity for research, technology development, innovation, monitoring and knowledge management

5.1	By 2030, knowledge, research and science base	Corresponding KMGBF target 20: Strengthen capacity-building, technology
	relating to biodiversity has been significantly	transfer, and scientific and technical cooperation for biodiversity.
	improved, and relevant technologies have been	Corresponding KMGBF target 21: Ensure that knowledge is available and accessible
	improved, shared and applied	to guide biodiversity action

#### **National Indicators**

Number of knowledge products about biodiversity available

Number of technologies developed

Proportion of developed technologies shared and applied

#### **Headline Indicators**

- 21.1 Indicator on biodiversity information for monitoring the Kunming-Montreal Global Biodiversity Framework
- D.1 International public funding, including official development assistance (ODA) for conservation and sustainable use of biodiversity and ecosystems
- D.2 Domestic public funding on conservation and sustainable use of biodiversity and ecosystems
- D.3 Private funding (domestic and international) on conservation and sustainable use of biodiversity and ecosystems

# **Component Indicators**

N/A

# **Complimentary Indicators**

Finance resources mobilized for development of technology

Strategy	Action	Proposed Activities	Baseline 2023	Output indicators	Lead Agency (target champion)	Partner institutions	Costs in US\$
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Support research in strategic areas of biodiversity conservation and sustainable use	Support research, knowledge and information	5.1.1 Support innovative research, science and technology in the management of biodiversity with particular focus on value addition, product development and innovation with due considerations of women, men and youth	Research on value addition of natural products including medicinal plants is presently limited	Industrial development and commercialization of innovations and new biodiversity—based products	UNCST, NEMA	MDAs, Academia	300,000
		5.1.2 Support Product testing and quality assurance and standards development	Product testing and quality assurance e.g. for herbal medicine is still lacking	Standards developed for new biodiversity – based products	UNBS, NCRI	UEPB, UNCST, NARO, NEMA	150,000
		5.1.3 Undertake taxonomic research to improve knowledge of little-known taxa (especially those which may have commercial value)	Our knowledge of little-known taxa such as lower plants and fungi and their potential value still limited	Number of research initiatives on underutilized taxa undertaken	Academia NARO	UNCST, NEMA, UWA, NFA, MDAs, Local Governments, IPLCs, NGOs, CBOs	250,000

5.1.4 Develop sector research priorities in biodiversity	Presently there is no systematic prioritization of biodiversity	National biodiversity research agenda (guideline) in place Number of functional biodiversity research	UWA, NFA, MAAIF, MoEMD, MTWA, MWE	UNCST, NEMA, MoLoG, Local Governments, CBOs, NGOs	150,000
	research agenda in the relevant sectors	Institutions with identified priority research areas in biodiversity			
5.1.5 Promote research and bioprospecting on PGR, including medicinal plants	Research on bioprospecting on PGR is presently limited	Number of Discoveries of valuable natural products Number of innovations/patents made	UNCST, NARO	Academia, NCRI, Local Governments	200,000
5.1.6 Enhance national capacity in information management and research which supports biodiversity conservation	National capacity in specialized areas such as taxonomy, information management, biodiversity valuation is inadequate	-Infrastructure for biodiversity information management -Human resource in place	UNCST NEMA	MDAs UWA NFA MWE NGOs CBOs Local Governments	500,000

	Component Inc Species Status In Extent to which	licators ndex (a) global citizer	<u> </u>		ustainable development ricula, (iii) teacher edu			
	Headline Indica	mation packages mation packages ators	s disseminated through	·	em ning-Montreal Global B	iodiversity Frame	ework	
5.2	friendly formats	and widely diss	n is packaged in user- eminated	Corresponding to guide biodive	KMGBF target 21: Ensorsity action.	ure that knowleds	ge is available an	d accessible
			5.1.7 Ensure that Uganda benefits from international cooperation and opportunities for information exchange and support in the field of biodiversity at the local, national, regional and international levels	Level of international cooperation in biodiversity support and management is still low	-Number of research grants received -Number of programmes funded -Level of funding and information exchange on biodiversity achieved	NEMA	UWA, NFA, MWE, MTWA, MAAIF, NGOs, CBOs, Media	200,000

Build capacity for information management and exchange in taxonomy	Integrate taxonomic information (including on little-known taxa which may have commercial value) in decision making	5.2.1 Conduct awareness raising on the role of taxonomy in biodiversity conservation in public and private institutions	Role of taxonomy not well articulated in many relevant institutions	Role of taxonomy in biodiversity conservation well understood in relevant institutions	Academia, NARO	NEMA, UNCST, MDAs, Local governments	150,000
		5.2.2 Create awareness on the application of taxonomic information in many production sectors of the country such as agriculture, trade, health, development and regulatory agencies as well as local communities	Very little taxonomic information is used by the production sectors	Number of production sectors beginning to use taxonomic information	Academia	MDAs, UNCST, NARO, CBOs, CSOs, NGOs	200,000

5.2.3 Support institutions with taxonomic data and information (through funding, increased personnel or better infrastructure) to make this information easily available to end -users	Presently institutions with taxonomic data are reluctant to share data and information with other institutions  Limited	Mechanisms for taxonomic data acquisition and sharing are in place and being used	Academia Academia,	NEMA, UNCST, NARO, Cultural institutions	150,000
5.2.4 Support and train women, including women's indigenous groups and women's organizations, on taxonomy, taxonomic data, information	number of women taxonomists	Number of women taxonomists or parataxonomists trained	Academia, NARO	MGLSD, CBOs, NGOs, CSOs, MDAs, NEMA	150,000
5.2.5 Develop taxonomic knowledge bases of biodiversity in formats that are accessible to women and men and other end users	Simple taxonomic knowledge bases are not widely available	Number of kits distributed to women and men	Academia	NARO, NEMA, CBOs, NGOs, CSOs, Cultural institutions, Local governments	80,000

5.2.6 Improve taxonomic infrastructure and tools to provide adequate taxonomic information	Taxonomic infrastructure and tools in relevant institutions are inadequate	Improved taxonomic infrastructure and tools in place in relevant institutions	Academia	NEMA, UNCST, NARO, MDAs	200,000
5.2.7 Establish Center(s) of Taxonomic excellence	No designated center of excellence in taxonomy	A center of excellence for taxonomy established	Academia	NEMA, UNCST, NARO	400,000
5.2.8 Undertake human resource capacity development in taxonomy at all levels and retain taxonomists with job descriptions in their institutions	There are few qualified human resource in taxonomy	Increased number of taxonomists in the country	Academia	NEMA MDAs UNCST NARO	300,000
5.2.9 Provide incentives/ employment opportunities to women and men graduates with taxonomic backgrounds to retain them e.g. prioritizing taxonomy in Environment and Social Impact Assessments (ESIA)	There are very few job opportunities for taxonomist in the country	Number of women and men graduates employed	NEMA	Academia UNCST NARO MGLSD	150,000

			5.2.10 Strengthen national monitoring systems for effective implementation of the Kunming Montreal Global Biodiversity Framework	Currently monitoring systems are weak and not properly streamlined	National Biodiversity Monitoring Action Plan	NEMA	MDAs Academia Development partners	750,000
5.3	indigenous peo	=	and practices of mmunities integrated and sustainable use at	accessible to gu Corresponding	KMGBF target 21: Enside biodiversity action. KMGBF target 22: Eand information relate	insure participati	ion in decision-	
	National Indicators Yes/No-integration of traditional knowledge and practice Headline Indicators N/A Component Indicators N/A Complimentary Indicators N/A		ices into program	n strategies				
	Strategy	Action	Proposed Activities	Baseline 2023	Output indicators	Lead Agency (target champion)	partner institutions	Costs in US\$

Strengthen the role of indigenous peoples and local communities in biodiversity conservation and management including gender considerations	Integrate traditional knowledge and practices in biodiversity management, especially through action-learning practices	5.3.1 Promote the role of traditional knowledge, innovations and practices in the management and use of biodiversity	Indigenous knowledge and practices for biodiversity conservation and use is generally ignored	Indigenous knowledge and practices are being widely applied in biodiversity conservation	NCRI, Academia	UNCST, UWA, NFA, NEMA, Local governments, MDAs	150,000
considerations		5.3.2 Document traditional knowledge and practices of women and men that promote conservation and sustainable use of biodiversity e.g. in herbal medicine	There are limited numbers of traditional knowledge and practices that have been formally documented	Number of groups and communities whose IK and TK, respectively, have been integrated during NBSAP implementation	Academia, NCRI, MGLSD, Local governments	MDAs, NEMA, NGOs, CBOs, CSOs	90,000
		5.3.3 Develop Community Action Plans for biodiversity conservation in strategic areas	Community based Action plans are generally lacking in many strategic areas	Number of sector- based Community Action Plans for biodiversity conservation	NEMA, Local governments	UWA, NFA, MDAs, NGOs, CBOs	300,000

			5.3.4 Develop access and benefit sharing arrangements with indigenous peoples and local communities, with respect to intellectual property	Not many viable access and benefit sharing arrangements involving indigenous and local communities	Number of access and benefit sharing arrangements with indigenous and local communities Number of MTAs and MATs signed with local communities, IPLCs,	UNCST NEMA	MDAs Academia, Local governments NGOs, CBOs	150,000
			rights	are in place	women and women's groups			
5.4	intelligence, is and sustainable	s harnessed for or conservation pra	operational efficiency		KMGBF target 20: Stre		_	ogy transfer,
	National Indicators Proportion of institutions/organizations that have harnes Trends in the proportion of the population using artificia Headline Indicators N/A Component Indicators N/A Complimentary Indicators N/A		_		•			
	Strategy	Action plan	Proposed Activities	Baseline 2023	Output indicators	Lead Agency (target champion)	Partner institutions	Costs in US\$

Implement	Develop	5.4.1 Create and	No AI based	Number of	NEMA	MFPED,	500,000
AI and data	AI-Driven	deploy AI-based	monitoring	biodiversity		MAAIF,	
analytics for	Monitoring	monitoring systems	systems are in	components (e.g.		NARO,	
enhanced	Systems	that use remote	use currently	species) monitored		UNCST,	
decision		sensing and data		using AI-driven		NGOs,	
making in		analytics to track		systems		Academia	
biodiversity		biodiversity					
conservation.		changes					
	Adopt	5.4.2 Utilize	Predictive	Percentage increase	NEMA	MFPED,	500,000
	predictive	predictive analytics	analytics are	in effectiveness of		MAAIF,	
	analytics	to allocate	currently not	resource allocation		NARO,	
	biodiversity	resources efficiently	in use for	and use		UNCST,	
	conservation	for conservation	biodiversity			NGOs,	
			resource			Academia	
			allocations				

# 5.8 Thematic Area Six: Awareness and Education

Strategic Objective 6: To enhance stakeholder awareness, education and stewardship of biodiversity conservation (Corresponds to KMGBF GOAL D: Invest and Collaborate)

The review process of NBSAPII revealed low levels of awareness of the NBSAP document itself as well as low levels of understanding of the term biodiversity. The strategies are to::

- 1. Promotes awareness of NBSAP II among key stakeholders, policy makers, professionals, the private sector and the public
- 2. Develop awareness programmes on biodiversity and its values
- 3. Develop and implement educational programmes on biodiversity issues relevant to Uganda

Table 4.8: Strategic Objective 6: To enhance stakeholder awareness, education and stewardship of biodiversity conservation

6.1		eholders are aware biodiversity and h		Corresponding Revery level.	KMGBF target 14	4: Integrate biodiv	versity in decision	n-making	gat
	sustainably			Corresponding I		5: Businesses asse	ess, disclose and	reduce	
					ted risks and neg	gative impacts. 5: Enable sustaina	hle consumption	choices	to.
				reduce waste and	d overconsumption	on.	-		10
				Corresponding Raccessible to gui		l: Ensure that kno ction.	wledge is availa	ble and	
	National Indi								
			are of the value of bi copulation aware of t			<b>a</b>			
	Trends in the p	roportion of the p	opulation aware of t	ine value of blodiv	versity and its use				
	Headline Indi								
	21.1 Indicator	on biodiversity in	formation for the mo	onitoring the Kun	ming-Montreal C	Blobal Biodiversit	y Framework		
	Component I	ndicators							
	Yes/No the Sy	stem of Environm	nental-Economic Acc	counting in place					
	Food waste In								
	Ecological foo Species Status	-							
	Species Status	mach							ĺ
		ry Indicators							
			g sustainability reportsessed through The I		Throatanad Snaa	iogTM			
			UCN Red List of The			168***			
		Information Inde							
	Strategies	Action	Proposed Activities	Baseline 2023	Output indicators	Lead Agency (target champion)	Partner institutions	Costs US\$	in

Promote awareness of NBSAPIII among key stakeholders Policy makers, professionals, private sector, general public	Conduct public awareness on biodiversity	6.1.1 Undertake intensive awareness raising on the content of NBSAPIII at all levels	Not yet done	Number of stakeholders at all levels are aware of NBSAPII	NEMA, Local governments	MDAs, UNCST	500,000
Develop awareness programmes on biodiversity and its valuess		6.1.2 Develop and disseminate user-friendly and gender-responsive Information Education and Communication materials (IECs) for popular campaigns targeting women as agents of change for conservation	Women have not been promoted as users and stewards of sustainable natural resource management, and communication materials on this don't exist	Number and types of IEC materials produced  Number of institutions/ districts where IEC materials disseminated  Responses and feedback from IEC users Number of women's organizations/ mechanisms	MGLSD, NEMA	Local governments NGOs, CSOs, CBOs	200,000
		6.1.3 Sensitize local communities including IPLCs on biodiversity conservation	Not yet done	Number of IPLCs and community groups sensitized on biodiversity conservation	Local governments	NEMA, MDAs	250,000

		6.1.4 Develop and disseminate gender- responsive biodiversity public awareness materials	Not yet done	Regular surveys Attitude and behavioural change among communities Increased participation in biodiversity conservation Number and	MGLSD	NEMA, MDAs, Local governments	300,000			
				type of IEC materials						
6.2	By 2030, learners and teachin the values of biodiversity and skilled about systematic conse including use of spatial planni biodiversity conservation.	are knowledgeable/ ervation planning	accessible to gu	KMGBF target 21 uide biodiversity ac KMGBF target 14	ction.	_				
	National Indicators Proportion of learners knowle Proportion of teaching staff av									
	Headline Indicators 21.1 Indicator on biodiversity	information for the mo	onitoring the Ku	nming-Montreal G	lobal Biodiversi	ty Framework				
	human rights, are mainstream assessments	Extent to which (a) global citizenship education and (b) education for sustainable development, including gender equality and human rights, are mainstreamed at all levels in: (i) national education policies, (ii) curricula, (iii) teacher education and (iv) student assessments  Yes/No the System of Environmental-Economic Accounting in place								
	Complimentary Indicators Proportion of known species a Number of assessments on the				es <sup>TM</sup>					

Strategy	Action	Proposed Activities	Baseline 2023	Output indicators	Lead Agency (target champion)	Partner institutions	Costs in US\$
Develop and implement educational programs on biodiversity issues relevant to Uganda	Integrate biodiversity in national curriculum	6.2.1Develop and implement educational programs on biodiversity issues relevant to Uganda	Has been done to a limited extent	Biodiversity incorporated in school curricula at various levels	NEMA	MDAs Academia MoES Local governments	200,000
		6.2.2 Strengthen and/or establish environmental clubs or societies	Has been done to a limited extent	Biodiversity incorporated in environmental activities in educational institutions at all levels, including clubs and competitions	NEMA	MDAs NGOS CSOs	200,000
		6.2.3 Develop and disseminate gender- responsive educational materials on biodiversity	Has been done to some extent	A variety of educational materials developed, produced, accessed, used, and appreciated	NEMA MGLSD	MOES MDAs UWCEC NGOs, CSOs	200,000

# 5.9 Thematic area seven: Funding implementation

Strategic Objective 7: To promote innovative and sustainable funding solutions for implementing NBSAPIII (Corresponds to KMGBF GOAL D: Invest and Collaborate).

The strategies are to:

- 1. Institute and implement measures for sustainable biodiversity financing
- 2. Mobilize financial resources for biodiversity conservation
- 3. Promote innovative financing mechanism

Table 4.9: Strategic Objective 7: To promote innovative and sustainable funding solutions for implementing NBSAPIII

7.1		By 2025, a biodiversity finance plan is developed and operationalized			Corresponding KMGBF target 18: Reduce harmful incentives by at least \$500 billion per year, and scale up positive incentives for biodiversity.  Corresponding KMGBF target 19: Mobilize \$200 billion per year for biodiversity from all sources, including \$30 billion through international finance							
	National Indic	National Indicators										
	Headline Indi	Headline Indicators										
	Component Ir	Component Indicators										
	Complimenta	Complimentary Indicators										
	Yes/No- Biodiv	Yes/No- Biodiversity finance plan available										
	Strategy	Action	Proposed Activities	Baseline 2023	Output indicators	Lead Agency (target champion)	Partner institutions	Costs in US\$				
	Institute and implement measures for sustainable biodiversity financing	Develop national biodiversity finance plan for Uganda	7.1.1 Revise National Biodiversity Finance Plan	National Biodiversity Finance Plan for NBSAP III was developed	Revised National Biodiversity Finance Plan for implementing NBSAP III	NEMA	MDAs Development partners	30,000				
			7.1.2 Disseminate the revised National Biodiversity Finance Plan	Existing National Biodiversity Plan to be revised	Dissemination reports	NEMA	MoFPED MDAs Development Partners	100,000				

7.1.3 Train	Training on bio-	Training	NEMA	MDAs	300,000
stakeholders on	diversity offset	reports		MWE	
implementation	was undertaken			Development	
of the financing	but needs to			Partners	
solutions in the	strengthened			NGOs	
revised National	to cover more				
Biodiversity	stakeholders				
Finance Plan					
	National Guide-				
	lines on Biodi-				
	versity and				
	So-cial Offsets				
	de-veloped				
	National Strate-				
	gy on Biodiver-				
	sity Offset and				
	Social Strategy				
	developed				
	1				

7.2	By 2030, the financing gap for implementing	Corresponding KMGBF Target 19: Mobilize \$200 billion per year for biodiversity
	NBSAPIII is reduced	from all sources, including \$30 billion through international finance

#### **National Indicators**

TBD

#### **Headline Indicators**

- D.1 International public funding, including official development assistance (ODA) for conservation and sustainable use of biodiversity and ecosystems
- D.2 Domestic public funding on conservation and sustainable use of biodiversity and ecosystems
- D.3 Private funding (domestic and international) on conservation and sustainable use of biodiversity and ecosystems\*

## **Component Indicators**

N/A

# **Complimentary Indicators**

Amount of funding provided through the Global Environment Facility and allocated to the biodiversity focal area

Foreign direct investment, official development assistance and South-South cooperation

Amount and composition of biodiversity-related finance reported to the OECD Creditor reporting system

Dollar value of financial and technical assistance (including through North-South, South-South and triangular cooperation) committed to developing countries

Dollar value of all resources made available to strengthen statistical capacity in developing countries

Amount of biodiversity-related philanthropic funding

Yes/No payments for ecosystem services (PES) programmes in place

Yes/No assessed values of biodiversity in accordance with the Convention, (b) identified and reported funding needs, gaps and priorities, (c) developed national financial plans for biodiversity, (d) provided with the necessary funding and capacity building to undertake the above activities

Strategy	Action	Proposed Activities	Baseline 2023	Output indicators	Lead Agency (target champion)	Partner institutions	Costs in US\$
Mobilize financial resources for biodiversity conservation	Engage stakeholders on resource mobilization	7.2.1 Identify and seek funding support from diverse sources including regional and bilateral development partners, foundations and private sector	Presently there is limited financial support for biodiversity from various sources	Increased funding from diverse sources mobilized	NEMA	MoFPED, MDAs, NGOs, Development partners, MWE, Local governments	200,000
		7.2.2 Support capacity building for writing project proposals that are gender-responsive	There is low capacity for preparing project proposals targeting GEF and other agencies	Capacity built for writing project proposals	NEMA	MoFPED MDAs NGOs CSOs Development partners MWE MGLSD Local governments	80,000
		7.2.3 Develop project proposals to target designated donors under the CBD	Proposals need to be prepared regularly	Number of project proposals submitted  Number of projects approved	NEMA	MoFPED MDAs NGOs CSOs Development partners MWE Local governments	200,000

7.2.4 Mobilize resources by creating synergies between the different multilateral Environmental Conventions	There is limited synergy between the CBD implementation and other Conventions	Mobilize additional resources through partnership with the other Conventions	NEMA	MoFPED MDAs NGOs Development partners MWE MAAIF	10,000,000
7.2.5 Budget for activities of biodiversity and incorporate in annual budget of Line ministries, NGOs, private sector	There is limited allocation of funds for biodiversity conservation in the various sectors	Proportion of funds annually budgeted for by line ministries for biodiversity activities Gender-responsive allocation for activities	NEMA MDAs Local governments	MoFPED	40,000,000
7.2.6 Promote accountability, transparency, gender mainstreaming in implementation of biodiversity projects	These elements are often lacking in biodiversity projects	Biodiversity projects which incorporate aspects of accountability, transparency, gender mainstreaming	NEMA	MoFPED MDAs MWE Local governments	80,000

# By 2025, new financing solutions are operational and new funding mobilized for biodiversity conservation Corresponding KMGBF Target 19: Mobilize \$200 billion per year for biodiversity from all sources, including \$30 billion through international finance

#### **National Indicators**

Number of finance solutions implemented

Amount of funding mobilized aggregated by finance solution

# **Headline Indicators**

- D.2 Domestic public funding on conservation and sustainable use of biodiversity and ecosystems
- D.3 Private funding (domestic and international) on conservation and sustainable use of biodiversity and ecosystems\*

# **Component Indicators**

N/A

# **Complimentary Indicators**

Yes/No payments for ecosystem services (PES) programmes in place

Strategies	Action	Proposed Activities	Baseline 2023	Output indicators	Lead Agency (target champion)	Partner institutions	Costs in US\$
Promote innovative financing mechanism	Identify and implement new financial mechanisms for biodiversity conservation	7.3.1 Put in place measures for new biodiversity financing mechanisms including standards, and methodologies for sustainable charcoal production and biodiversity credits	No enabling framework in place	A policy or regulations in place	MoFPED	MDAs Development partners MWE Local governments MoLoG NEMA MEMD	80,000

7.3.2 Provide incentives that promote green production and purchase of green goods	No incentives have been articulated	Incentives to promote purchase of green goods identified and provided	PPDA	MoFPED NEMA MDAs NGOs Development partners MWE districts	1,000,000
7.3.3 Institute appropriate pricing mechanisms for biodiversity goods and services	Pricing mechanisms have not been put in place	Pricing mechanisms put in place for biodiversity goods and services	MoFPED	NEMA NPA MWE	400,000
7.3.4 Support green marathon	This has not been tried in Uganda	The concept of green marathon promoted and supported	NEMA	MoFPED MDAs NGOs Development partners MWE Local governments Private sector	500,000
7.3.5 Promote green products and technologies	This has not been tried in Uganda	Clear mechanisms identified to promote green products and technologies	NEMA NPA	MoFPED MDAs NGOs Development partners MWE Local governments	300,000

7.3.6 Support	This has not	Number of	NEMA	MoFPED	300,000
sensitization	been done	sensitization		MDAs NGOs	
and capacity		and capacity		Development	
development		building		partners MWE	
to companies		undertaken		Local	
about benefits				governments	
from ecosystem					
services					
7.3.7 Enhance	Understanding	Increased level	NEMA, MWE	MoFPED	4,000,000
payment for	and appreciation	of payments		MDAs NGOs	
ecosystem	of PES and	for ecosystems		Development	
services and	biodiversity	services and		partners MWE	
biodiversity	offsets among	application of		Local	
offsets	stakeholder	biodiversity		governments	
	groups is still	offsets			
	limited				
7.3.8 support	Existing	Number	MoFPED	MWE,	400,000
existing	Conservation	of habitat/		NEMA,	
Organizations	Organizations	conservation		MDAs, NGOs,	
to manage	have limited	banks		Development	
Conservation	support to	established		partners	
Trust Funds	manage				
	Conservation				
	Trust Funds				

# 6.0. IMPLEMENTATION OF NBSAPIII

# **6.1** Implementation Arrangements

# 6.1.1 National Environment Management Authority

- a) Overseeing and coordinating the implementation of various strategies and actions spelt out in NBSAPIII
- b) Acting as an information clearing house on biodiversity through the CHM
- c) Providing strategic guidance on biodiversity matters
- d) Supporting awareness, communication and outreach on biodiversity
- e) Ensuring the integration of biodiversity issues into overall national planning through coordination with the relevant ministries, districts, departments and government agencies
- f) Providing secretarial services to the Technical Committee on Biodiversity Conservation
- g) Coordinating and monitoring the implementation of NBSAPIII
- h) Compiling, consolidating and sharing annual reports received from lead agencies and partners involved in the implementation of NBSAPIII

#### **6.1.2** Sectoral Agencies

- a) Implementing and reporting on national biodiversity targets as specified in NBSAPIII
- b) Providing guidance and support to their respective links at district and local levels to ensure biodiversity issues are addressed
- c) Integrating biodiversity issues into their sectoral policies, plans and budgets
- d) Monitoring and disseminating information on their activities affecting biodiversity
- e) Collaborating with NEMA on relevant issues in NBSAPIII
- f) Preparing and submitting annual reports on progress of implementation of NBSAPIII to NEMA.

#### **6.1.3** District Local Governments

- a) Co-ordinating the implementation of the NBSAPIII in the District.
- b) Formulating and enforcing local policies and byelaws related to biodiversity conservation and use.
- c) Assisting in documenting indigenous knowledge, technologies and practices in biodiversity conservation.
- d) Monitoring biodiversity conservation includes maintaining and disseminating accurate information.
- e) Integrating biodiversity issues in District Environment Action Plans and subsequently

- incorporating them in District Development Plans.
- f) Mobilizing resources, including community contributions, and allocation of resources for the implementation of NBSAPIII.
- g) Mobilizing local communities, resource use groups, NGOs and CBOs in biodiversity conservation.
- h) Identifying vital critical ecosystems, biodiversity hotspots and critical species that need protection and where required ensuring fulfilment of Uganda's obligations to the Convention on Biological Diversity and other related international agreements; and,
- i) Preparing and submitting annual reports on progress of implementation of NBSAPIII to NEMA.

#### **6.1.4** Local Communities Local Communities

- a) Participation in planning processes such as DEAPs to identify and prioritise issues and actions related to the NBSAPIII.
- b) Implementing measures and activities geared towards ensuring land improvement and biodiversity conservation and sustainable utilization.
- c) Participating in training and capacity-building activities.
- d) Sharing information on traditional knowledge, technology and practices with communities and other stakeholders.

#### 6.1.5 Non-Government Organizations (NGOs)

- a) Carrying out awareness-raising activities on NBSAP III.
- b) Assisting in strengthening the capacity of community-based organizations to implement NBSAP III.
- c) Facilitating technology transfer at community level.
- d) Promoting networking opportunities, especially among NGOs and other civil society organizations.
- e) Documenting indigenous knowledge, technologies and practices in biodiversity conservation
- f) Assisting CBOs and communities to formulate and implement projects related to biodiversity conservation.

#### 6.1.6 Private Sector

- a) Invest in sustainable and environmentally-sound technologies.
- b) Invest in alternative income-generating activities.
- c) Contribute resources to support programmes on land management and biodiversity conservation.
- d) Provide support to the new financing mechanisms proposed in NBSAPIII.

#### 6.2 Implementation approach

#### 6.2.1 Inclusive and Participatory Approach

This NBSAP III will be implemented in a participatory and inclusive process that involves all stakeholders, including indigenous peoples and local communities, in the planning, implementation, and monitoring of biodiversity conservation efforts. This approach recognizes that biodiversity conservation is a shared responsibility that requires the involvement of all stakeholders, including those who depend on natural resources for their livelihoods. A participatory approach will ensure that diverse perspectives and values are considered, which will lead to more effective and sustainable

conservation outcomes.

#### 6.2.2 Whole-of-Government Approach

The revised NBSAP should be implemented through a whole-of-government approach that involves all government agencies working together to achieve common goals. This will involve coordination among government ministries, departments, and agencies to ensure that biodiversity conservation efforts are integrated into various sectors such as agriculture, energy, infrastructure, health, education, and environment.

#### 6.2.3 Gender Equality

Gender equality recognizes the different roles and contributions that men and women, girls and boys, youth and elderly people play in biodiversity conservation and sustainable development. Women's participation in decision-making processes will be increased, and their concerns and perspectives should be considered in the planning and implementation of biodiversity conservation efforts.

#### 6.2.4 Human Rights

The revised NBSAP should adopt a human rights-based approach to biodiversity conservation by recognizing the rights of all individuals to participate in decision-making processes related to biodiversity conservation and sustainable development.

#### 6.2.5 Ecosystem Approach

NBSAP III recognizes that ecosystems are interconnected systems with multiple components interacting with each other. During implementation consideration of the broader ecological context in which species live, including habitats, landscapes, ecosystem services, and the impacts of human activities on these systems will be taken into account.

#### 6.2.6 Intergenerational equity

The recently concluded National Housing and Population Census (2024) showed that the Uganda is a young country with children (0 – 17 years) forming 50.5% of the population. The youth (18 – 30 years) make up 22.7% while the older persons (60+ years) comprise only 5.0% of the population. Implementation of this NBSAP III will thus consider intergenerational equity by balancing the needs of the present generation and the needs of the future generation.

#### **6.2.7 Integration with National Development Plans**

NBSAP III will be integrated with other national development plan frameworks such as the National Development Plan, the National Poverty Reduction Strategy, as well as other sectoral plans and programmes

#### 6.2.8 Capacity Building and Training

Capacity building and training for conservation staff, researchers, and stakeholders to enhance their skills and knowledge in biodiversity conservation will be an integral part of implementing NBSAPIII. This can include providing training on conservation techniques, research methods, biodiversity

monitoring, evaluation of biodiversity and ecosystem services

#### 6.2.9. Public Awareness and Education

Awareness and education are critical in the implementation of NBSAP III. Public awareness and education on biodiversity conservation issues will be prioritized to engage citizens in conservation efforts and promote behaviour change. Mechanisms for engaging the private sector in public awareness and education efforts should be established. This may include partnering with companies to develop public awareness campaigns or educational materials.

#### **6.1.10 Budgeting and Financing**

Budgeting and financing for biodiversity conservation efforts should be made a priority to ensure that sufficient resources are available to support conservation activities. Several financing mechanisms are mentioned in the Financing and Resource mobilisation section of this NBSAP

# 7.0. MONITORING AND EVALUATION

#### 7.1 Rationale for Monitoring and Evaluation of NBSAPIII

NEMA will be the lead institution to coordinate the monitoring and evaluation of NBSAP III, supported by the Technical Committee on Biodiversity Conservation and a Technical Working Group on Monitoring and Evaluation. NBSAP III will be monitored at different levels and intervals with the full involvement of various stakeholders. The responsible institutions and organizations will submit quarterly reports on the respective indicators and targets to NEMA as programmed. NEMA will consolidate these reports received from stakeholders to produce an annual State of Biodiversity report, which will provide a baseline for implementation and serve as a guide for future strategic planning. Monitoring and evaluation of NBSAP III is critical and will be undertaken for the following reasons:

- a) NEMA, the national CBD focal point, will be responsible for overall coordination of monitoring and evaluation of the NBSAP III.
- b) The Monitoring, Evaluation, Accountability, and Learning framework will be used to review and report on the NBSAP III
- c) A standard reporting format will be developed by NEMA to be used during the implementation of the NBSAP by the relevant stakeholders.
- d) The monitoring and evaluation of NBSAP will utilize national and global indicators as per Decision 15/5.
- e) Uganda will use the National Biodiversity Databank and other biodiversity data sources for the monitoring and evaluation of NBSAP III.
- f) NBSAP III will be the main vehicle for monitoring and evaluation of biodiversity conservation and management in Uganda.
- g) Uganda will conduct a mid-term evaluation of NBSAP III by 2027, and the terminal evaluation of NBSAP III will be conducted by 2030.
- h) NEMA, in collaboration with the National Biodiversity Databank, will produce the National State of Biodiversity report by 2027.

#### 7.2 Key Strategic Aims for Monitoring and Evaluation of NBSAPIII

The main strategic aim of the monitoring and evaluation of NBSAPIII is to facilitate the effective implementation of planned activities in order to achieve Uganda's national biodiversity goals and Uganda's contribution to international biodiversity targets. The monitoring and evaluation strategy will also track the level of participation and contribution of different women and men stakeholders to the goals of NBSAPIII.

In order to ensure impartiality, an independent mid-term evaluation of NBSAPIII should be undertaken in 2027. A final evaluation of NBSAPIII can then be taken in 2030, by which time it will be possible to assess Uganda's contribution towards the achievement of the KMGBF and its global targets. The final evaluation will also provide valuable insights, lessons and direction for the development of Uganda's fourth NBSAP

# 8.0. FINANCING AND RESOURCE MOBILIZATION

#### 8.1 Introduction

The minimum cost for implementing the various action plans outlined within this document was carried out to cover the period 2025 - 2030 which amounted to USD 1.533 billion translating into USD 306.7 million annually. The Policy Institutional Review, the Biodiversity Expenditure Review and the Biodiversity Financial Plan which are outcomes of the Early Action project provided information for costing the NBSAPIII. Funding for NBSAPIII will come from all sources, including public and private sources.

#### 8.2 Domestic Financing Mechanisms

Traditional financing mechanisms in Uganda include financial disbursements from the central government and budget support from development partners. Biodiversity conservation agencies and stakeholders work with the government and development partners to get allocations from the medium term and long-term expenditure frameworks for biodiversity conservation.

#### 8.3 The Global Environment Facility

Uganda has been one of the most successful countries in Africa in attracting funding for biodiversity-related projects through the Global Environment Facility (GEF) and also benefits from excellent bilateral cooperation in the area of biodiversity management with a number of countries. These projects typically play an important role in providing catalytic funding for innovative interventions relating to biodiversity and will directly contribute to the implementation of NBSAPIII.

#### 8.4 The Global Biodiversity Framework Fund

The Global Biodiversity Framework Fund (GBFF) is an essential resource mobilization tool designed to support countries in implementing their biodiversity strategies and action plans. For Uganda, the GBFF can facilitate access to financial resources that enable the nation to fulfill its commitments under the Convention on Biological Diversity (CBD). This fund is structured to provide financial support for a wide range of biodiversity initiatives, including habitat restoration, species protection, and ecosystem preservation. By leveraging on funding from the GBFF, Uganda can enhance the implementation of its NBSAP III.

#### 8.5 The Bilateral and Multilateral Financing Sources

Bilateral and multilateral financing sources can play a crucial role in bolstering Uganda's efforts to conserve its rich biodiversity. These funding avenues include grants, loans, and technical assistance from international partners, development agencies, and donor countries.

#### 8.6 The Multilateral Benefit Sharing Fund from the Use of Digital Sequence Information

The Multilateral Benefit Sharing Fund (MBSF) from the use of DSI on genetic resources promises to be a transformative approach to resource mobilization for biodiversity conservation in Uganda. As countries increasingly recognize the importance of DSI on genetic resources and associated traditional knowledge, Uganda can participate in this evolving framework to obtain financial support for its biodiversity initiatives.

#### 8.7 Conservation Trust Funds

The primary benefit of Conservation Trusts is to provide financing for essential conservation services, research and sustainable development, and in many cases, support the integrity of a national park or protected area. Conservation Trusts have become established in national or regional institutions that deliver a range of long-term benefits and services. These include the following: creating economic improvement, opportunities and rural investment to improve quality of life in rural areas; enhancing transparency in project and fund management as well as government accountability; establishing long-term community buy-in to sustain nature; changing local behavior patterns around nature and the environment; building corporate and institutional partnerships; leveraging expertise to attract and manage new sources of funding; and supporting partner NGOs to explore new areas (e.g. incentive payments) and take on additional mission related projects.

Whereas conservation trusts generally fund operating expenses, spend-down or 'sinking' funds, which are typically distributed over three to five years but can extend to 10 years to execute a project or accomplish a specific objective and endowment, providing perpetual funding to sustain a park or protected area. Conservation funds are encouraged to invest in sink-funds as long as these lead to increased productivity and resilience of ecosystems.

#### 8.8 Payments for ecosystem services

In the NEMA Guidelines (2015), a payment for environmental services scheme is defined as (i) a voluntary transaction in which, (ii) a well-defined environmental service (ES), or a form of land use likely to secure that service, (iii) is bought by at least one ES buyer, (iv) from a minimum of one ES provider, and (v) if and only if the provider continues to supply that service (conditionality). The biodiversity conservation options proposed in the guidelines include, but are not limited to purchase of high-value habitat, payment for access to species or habitat, payment for biodiversity-conserving management practices, tradable rights under cap & trade regulations, and support to biodiversity-conserving businesses.

To achieve success with PES systems in biodiversity conservation, the following will included the following considerations in design:

- a) A pro-poor PES program is one that maximizes its potential positive impact and minimizes its potential negative impact on the poor.
- b) Keep transaction costs low. This is important in all PES programs, as it affects their efficiency. Keeping transaction costs low is particularly important when many potential participants are poor, as they will be relatively more heavily affected.
- c) Devise specific mechanisms to counter high transaction costs. When many potential participants are smallholders, transaction costs will inherently be high. Specific mechanisms should be developed to reduce these costs, such as collective contracting.

- d) Provide targeted assistance to overcome problems that impede the participation of poorer households. This may take the form of technical assistance or credit programs, for example.
- e) Avoid implementing PES programs in areas with conflicts over land tenure.
- f) Ensure that the social context is well understood, so that possible adverse impacts are anticipated and appropriate remedial measures can be designed.

#### 8.9 Biodiversity offsets

Offsets are measures taken to compensate for any residual significant, adverse impacts that cannot be avoided, minimized and/or rehabilitated or restored, in order to achieve no net loss or a net gain of biodiversity. Offsets can take the form of positive management interventions such as restoration of degraded habitat, arrested degradation or averted risk, protecting areas where there is imminent or projected loss of biodiversity, and introducing more sustainable livelihoods to reduce biodiversity loss.

Developers of large infrastructure projects such as hydroelectric power projects, mines, oil and gas projects and large agricultural production projects will be encouraged to use biodiversity offsets as part of the review of the Environmental Impact Statement (EIS). The main stakeholders, beneficiaries or losers, will use available incentives of acknowledgement in publications, international media, websites and use of environmental compliance audit reports and sector reporting to encourage project developers establish biodiversity offsets.

#### 8.10 Ecological fiscal transforms

"Environmental fiscal reform" (EFR) refers to a range of taxation and pricing measures which can raise fiscal revenues while furthering environmental goals. EFR measures include (i) taxes on natural resource extraction, (ii) product subsidies and taxes, (iii) taxes on polluting or harmful emissions and (iv) user charges or fees. The feasibility of EFRs depends on: (i) natural resource pricing measures, such as taxes for forests and fisheries exploitation; (ii) reforms of product subsidies and taxes; (iii) cost recovery measures; (iv) pollution charges.

- O Fiscal instruments i.e. taxes and subsidies, are mechanisms for raising and transferring funds between sectors. While economic development is critical for lifting people out of poverty and raising living standards for the broader population, it also causes harmful side effects—particularly for the environment—with potentially sizeable costs for the macro-economy.
- O Fiscal instruments (emissions taxes, trading systems with allowance auctions, fuel taxes, charges for scarce road space and water resources, etc.) can and should play a central role in promoting greener growth. Fiscal instruments for biodiversity conservation should be employed based on three criteria: (i) effective at reducing environmental harm—so long as they are carefully targeted at the source of the problem (e.g., emissions); (ii) cost-effectiveness (i.e. they impose the smallest burden on the economy for a given environmental improvement)—so long as the fiscal dividend from these policies is exploited (e.g., revenues are used to strengthen fiscal positions or reduce other taxes that discourage work effort and investment); (iii) strike the right balance between environmental benefits and economic costs—so long as they are set to reflect environmental damages.
- O Charge systems: Charges are defined as payments for use of resources, infrastructure, and services and are akin to market prices for private goods. In Uganda charge systems are used as

permits. Charges include pollution charges, user charges e.g. for wetlands, betterment charges (imposed on private property which benefits from public investments), impact fees, access fees and administrative charges

O Financial instruments: The financial sector is the set of institutions, instruments, and the regulatory framework that permit transactions to be made by incurring and settling debts, that is, by extending credit. All companies, regardless of sector, both impact on biodiversity and ecosystems and depend on ecosystem services. There is an important role for the financial sector in this regard, including: the management of biodiversity risks in lending and investment decisions and setting up of new innovative financial mechanisms for pro-biodiversity businesses and biodiversity conservation areas. Business can show leadership on biodiversity and ecosystems:

#### 8.11 Performance bonds

Environmental performance bonds and deposit refund systems are economic instruments that aim to shift responsibility for controlling pollution, monitoring, and enforcement to individual producers and consumers who are charged in advance for the potential damage. Performance Bonds require that proponents of environmentally damaging enterprises, such as mining, timber harvesting, and road building, post-performance or assurance bonds. In order to be effective, bonds must be set at a level which accurately reflects all anticipated environmental damages that could result. Government agencies must monitor and enforce compliance effectively. The bonds must be held long enough to ensure the proponents have complied with their obligations.

#### 8.12 Green markets through natural resource trade and value chains

Market for green products refers to the trade mechanism for products certified using criteria that support the three objectives of the CBD. Such products are either natural products including wild plant and animal products used as food sources or used for bio-chemicals, new pharmaceuticals, cosmetics, personal care, bioremediation, bio-monitoring, and ecological restoration, or nature-based products involving many industries, such as agriculture, fisheries, forestry, biotechnology based on genetic resources, recreation and ecotourism.

Uganda is promoting green markets products through the organic agricultural value chains, sustainable non-wood and wood forest products, and wildlife products. The NEMA Guidelines (2014) support the outcomes of the National Bio-trade Strategy and draft national organic agriculture policy.

Uganda's priorities under bio-trade are: (i) ecotourism; (ii) wildlife use rights; (iii) non-wood forest products; and natural ingredients; and (iv) carbon trade. Organic agriculture in Uganda has generally focused on agricultural product lines for coffee, cotton and fruits and vegetables. Scenarios have suggested that bio- trade and organic agriculture can grow to up to between 5 and 10% of Uganda's commodity exports.

Bio-trade and organic agriculture in Uganda will be promoted through: (i) community based interventions such as collaborative natural resource management for communities living near protected areas, as well as communities living in biodiversity-rich areas. For farming systems biodiversity conservation seeks to create premiums from certified organic agriculture production; (ii) take advantage of available indigenous traditional knowledge in developing production practices; (iii) promote growth of local and regional markets alongside international markets; (iv) take advantage of favourable climate conditions to promote various products. Therefore, semi-arid areas products

as well as wet area products should be promoted concurrently. In Uganda's drier areas products such as Gum Arabica, hides and skins, beef and grains will be important products, while coffee, cotton and fish are important for the wetter areas; and (v) there will be a need to attract vocational skills and entrepreneurship training for viable value chains to emerge around product and services produced.

Institutional support will be needed to ensure that products are eligible to compete for markets. The markets in Europe, the United States, Asia and within Africa require appropriate standards attainment, volumes and regularity of supply. Other considerations such as market information, transaction costs and other business skills are acquired through product based entrepreneurship training.

#### 8.13 Climate finance

The more frequently implemented carbon projects focus on climate change mitigation. Communities and project developers are urged to implement voluntary carbon standards that have explicit biodiversity conservation criteria such as Plan Vivo, CCB and VCS. For CDM and REDD Plus projects, biodiversity is generally embedded in forestry projects.

Biodiversity conservation stakeholders supporting projects that could affect some form of biodiversity such as wetlands, fisheries, vegetation, insect and animal population as well as agro-ecosystems should seek specific biodiversity criteria. NEMA, UWA and NFA, among others, should indicate this dimension if EIAs are undertaken.

The development of Nationally Appropriate Mitigation Actions (NAMAs) and National Adaptation Plans (NAPs) should make provisions, such as higher scores, where necessary, to convince providers of carbon finance to integrate biodiversity into the carbon projects.

There is a need to work with partners who have a strong interest in biodiversity conservation such as the United States Agency for International Development (USAID), the World Bank, the German, Norwegian, Belgian, Swedish and United Kingdom Governments and other development partners to integrate biodiversity in their climate change support programmes.

Buyers of carbon credits should have the option of buying bundled carbon credits demonstrated. The possible bundled should include carbon, watershed and biodiversity conservation. If premiums are earned, they should be reflected as market incentives to attract more buyers.

There is a need to upscale community carbon finance initiatives and facilities that promote bundled carbon finance with other forms of PES. The early initiatives currently being promoted should be promoted with additional facility support.

#### 8.14 Private Sector

The private sector is a crucial source of resources through innovative funding solutions and partnerships. Companies can invest in biodiversity initiatives through corporate social responsibility (CSR) programs, sponsorships, and multi-stakeholder partnerships that align with their sustainability goals. Engaging the private sector not only enhances financial resources but also fosters corporate accountability towards biodiversity conservation. By leveraging the resources and expertise of businesses, Uganda can harness technological advancements and efficient practices that contribute to sustainable development while also promoting biodiversity resilience.

#### 8.15 Non-Government Organisations

Non-Government Organizations (NGOs) are pivotal in the resource mobilization landscape for Uganda's NBSAP, serving as advocates, facilitators, and implementers of biodiversity projects. Uganda can mobilize resources through grant funding, donations, and partnerships with international organizations, governments, and the private sector. NGOs often have community-level networks that enable them to engage local populations in conservation efforts, ensuring that initiatives are relevant and sustainable. The expertise and innovative approaches that NGOs bring to biodiversity management enhance the efficacy of NBSAP implementation, promoting a collaborative approach that strengthens civil society participation in conservation.

#### **8.16** Blended Finance

Blended finance is an innovative financing model that combines public and private resources to achieve sustainable development objectives. This approach mobilizes private investments by using public funds to mitigate risks, thereby attracting capital for biodiversity-related projects that may otherwise be viewed as too risky by investors. Blended finance can facilitate a range of funding mechanisms, including grants, loans, equity investments, and guarantees, which help scale up biodiversity initiatives. By effectively leveraging blended finance strategies, Uganda can enhance its capacity to implement NBSAP actions, optimize resource utilization, and foster public-private partnerships that drive sustainable growth and conservation outcomes.

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## 10. ANNEXES

#### **Annex 10.1: NEMA Sixth Board of Directors**

NO.	NAME	POSITION
1.	Prof. James Okot-Okumu	Chairman
2.	Dr. Priscilla Nyadoi	Member
3.	Dr.Charles Ekure	Member
4.	Dr. Florence Grace Adongo	Member
5.	Eng. Katwiremu Yorokamu Bategana	Member
6.	Ms. Christine Mayengo	Member
7.	Mr. Can Amos Lapenga	Member
8.	Mr. Jimmy Chemonges Kuka	Member
9.	Barirega Akankwasah. PhD	Executive Director & Board Secretary

### **Annex 10.2: The Technical Committee on Biodiversity Conservation**

NO.	NAME	INSTITUTION	POSITION
1.	Prof. Joseph Obua	Makerere University	Chairperson
2.	Prof. Gerald Eilu	Makerere University	Member
3.	Prof. James Kalema	Makerere University	Member
4.	Dr. Mary Namaganda	Makerere University	Member
5.	Dr. Robert Kityo	Makerere University	Member
6.	Dr. Esther Katuura	Makerere University	Member
7.	Dr. Samson Gwali	National Forestry Resources Research Institute	Member
8.	Mr. Aggrey Rwetsiba	Uganda Wildlife Authority	Member
9.	Mr. Aventino Bakunda	Ministry of Agriculture, Animal Industry & Fisheries	Member
10.	Mr. Innocent Akampurira	Uganda National Council for Science and Technology	Member
12.	Mr. Francis Sabino Ogwal	National Environment Management Authority	Secretary

Annex 10. 3: Persons who participated in the development of NBSAP III



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