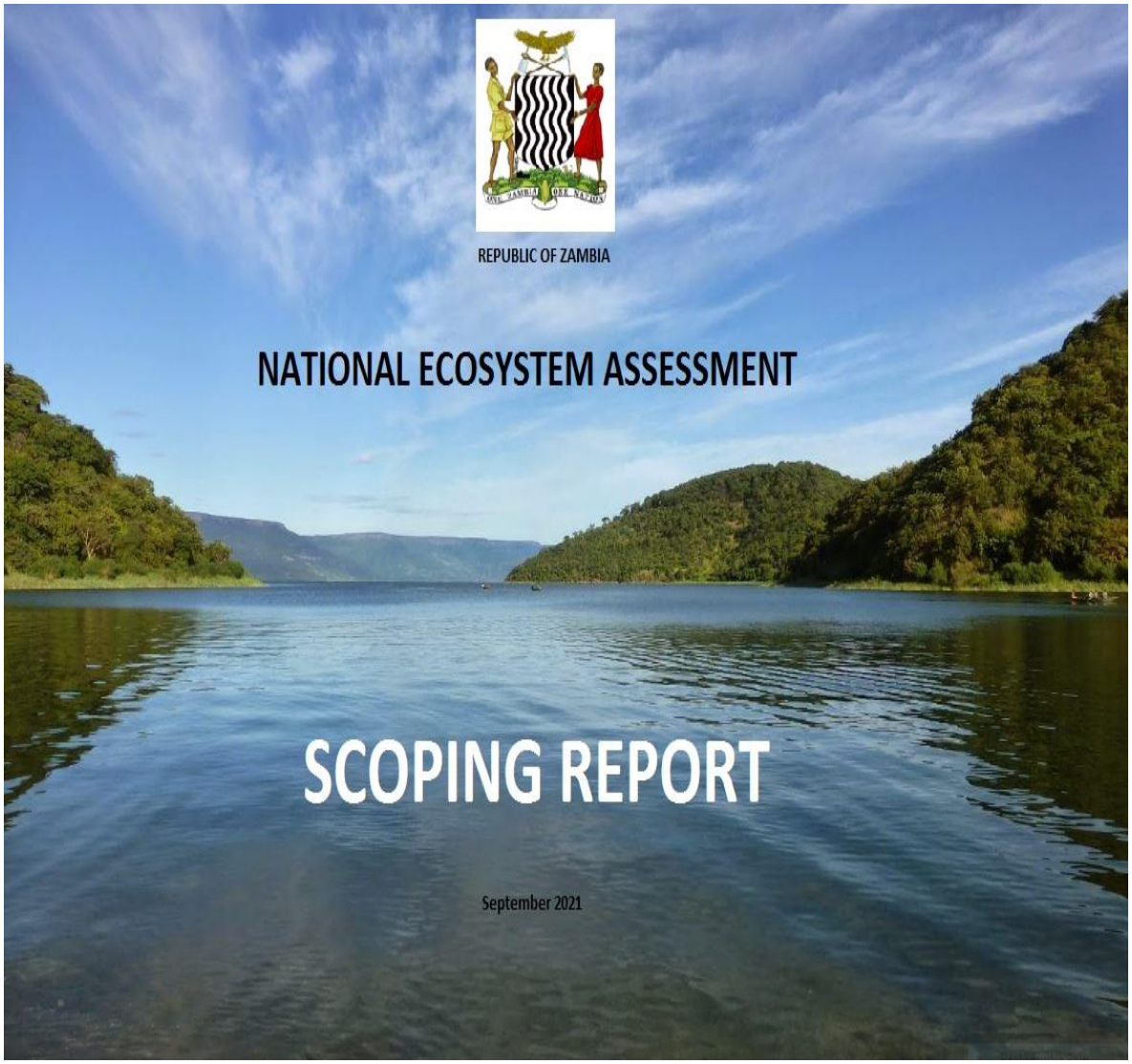

REPUBLIC OF ZAMBIA

NATIONAL ECOSYSTEM ASSESSMENT

SCOPING REPORT

September 2021

EXECUTIVE SUMMARY

This Scoping Report has been produced by the Climate Change and Natural Resources Management Department on behalf of the Ministry of Lands and Natural Resources within the framework of the national ecosystem assessment initiative. The report was developed in consultation with the National Biodiversity Committee (NBC) composed of stakeholders from Government Line Ministries, Quasi-government institutions, Non-Governmental Organisations, Academia and the private sector. The report is divided into VIII chapters starting with Rationale in Chapter I which justifies the reason for undertaking the national ecosystem assessment (NEA) in the country. Chapter II presents the NEA key policy questions, highlighting the country's economic, political, social and environmental priorities. Chapter III highlights the key and most priority ecosystems and ecosystem services that will guide the focus of the national ecosystem assessment. Chapter IV outlines how the assessment findings can be used in the national policy decision making context as well as in relation to international commitments and obligations at country level. A list of relevant stakeholders that will be involved throughout the assessment process are outlined in Chapter V while Chapter VI lists the capacity building needs in the country that will need to be addressed to effectively conduct the NEA. Chapter VII highlights whether a national science policy platform would provide a useful and beneficial function in the country in the context of a NEA and lastly, Chapter VIII provides the necessary steps needed to be conducted to advance the scoping exercise in preparation for a full NEA.

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CONTENTS

CHAPTER 1

1.0 RATIONALE

Zambia is endowed with vast and diverse natural resources that form the basis for national economic activity. Abundant water, land and forest resources provide the basis for sustainable, social and economic development in Zambia across various sectors. Zambia has fifteen (15) million hectares of water in the form of rivers, lakes and swamps which provide the basis for extensive freshwater fisheries.

Zambia's water resources account for 40% of surface water in Central and Southern Africa (Zambia Development Agency, 2011). The network of Zambia's statutory protected areas is composed of: 480 Forest Reserves (FRs) comprising 175 National Forests (NFs) and 305 Local Forests (LFs) with an estimated combined total area of 74,361 km^2; 20 National Parks (NPs) covering 63,630 km^2 and 36 Game Management Areas (GMAs) covering about 167,557 km^2. There are 11 main fisheries; four belong to Congo River basin (FAO 2006). The Wetlands cover approximately 14 to 19% of the total surface area (Chidumayo, 2016). Zambia has eight RAMSAR sites with a surface area of 40,305km^2 (www.ramsar.org)

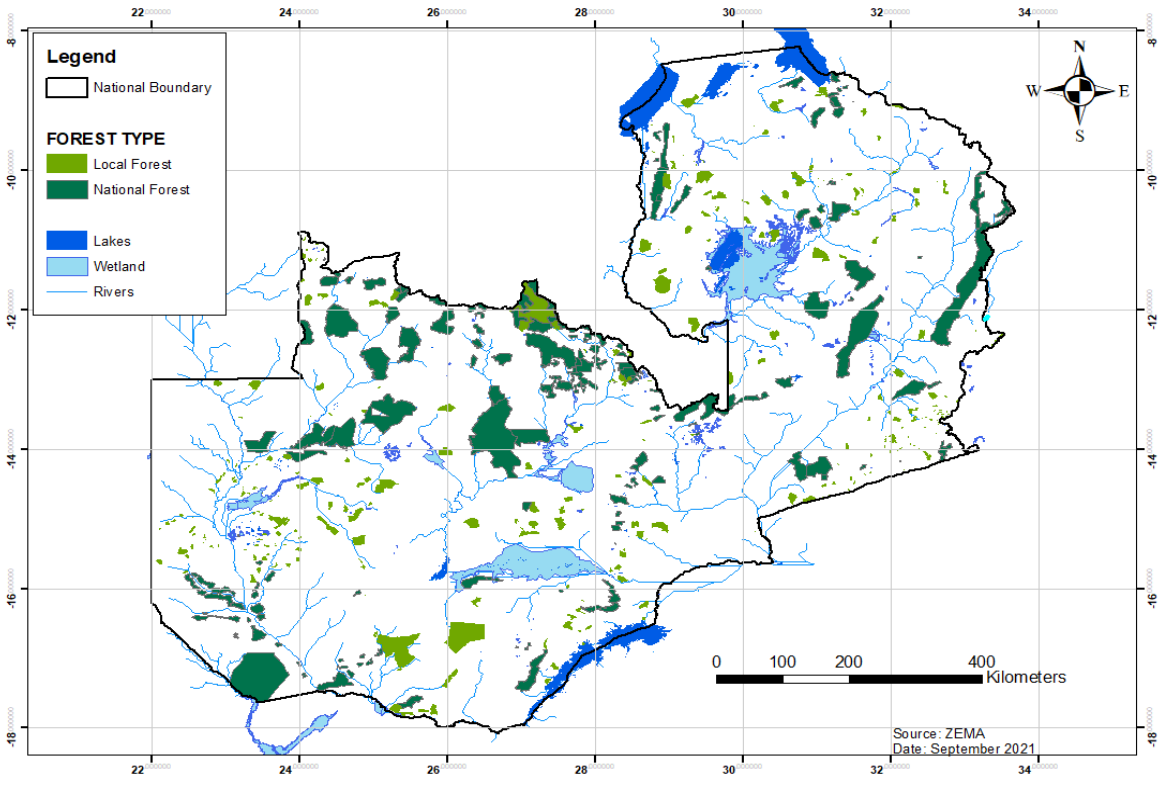


Figure 1: National and Local Forests-2021

According to the Zambia National Report to the UNCCD of 2018, between 2002-2015, the country recorded land cover changes by land cover classes as follows; Forest -2.36%, grassland -0.22%, cropland 11.08%, wetland 0.38%, artificial areas 265.652%, other land 22.17% and water bodies 1.61%. These changes are attributed to increasing pressure on these resources from both human and natural causes such as unsustainable consumption and production, population growth, overharvesting, pollution, climate change and invasive alien species. The increased pressure gives rise to environmental degradation, constraining growth and increasing poverty. The effects can be seen in declining land productivity such as agricultural productivity, forest and wetlands degradation, reduction in wildlife populations and declining fish catches.

It is important to note that different institutions and sectors mandated to conserve natural resources and protect the environment have policies and legislation in place to execute their mandates (table 1). However, some of these policies are implemented in fragmented sector approach yet having the same goal. The above mentioned challenges are exacerbated by inadequate implementation of natural resources policies on the ground, inadequate coordination in the natural resources sector, insecure land tenure, inadequate funding for natural resources programmes and lack of appreciation of the values of natural resources and lack of inclusion of traditional and local knowledge in the conservation of biodiversity and genetic resources. According to the report on integrated ecosystem assessment of selected key natural resource assets in Zambia the major contributing sectors to the countries economy include: (Mining 35%, Agriculture 18-20%, Forestry5.4% and Nature 3.1%).

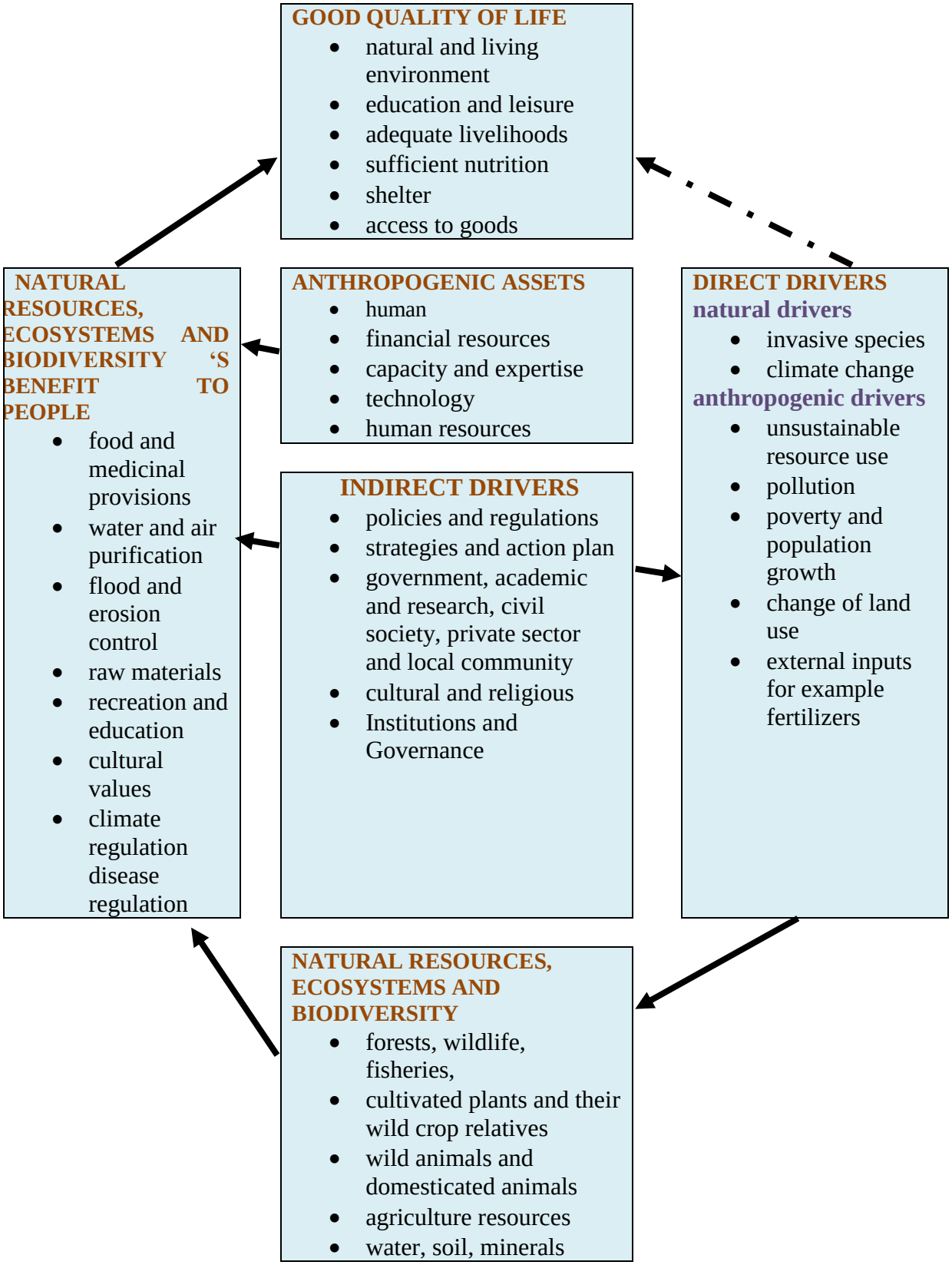
Undertaking a National Ecosystem Assessment (NEA) will set the stage for priority-setting and decision-making by providing the baseline to address data gaps on the status and trends of biodiversity in the Country. The data will help in updating ecosystem data bases which will help in formulating and updating national conservation documents which aim at addressing increased degradation of natural resources and ecosystems which affects the ability of these ecosystems to provide valuable ecological and socio-economic services. The NEA process will further provide the information relevant for Zambia's reporting processes to the Multilateral Environmental Agreement (MEA).

Table 1: Relevant national policies in Zambia

Policy	Purpose
National Policy on Climate Change (2016)	To promote and strengthen the implementation of adaptation and disaster risk reduction measures to reduce vulnerability to climate variability and change
Forest Policy of 2014	The National Forestry Policy promotes sustainable use of forests and forest lands in a way and at a rate, that maintains their biodiversity, productivity, regeneration capacity and their potential to fulfill, now and in the future, relevant ecological, economic and social functions that does not cause damage to the ecosystem.
National Wetlands Policy of 2018	To conserve wetland ecosystems so as to ensure their integrity, productivity and sustainability
National Parks and Wildlife Policy of 2018	It provides for a national network of well managed wildlife protected areas that support diverse and healthy wildlife populations that provides adequate environmental goods and services for the benefit of local and national economies by 2030. Through this Policy, Government undertakes to unlock the economic potential of the sector for the benefit of present and future generations and to secure it from various threats.
Mining Policy of 2013	To achieve socially and internationally acceptable balance between mining and bio-physical environment and to ensure that acceptable standards of health, safety and environmental protection are observed by all participants in the mining sector
Water Policy of 2010	Provides for a management framework for Zambia's water resources to ensure they are managed, sustain wildlife, fisheries and other ecosystems and developed in a sustainable manner and retain environmental integrity to support the need of the current and future generations
National Livestock Development Policy (2020)	The policy promotes sustainable livestock development through the expansion of extension and advisory services in the sector.

National Irrigation Policy and Strategy (2004);	The National Irrigation Policy and Strategy of 2004 (under revision) guides irrigation development in Zambia (GRZ 2004). The overall policy objective is "*a well-regulated and profitable irrigation sector that is attractive to both private investors and Zambia's development partners*." The policy aims to remove constraints for existing irrigators, thereby encouraging new private investment that increases area of land under irrigation and productivity. In addition, the policy encourages the emergence and gradual commercialization of new irrigators from among traditional farmers.
National Land Policy (2021)	Mainstreaming of Climate Change, Natural Resources and Environmental Protection in land administration and management for sustainable development
National Policy on Environment (2007)	To promote the sound protection and management of Zambia's environment and natural resources in their entirety, balancing the needs for social and economic development and environmental integrity to the maximum extent possible, while keeping adverse activities to the minimum
National Energy Policy (2019)	To promote efficiency use of energy resources in order to conserve natural resources for the benefit of future generations
Biotechnology and Biosafety Policy (2007)	The Biotechnology and biosafety Policy guides the judicious use and regulation of modern Biotechnology for sustainable development of the nation, with minimum risks to human and animal health as well as the environment, including Zambia's biological diversity
Second National Agricultural Policy (2016)	The rationale for the National Agriculture Policy is to provide a conducive environment that will stimulate sustainable agricultural development with the objective of promoting the sustainable use of natural resources and mainstream environment and Climate Change in the agriculture sector
First National Fisheries and Aquaculture Policy (2020)	This Policy aims to provide guidance to achieving an efficient, competitive and sustainable fisheries sub-sector that shall pave way for food and nutrition security, employment and wealth creation by promoting a sustainable exploitation and utilization of fisheries resources. In addition, the Policy aims to promote Climate Smart Aquaculture and sustainable fisheries resources management

1.1 Zambia conceptual framework for the National Ecosystem Assessment



CHAPTER 2

2.0 NATIONAL ECOSYSTEM ASSESSMENT KEY POLICY QUESTIONS

1) What are the status, trends and threats to Zambia's ecosystems?
2) What are the current and projected socio-economic values of Ecosystems for the Zambian economy and human well-being?
3) What is the role of local communities in biodiversity conservation and enhancement of ecosystem goods and services?
4) What is the value of the genetic resources across the different ecosystem types
5) To what extent has indigenous local knowledge on genetic resources been incorporated in access and benefit sharing mechanisms?
6) How can Government line ministries and relevant stakeholders enhance awareness on the benefits of conserving ecosystems?
7) How can Government and other partners strengthen community based organizations in natural resources management?
8) What potential lies in conserving ecosystems for climate change mitigation and adaptation?

CHAPTER 3

3.0. SCOPE

The NEA aims to assess the status and trends of the country's ecosystems, identify the drivers of change and development of management plans. This assessment is intended to answer questions related to the interactions between humans and their ecosystems, based on the priorities identified throughout the scoping process highlighted in the rationale. The baseline year for this assessment was based on the 2nd Integrated Land-use Assessment of 2016 conducted under the Forestry Sector (ILUA-2).

3.1 Priority ecosystems and services

Zambia has sixteen ecosystems types (Fanshawe, 1971; Edmonds, 1976) (Table 2). These fall into four main divisions: (a) Forest – this consists of a continuous stand of trees, usually over 10m tall, with overlapping crowns; (b) Woodland – an open stand of trees, usually over 7m tall, with an open canopy and a field layer dominated by grasses and herbs; and (c) Grassland – land covered with grasses and other herbs in which woody plants are either absent or if open stand of trees, usually over 7m tall, with an open canopy.

Table 2: Extent of Ecosystems in Zambia

Biome	Ecosystem	Approximate extent	
		Km2	**Percentage**
Forest	Dry evergreen	15,835	2.1
	Deciduous	6,735	0.9
	Thicket	1,900	0.25
	Montane	40	0.01
	Swamp	1,530	0.2
	Riparian	810	0.11
Woodland	Chipya	15,560	2.07
	Miombo	294,480	39.13
	Kalahari sand	84,260	11.2
	Mopane	37,010	4.92
	Munga	30,595	4.06
	Termitaria	24,260	3.22
Grassland	Dambo	75,760	10.07
	Floodplain/Swamp	129,075	17.15
Aquatic	Lakes and rivers	10,500	1.4
Anthropic	Cropland and fallow, forest	24,210	3.21
	Plantations and built-up areas		
Total		**752,578**	**100**

Source: (Fanshawe, 1971; Edmonds, 1976)

The level of degradation which is driven mostly by anthropogenic activities has interfered with the potential for ecosystems to support human and wildlife. Taking an integrated socio-ecological approach, the assessment will assess status and trends as well as direct and indirect drivers of change of ecosystems and nature's contribution to people. It will further explore possible future scenarios of the changes in ecosystems and natures contribution to people and examine the range of opportunities, challenges and policy options to further enhance the resilience of ecosystems and sustainability in the use of resources.

In addition, the assessment will provide essential information to national decision-makers, policy makers and supporting staff as they develop and implement policies and initiatives for the nature's contribution to people.

By articulating the benefits of ecosystems and their services in economic terms and the close linkages to national well-being, the report will enable the mainstreaming of ecosystem goods and services into national planning. In this regard, the assessment should articulate how biodiversity and ecosystem services contribute to the country's Sustainable Development Plans.

Furthermore, the assessment will recognize the inseparable unity of nature and humanity linking to ecosystem functions, nature's benefits to people, and to good quality life, whilst living in harmony with nature. The assessment will recognise the inherent interdependencies of the use of natural resources on its wider socio-ecological contexts. It will therefore take into account not only the effects on other species and ecosystems, but also the governance regimes, practices and approaches, methods and technologies, from various knowledge systems including indigenous and local knowledge, the socio-political context and diverse patterns of sustainable management and harvesting.

3.2 Temporal scale

It is anticipated that the assessment will be conducted from 2023-2027 as the time frame assessment. This temporal scale was selected to align with the country's Vision 2030. The baseline year for this assessment was based on the 2nd Integrated Land-use Assessment of 2016 conducted under the Forestry Sector.

3.3. Geographic boundaries

For the purpose of this assessment, the geographic scope will include all ecosystems in the country (figure 2). It should be noted, however, that while the geographic area of the assessment is national, certain policy questions and topics may be covered at the sub-national scale as detailed case studies. The assessment will be based on existing scientific literature, national documents, and sources from other knowledge systems, including indigenous and local knowledge, Wealth Accounting and Valuation of Ecosystem Services (WAVES) and will draw on the work of existing institutions and networks. Materials collected during this scoping process, including references to published and grey literature, will be available to the assessment expert group.

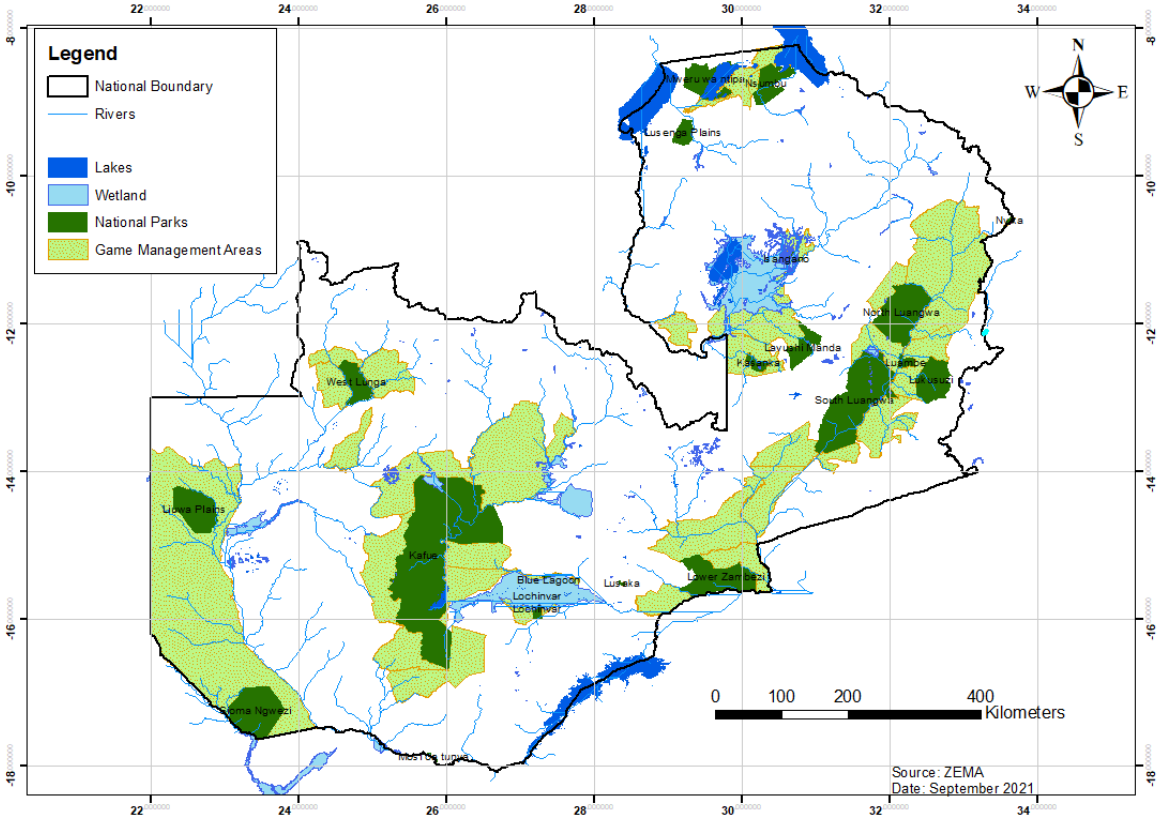


Figure 2: Location of National parks and Game Management Areas

Further, the assessment will be built on available remote sensing data. The NEA will draw on the frameworks and guidelines provided by the Intergovernmental Platform for Biodiversity and Ecosystem Services (IPBES) regional, global and thematic assessments and information provided by supporting institutions such as the UNEP-WCMC. Where significant data gaps exist, it is assumed that the expert and author groups will have the capacity to provide expert opinions to overcome these gaps.

CHAPTER 4

4.0 POTENTIAL USE OF THE ASSESSMENT

After the NEA, it is expected that the following outputs will be realized;

- The NEA will be used to enhance the implementation of National policies, strategies, programmes and plans;
- NEA will be used to develop programs and set up strategies;
- NEA will create a business case for biodiversity financing
- NEA will be used to influence policy makers towards prioritizing ecosystem programs in decision making through provision of updated information;
- NEA will set the stage for priority-setting and decision-making to address increasing degradation of natural resources and ecosystems;
- The NEA process will also provide the information relevant for Zambia's reporting process under the Multilateral Environmental agreements.

CHAPTER 5

5.0 RELEVANT STAKEHOLDERS AND INITIATIVES

The stakeholder mapping was conducted and consisted of groups interested in the results of the NEA, those affected by biodiversity decisions, the decision making power and those knowledgeable about relationships between nature and human beings. Key relevant government and Non State Actors will be engaged in the NEA process. This will be important for consensus building and compilation of information useful in the assessment. Non State Actors will include Civil Society Organisations, research institutions community based information, among others. **Annex 1** to this report, outlines the stakeholders that have been mapped to participate in the NEA process.

5.1 Initiatives

The Biodiversity Finance Initiative (BIOFIN) was launched in 2012 under the auspices of the United Nations Development Programme (UNDP) to address the biodiversity financing gap that exists for many countries and contribute towards the achievement of Aichi targets as set out in the Strategic Plan for 2011 to 2020 by the Convention on Biological Diversity. The BIOFIN initiative seeks to build a sound business case for increased investment in the management of ecosystems and biodiversity, with a focus on the needs and transformational opportunities at the national level. In Zambia, the BIOFIN initiative is being implemented by the Government, through the Ministry of Lands and Natural Resources.

The BIOFIN Initiative provides a methodology that offers innovative steps to measure current biodiversity expenditures, assess financial needs, identify the most suitable finance solutions and provides guidance on how to implement these solutions to achieve the national biodiversity targets as enshrined in the National Biodiversity Strategy and Action Plan (NBSAP-2). The assessment establishes past, present and projected expenditures on biodiversity conservation.

CHAPTER 6

6.0 CAPACITY-BUILDING NEEDS AND HOW THEY MIGHT BE ADDRESSED.

S/N	Capacity Needs	Means of addressing.
	Inadequate knowledge and capacity to apply IPBES methodology for NEA.	Building capacity in stakeholders to understand and apply IPBES methodology for NEA;
	Lack of NEA toolkit for data collection, analysis and reporting.	Develop NEA Toolkit and build capacity among data producers to collect, analyse and report.
	Inadequate funding for management and assessment of ecosystems.	Enhancing funding for management and assessment of ecosystems.
	Inadequate financial and technical capacity by small scale farmers to set up and/or adopt climate smart technologies.	Enhancing financial and technical support especially to small scale farmers and resource users to aid setting up or adopting technologies such as energy efficient technologies and Climate Smart Agriculture Technologies;
	Low capacity by land use planners to integrate biodiversity in land use planning.	Building capacity for Land use Planners in mainstreaming biodiversity in Land-use Planning;
	Low participation of local communities in conducting Ecosystems Assessments	Build capacity in local communities to participate in Ecosystem Assessments.
	Low capacity of in-community based structure coordination	Enhance capacity and provide support to strengthen in-community based structure coordination
	Low capacity of local communities in the management of water resources and related ecosystems.	Build/enhance capacity of local communities in the management of water resources and related ecosystems.

CHAPTER 7

7.0 NATIONAL BIODIVERSITY PLATFORM (NBP)

The National Biodiversity Committee (NBC) which comprises of relevant institutions in the country responsible for the management and use of natural resources will serve the role of the National Biodiversity Platform **(NBP)**. It is a necessary body of experts that will offer technical guidance in guiding the NEA process. The NBC is currently chaired by the Permanent Secretary for Ministry of Lands and Natural Resources. The list of members of the NBC is attached in annex 2.

7.1 Functions of the NBC;

- To advice the Ministry responsible Lands and Natural Resources on the development and review of policies, strategies and legislation on the conservation, sustainable use and benefit sharing of biological diversity and genetic resources, including agricultural biodiversity and plant genetic resources for food and agriculture;
- Facilitate follow-ups of SBSTTA, SBI and COP Meetings;
- Review the National Reports under the Convention on Biological Diversity and it Protocols;
- Review the National Biodiversity Strategy and Action Plans;
- In liaison with the CBD Focal Point, to monitor the implementation of the NBSAP;
- To facilitate implementation of key decisions and resolutions of CBD, Nagoya Protocol and Biosafety Meetings;
- Facilitate the celebration of International Days for Biological Diversity;
- Lead public education and awareness on conservation and sustainable use of biological diversity, including agricultural biodiversity;
- Lead capacity building and resource mobilization on conservation and sustainable use of biological diversity.

CHAPTER 8

8.0 NEXT STEPS

The next step is to carry out a full NEA that will require funding and capacity building as identified in Section 6 of this report. The following is the action matrix for next steps;

8.1 Action Matrix

Activities	Action to be taken	When?	Responsible Organisation
Capacity building	Holding workshops and short term training	By 2021	Ministry responsible for Lands and Natural Resources
Awareness creation on the NEA processes	Dissemination of scoping report	By 15th October, 2021	Biodiversity Committee
Funding	Engaging local and international funders	By 2022	Ministry responsible for Lands and Natural Resources

ANNEXES

Annex 1: Relevant Stakeholders

No.	Stakeholders	Areas of interest
Government Ministries		
1.	Ministry responsible for Lands and Natural Resources	Biodiversity conservation, protected areas, climate change, natural resource governance, sustainable land management
2.	Ministry responsible for Agriculture	Agro-biodiversity, sustainable land management, climate change.
3.	Ministry responsible for Tourism and Arts	Nature-based tourism development
4.	Ministry responsible for General Education	Biodiversity Conservation, climate change, adaptive land management, research and capacity building, awareness education.
5.	Ministry responsible for Biosafety and Biotechnology	Biodiversity Conservation, climate change, adaptive land management, research and capacity building, awareness education
6.	Ministry responsible for Chiefs and Traditional Affairs	Land administration, sustainable natural resource management, community rights.
7.	Ministry responsible for Energy	Development Watershed management, hydro-electricity generation, renewable energy technologies, integrated water resource management.
8.	Ministry responsible for Local Government and Housing	Land use planning, regional planning, land administration
9.	Ministry responsible for Finance	Economic development planning and resource mobilization
10.	Ministry responsible for Health	Food security, nutrition, environmental and human health
11.	Ministry responsible for National Development and Planning.	Coordinating the development and implementation of National Programmes and Plans, Climate Change Financing
12.	Ministry responsible for National Parks and Wildlife.	Wildlife conservation

13.	Ministry responsible for Fisheries and Livestock	Food security and nutrition, biodiversity conservation, protected areas, climate change, natural resource governance, sustainable land management,
14.	Ministry responsible for Infrastructure Development	Management of infrastructure development
15.	Ministry responsible for Nagoya Protocol on access and benefit sharing to genetic resources	Domestication of the Nagoya Protocol
	Statutory Bodies	
16.	Zambia Environmental Management Agency	Integrated environmental management and the protection and conservation of the environment and sustainable management and use of natural resources.
17.	Water Resources Management Authority (WARMA)	Watershed/Catchment management plans
18.	National Biosafety Authority	Sustainable development of the nation with minimum risks to human and animal health as well as the the environment.
19.	National Heritage Conservation Commission	Conservation of natural and cultural heritage sites
20.	Patents and Companies Registrations Agency (PACRA)	Registration, protection and access to traditional knowledge and genetic resources.
Civil Society Organizations		
21.	Zambia Climate Change Network	Climate change advocacy
22.	Zambia Community Based Natural Resource Management (CBNRM) Forum	CBNRM advocacy and policy dialogues
	Non-Governmental Organisation	
23.	BirdWatch Zambia	Advocacy, conservation of birds, biodiversity conservation
24.	World Wide Fund for Nature (WWF)	Biodiversity Conservation, wetlands, freshwater and CBNRM
25.	Wildlife and Environmental Conservation Society of Zambia	Environmental education, advocacy, research, biodiversity conservation.
26.	CABI Southern African Regional Office-Lusaka Office	Improves people's lives worldwide by providing information and applying scientific expertise to solve problems in

		agriculture and environment.
27.	International Crane Foundation	To secure the crane population and the Wetlands habitats on which they depend, Restoration of wetlands through invasive species removal, law enforcement and community relation works
28.	Frankfurt Zoological Society	Biodiversity conservation, research and awareness, outreach programs
29.	Zambia Carnivore Program	Conservation, Research, advocacy
30.	African Parks	Conservation, tourism development, research
31.	Zambia Alliance for Agro ecology and Biodiversity	Adoption of Agroecology as a holistic, sustainably building Zambia's food and farming systems and strengthen resilience to climate change.
32.	International Union for the Conservation of Nature (IUCN)	Influence, encourage and assist societies throughout the world to conserve the integrity and diversity of nature and to ensure that any use of natural resources is equitable and ecologically sustainable
33.	BioCarbon Partners	conservation through generation of sustainable conservation finance and awareness
34.	The Nature Conservancy	Preserve plants, animals and natural communities that represent the diversity of life.
Research Institutions and Academia		
35.	Southern Africa Science Services Centre for Climate Change and Adaptive Land Management	Biodiversity Conservation, climate change, adaptive land management, research and capacity building
36.	Centre for Environmental Research, Education and Development	Climate change, biodiversity conservation, research and education, natural resource governance, programme management.
37.	Zambian Agricultural Research Institute (ZARI)	Agro-biodiversity research and conservation
38.	Indaba Agricultural Policy Research Institute (IAPRI)	Agricultural Policy guidance
39.	National Institute for Scientific Research (NISR)	Policy guidance

40.	Center for International Forestry Research (CIFOR)	Forestry research and conservation
41.	Mulungushi University	Research and Education
42.	University of Zambia	Research and Education
43.	Golden Valley Agricultural Research Trust (GART)	Research,
44.	Copperbelt University	Research and Education
Community Based Organization		
45.	Community Forestry Management Groups	Forestry management and resources user
46.	Community Resources Boards	Wildlife conservation
47.	Charcoal Producer association	Resource user
48.	Water user associations	Water management and resources user
49.	Beekeeping Groups	Resources user
50.	Fisheries committees	Resources user
51.	Agriculture committees	Resources user
	International Organization	
	Private Sector	
	Cooperating Partners	

Annex 2 List of Biodiversity Committee Members

The composition of the National Committee for Biodiversity will be drawn from Government Ministries, Quasi-government institutions, Academia and Non-governmental organizations. The committee will be as follows:

1. Mr. Ndashe Yumba, Permanent Secretary, Ministry of Lands and Natural Resources (Chairperson);
2. Mr. Allan Dauchi, Chief Natural Resources Management Officer (Secretary);
3. Mr. Moses Kaumba, Forestry Department;
4. Mrs. Ireen Fwalanga, Economist- Financial Sector Policies and Management, Ministry of Finance;
5. Ms. Isabel Mukelabai, Government Relation Manager, WWF;
6. Mr. Griffin Shanungu, Program Coordinator – Zambia Cranes and Wetlands Conservation Program;
7. Mr. Christopher Simutala, Senior Biosafety Officer, National Biosafety Authority;
8. Mr. Patrick Shawa, Coordinator, Wildlife and Environmental Conservation Society of Zambia;
9. Ms. Clara Nanja, Wetlands Project Officer, Birdwatch Zambia;
10. Mr. Rodwell Chandipo, Principal Inspector Natural Resources Management, Zambia Environmental Management Officer;
11. Mr. Moses Nyoni, Community Conservation Manger, the Nature Conservancy;
12. Mr. Jones Masonde, Principal Ecologist, Department of National Parks and Wildlife;
13. Mr. Kelvin C. Chanda, Chief Natural Heritage Officer, National Heritage Conservation Commission;
14. Dr. Bridget Bwalya Umar, Senior Lecturer, Department of Geography, University of Zambia;
15. Mr. Sunduzwayo Zimba, Senior Examiner – Trademark, Patents and Companies Registration Agency;
16. Ms. Francesca Davies, National Coordinator, Zambia Agro-ecology and Biodiversity (ZAAB) Secretariat;
17. Mr. Mbamwai Mbewe , Chief Fisheries Research Officer, Ministry of Fisheries and Livestock;
18. Mr. Absalom Sakala Principal Environment Officer, Environment Management Department – Ministry of Water Development Sanitation and Environmental Protection;

19. Mr. Frank C. Nyoni, Senior Environment and Quality Officer, Water Resources Management Authority (WARMA);
20. Mr. Joy Sinyangwe, Ministry of Agriculture;
21. Mr. Hedges Tembo, Ministry of National Development Planning.
22. Ministry of Health

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