



A Review of National Policies, and Regulatory Frameworks for Alignment and Coherence with Relevant Regional and Global Biodiversity Conservation and Environmental Management Instruments for the Republic of Uganda

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Acronyms and Abbreviations

ABES	Africa Blue Economy Strategy
AU	African Union
AU-IBAR	African Union Inter-African Bureau for Animal Resources
BE	Blue Economy
CBD	Convention on Biological Diversity
FAO	Food and Agriculture Organization of the United Nations
LVFO	Lake Victoria Fisheries Organization
MAAIF	Ministry of Agriculture, Animal Industry and Fisheries
MDA	Ministry Departments and Agencies
MEMD	Ministry of Energy and Mineral Development
MOWT	Ministry of Works and Transport
MTWA	Ministry of Tourism, Wildlife and Antiquities
MWE	Ministry of Water and Environment
NaFIRRI	National Fisheries Resources Research Institute
NBSAP	National Biodiversity Strategy and Action Plan
NEMA	National Environment Management Authority
NGO	Non-Governmental Organization
NPOA	National Plan of Action for small-scale Fisheries
SDG	Sustainable Development Goals
SSFFW	Small-Scale Fishers and Fish Workers

Executive Summary

There is consensus that aquatic biodiversity conservation has been neglected worldwide. African governments, donors, and non-governmental organizations (NGOs) recognize the relevance of the continent's terrestrial biodiversity to human development, but the rich biodiversity in lakes, rivers and streams, wetlands, and coral reefs is being rapidly degraded among others due to pollution, overexploitation, introduction of invasive species and climate change.

The African Union (AU) elaborated the Policy Framework and Reform Strategy for Fisheries and aquaculture in Africa (PFRS, 2014) and Africa Blue Economy Strategy (ABES, 2019) in order to foster socio-economic growth through harnessing the full potential of aquatic resources endowment and enhance the Blue Economy contribution to Africa's development framework, the Agenda 2063. These Continental Policies are aligned to the Global initiatives especially the Sustainable Development Goals (SDGs) 14 on life below and under the sea. While Uganda is a signatory to various Global and continental instruments, the extent of domestication or alignment of its National policies and regulations to the Global and Continental Instruments is not certain.

The African Union Inter African Bureau for Animal Resources (AU-IBAR) commissioned this consultancy to support the Republic of Uganda to review National Policies, and Regulatory Frameworks for Alignment and Coherence with Relevant Regional and Global Biodiversity Conservation and Environmental Management Instruments. The existing gaps and challenges were identified through a participatory process involving group work among MDAs relevant to the Blue economy during a National validation workshop. Participants were drawn from MDAs: Water and Environment; Tourism, Wildlife and Antiquities; Agriculture, Animal Industry and Fisheries; Gender, Labour and Social Development; Works and Transport; National Environmental Management Authority, National Fisheries Resources Research Institute, Makerere University and Uganda National Fisheries Women Organization.

The findings indicate that MDAs in Uganda are aware and conversant with the the Continental and Global Instruments for conservation of aquatic biodiversity, climate change and environmental management. A number of Instruments have been ratified and domesticated into National policies, laws and regulations. Various legal and Policy documents for Uganda were examined and many relevant strategies for biodiversity conservation, climate change adaptation and mitigation and environmental management were found. However, the implementation of these strategies was largely inadequate.

A number of challenges impede effective implementation of strategies within the National Instruments. These include: lack of effective coordination mechanisms among MDAs; limited funding; weak and obsolete policies and regulations; poor joint enforcement mechanisms; understaffing and inadequate data collection and monitoring to inform policy development.

1.0 Background

The African Union Inter-African Bureau for Animal Resources (AU–IBAR) is a specialized technical office of the Department of Agriculture, Rural Development, Blue Economy and Sustainable Environment (DARBE) of the African Union Commission (AUC). The mandate of AU–IBAR is to support and coordinate the utilization of animal resources (livestock, fisheries, aquaculture and wildlife) for enhancing nutrition and food security, economic development and wellbeing thereby contributing to prosperity of the people in the African Union Member States (AU–MS).

The Vision of the AU–IBAR in the Strategic Plan 2018–2023 is an Africa in which animal resources contribute significantly to integration, prosperity and peace. AU–IBAR’s intervention in the fisheries, aquaculture and other Blue Economy Sectors is guided by the Policy Framework and Reform Strategy for fisheries and aquaculture in Africa (PFRS) and the African Blue Economy Strategy (ABES), both of which aim at socio-economic transformation of Africa, underpinned by increased sustainable contribution to food security, livelihoods and wealth creation within the framework of the African Union Agenda 2063.

The African Continent is adjacent to highly productive marine ecosystems including the seven African Large Marine Ecosystems (LMEs) viz., Agulhas Current LME, Benguela Current LME, Guinea Current LME, Canary current LME, Mediterranean Sea LME, Red Sea LME and Somali Current LME. The Continent is also endowed with networks of freshwater rivers and lakes. The Seas, Oceans, Lakes and Rivers inhabit a significant number of biodiversity, and the ecosystems provide sources of livelihoods, food security and wealth. The African aquatic ecosystems inhabit living and non-living resources. However, the unsustainable exploitation of these resources is threatening the biodiversity, natural resources and environmental sustainability.

Several factors are threatening aquatic biodiversity in Africa’s aquatic ecosystems. These include; overexploitation of living species, pollution from several sources (land-based municipal and agricultural activities), uncontrolled introduction of exotic species in aquaculture systems, effluents from mining activities. Other threats to aquatic biodiversity include poorly and or unplanned urban development and resource-based industries, such as mining, coastal tourism activities, coastal infrastructure development that destroy or reduce natural habitats. In addition, air and water pollution, sedimentation and erosion, and climate change also pose threats to aquatic biodiversity.

The highest political organ of the African Union endorsed the African Blue Economy Strategy (ABES) aimed addressing some of these challenges and for the AU–Member States to sustainably harness the resources of aquatic ecosystems. The ABES envisioned an inclusive and sustainable Blue Economy that significantly contributes to Africa’s transformation and growth. The Strategy incorporates key critical vectors for promoting Blue Economy development of the Continent, including fisheries, aquaculture and ecosystem biodiversity conservation; shipping, maritime safety and trade; climate change mitigation and environmental sustainability and ecotourism; sustainable energy and extractive mineral resources; governance, institutions and job creation.

The objective of the ABES is to guide the development of an inclusive and sustainable Blue Economy that becomes a significant contributor to Continental transformation and growth, through advancing knowledge on marine and aquatic biotechnology, environmental sustainability, marine ecosystem utilization, conservation and carbon sequestration, the growth of an Africa-wide shipping industry, the development of Sea, River and Lake transport, the management of fishing activities on these water bodies, and the exploitation and beneficiation of deep Sea mineral and other marine resources.

The ABES is consolidated based on the following five thematic technical areas:

1. Fisheries, aquaculture, conservation and sustainable aquatic ecosystems;
2. Shipping/transportation, trade, ports, maritime security, safety and enforcement;
3. Coastal and maritime tourism, climate change, resilience, marine ecosystem, environment, infrastructure;
4. Sustainable energy and mineral resources and innovative industries; and,
5. Policies, Institutional and governance, employment, job creation and poverty eradication, innovative financing.

Accordingly, AU-IBAR with support from the Swedish International Development Cooperation Agency (SIDA), is implementing a 3-year project on “Conserving Aquatic Biodiversity in African Blue Economy” whose overall objective is to enhance the Policy environment, Regulatory frameworks and Institutional capacities of AU-Member States and Regional Economic Communities to sustainably utilize and conserve aquatic biodiversity and ecosystems.

The specific objectives of the project are as follows:

1. To provide support to AU-MS to ratify and/or align relevant International/Regional Instruments related to blue economy themes (with specific reference to protecting and conserving biodiversity);
2. Optimizing conservation and sustainable use of biodiversity while minimizing conflicts among blue economy sub-themes;
3. Strengthening measures for mitigating the negative impacts of coastal and marine tourism, oil, gas, deep Sea mining and climate change on aquatic biodiversity and environment; and,
4. Strengthening gender inclusivity in aquatic biodiversity conservation and environmental management.

In line with the provisions of the project, AU-IBAR commissioned a Continental consultancy to assess relevant Continental and Global biodiversity and environmental Instruments and develop priority actions for their enhanced ratification and implementation. The study identified priority Instruments that support aquatic biodiversity conservation, climate change mitigation and adaptation and environment management, status of ratification, adoption and implementation by AU-MS, the obligations and benefits of implementing the Continental and Global Instruments by AU-MS as well as priority actions for their enhanced ratification and implementation,

These Continental Policies are aligned to the Global initiatives especially the Sustainable Development Goals (SDGs) 14 on life below and under the Sea. In order to contribute to the objectives of Continental and Global Instruments, AU-MS are obliged to align National Instruments to Continental and Global Instruments. Uganda is among the AU-MSs where there are fragile aquatic ecosystems and aquatic

biodiversity and implementation of Global Instruments was found to be fair and support to address the challenges was recommended (AU-IBAR, 2023). In line with the Continental report that was commissioned by AU-IBAR, a consultancy to support the Republic of Uganda to review and align National policies and regulatory frameworks to relevant Global and Continental Instruments related to aquatic biodiversity conservation, climate change adaptation and mitigation and environmental management was initiated.

2.0 Introduction

Uganda is one of the most species rich countries in Africa but a survey and analysis of hotspots of biodiversity has concentrated on terrestrial habitats (Plumptre et al., 2019). The extensive aquatic ecosystems composed of 5 major lakes: Victoria; Albert; Kyoga; George; Edward and over 160 small lakes (WRMD, 2004), rivers and wetlands have attracted less attention despite supporting abundant biodiversity. The lakes are interconnected by an extensive network of rivers (NEMA, 2008), including the Nile, Ruizi, Katonga, Kafu, Mpologoma and Aswa (UN-WWAP, 2006).

Lake Victoria, with an area of 69,000 km², is the second largest fresh water lake in the world (Anyah & Semazzi, 2004). The Victoria Nile starts from Lake Victoria and moves into Lake Kyoga and subsequently flows into Lake Albert. Here, The Albert Nile then flows from Lake Albert with a gentle slope to the Sudanese boarder. In Lake Albert, the Nile is joined by river Semliki which drains Lakes George & Edward, which are connected via the Kazinga Channel.

The North-western slopes of Rwenzori watershed in Uganda drain to Lake Edward via the Ishasha, Chiruruma, Nchwera and Nyamweru rivers, and also by several streams, which enter the western flowing part of the Katonga River. The North-eastern part of the Virunga range watershed however, drains directly to Lake Victoria via a series of swampy lakes and streams culminating in the Kibaler River, which enters Lake Victoria through the swamps at Sango Bay (FAO, 2005).

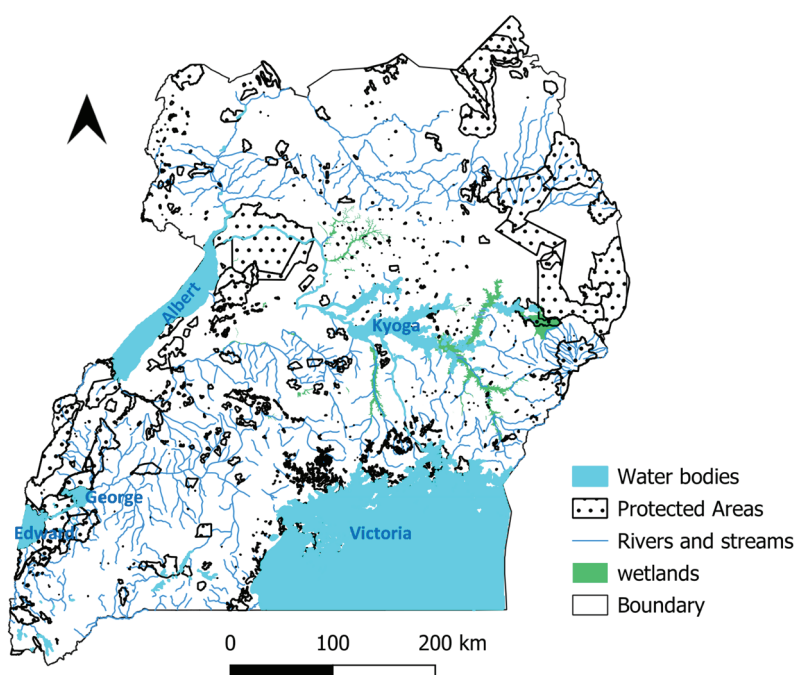


Figure 1: Map of Uganda showing lakes, rivers, wetlands and protected areas.

The Ugandan slopes of Mt. Elgon and the central highlands along the Kenyan border drain via rivers with swampy valleys or seasonal floodplains to Lake Kyoga, while the north eastern highlands and most of the northern plateau drain directly to the Bahr el Jebel in Sudan via the Ashwa River that also joins the Nile. Because of warping of the landscape, many of the perennial streams of the plateau are clogged with swamp (NEMA, 2008).

About 10 Percent of the Country is covered by swamps (wetlands), of which one third is permanently inundated. In the south and west of the Country, swamps form an extensive low gradient drainage system in steep V-shaped valley bottoms with a permanent wetland core and relatively narrow seasonal wetland edges.

These ecosystems support substantial aquatic biodiversity which provide sources of livelihoods, food security and wealth. Unfortunately, several factors are threatening aquatic biodiversity in Uganda. The threats include water pollution especially from semi-treated garbage (Mugisha et al., 2007); invasive species like Nile perch (Marshall, 2018); overexploitation and habitat destruction (Kishe-Machumu et al., 2015); high population density (Lubovich, 2009) where the nations of Kenya, Tanzania, and Uganda are seeking to combat interrelated challenges, including recent problems of water hyacinth infestation and eutrophication, as well as the more far-reaching problem of increasing environmental pressures brought on by burgeoning populations, increased pollution, and climate change. A decline in lake water levels further threatens the environment and economic growth. To combat these challenges, these East African governments have, both singly and collectively, undertaken numerous projects in the region. Because the scale of the problems is so large and the lake and its catchment basin cross international boundaries, a coordinated set of activities is required to produce the most positive results. To this end, the Lake Victoria Environmental Management Project (LVEMP; climate change effects including warming and siltation of lakes (Deirmendjian et al., 2021) as a consequence of eutrophication, the dominant phytoplankton group changed from diatoms to N₂-fixing cyanobacteria and there was a 2- to 10-fold increase in chlorophyll-a. The goal of this study is to determine whether the 2018–2019 physical (light, stratification and poor enforcement of laws and regulations (Obiero et al., 2015) and for, the fishers. Inefficiencies have emerged, however, inhibiting the effective execution of sustainable fisheries management by the BMUs. Data were collected from 36 BMUs along the Kenyan shores of Lake Victoria. Descriptive and inferential analyses were performed using SPSS Version 20.0. The results indicated that BMUs are successful at educating fishers and that they are aware of fishing rules and regulations. Nevertheless, high violation rates were also observed, suggesting BMUs have limited impact on fisher decisions to comply with regulations. Data suggest that the failure to comply may be due to lack of adequate financial and equipment resources for monitoring, control and surveillance (MCS; mining, oil and gas exploration, coastal tourism activities and coastal infrastructure development.

In order to address challenges related to aquatic biodiversity conservation, Uganda developed a Blue Economy (BE) strategy to promote sustainable blue economic development. The BE strategy consolidates five thematic technical areas including; fisheries, aquaculture and ecosystem biodiversity conservation; shipping, maritime safety and trade; climate change mitigation and environmental sustainability and ecotourism; sustainable energy and extractive mineral resources; governance, institutions and job creation.

2.1 Aquatic biodiversity, climate change and Blue economy sectors

The term 'biodiversity' is a short form for 'biological diversity', which defines the sum total of all biotic variation from the level of genes to ecosystems (Purvis & Hector, 2000). At the genetic level, the most known loss of species been the extinction of hundreds of cichlid fish species from Lake Victoria, following the introduction Nile Perch (Marshall, 2018). The responsible and sustainable exploitation of natural resources relies on maintaining integrity of natural ecosystems. For this purpose, the Uganda Blue Economy strategy is geared towards biodiversity conservation by promoting preservation with sustainable commercial exploitation of aquatic resources in Lakes, Rivers, and other bodies of water. The BE, comprises a number of sectors that rely on water resources for their sustainability. These sectors include; Fisheries within the Ministry of Agriculture, Animal Industry and Fisheries; Tourism with Ministry of Tourism, Wildlife and Antiquities; Energy and Mineral sectors within the Ministry of Energy and Mineral Development; Inland ports and water transport in the Ministry of Works and Transport; and, Water and Environment within the Ministry of Water and Environment.

2.2 Biodiversity in wetlands:

In Uganda, wetlands support 9 species of molluscs, 52 species of fish, about 43 species of dragon flies (of which 20% are endemic), 243 species of birds, 48 species of amphibians, 14 species of mammals, 19 species of reptiles and 271 species of macrophytes (NEMA, 2002). Papyrus and other wetland plants have commercial value, and many other plants are used for medicinal purposes.

2.3 Biodiversity in lakes and Rivers (Fisheries)

About 20% of the surface area of Uganda is under water comprising Lakes, swamps and Rivers. Uganda's fisheries are based on the five large Lakes, over 160 small Lakes, a network of Rivers, swamps and flood plains. These water bodies contain critical habitats which would be preserved as fish breeding and nursery grounds (James et al., 2019) for increased production and biodiversity conservation. However, aquatic biodiversity is to a large extent, outside protected areas (Plumptre et al., 2014). Fish biodiversity has been adversely affected due to unregulated exploitation. Considerable change in fish species composition in lakes such as Victoria and Kyoga has been reported following anthropogenic disturbances and introduction of the Nile perch (Natugonza et al., 2021; Nyamweya et al., 2020)

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(*Lates niloticus*), Nile Tilapia (*Oreochromis niloticus*), Mukene (*Rastroneobola argentea*), Muziri/Mukene, (*Neobola bredoi*), Catfish (*Clarias gariepinus*) and the silver catfish (*Bagrus documak*).

Trends in commercial fish production:

The fish production potential in Uganda stands at about 1,700,000 metric tonnes: 700,000 MT expected from capture fisheries and 1,000,000 MT from aquaculture. Current estimates show that capture fisheries production is over 600,000 MT and supports an estimated 3.2 million people including 300,000 women (Simmance et al., 2023) and to leaving no one behind in the fight against hunger and poverty. Gender equality is key in the context of Uganda, as over 300 000 women in the country are estimated to depend on small-scale fisheries for their livelihoods (FAO, Duke University and WorldFish, 2023 while aquaculture is estimated at 120, 000 MT (Fig. 1). Although there appears to be an increase in the capture fisheries production, tremendous shifts in species composition have been observed (LVFO, 2019). The small pelagic species are most dominant constituting about 60% of the catch. These changes have been attributed to excessive and increasing fishing effort (Kayanda et al., 2009) thereby prompting use of more efficient but destructive fishing gears and technologies. The greater reduction in catches of the highly commercial Nile perch has fueled resource conflicts between mukene and Nile perch fishers, who allege that illegal fishing by mukene fishers has resulted in increased by-catch and depleting stocks of Nile perch.

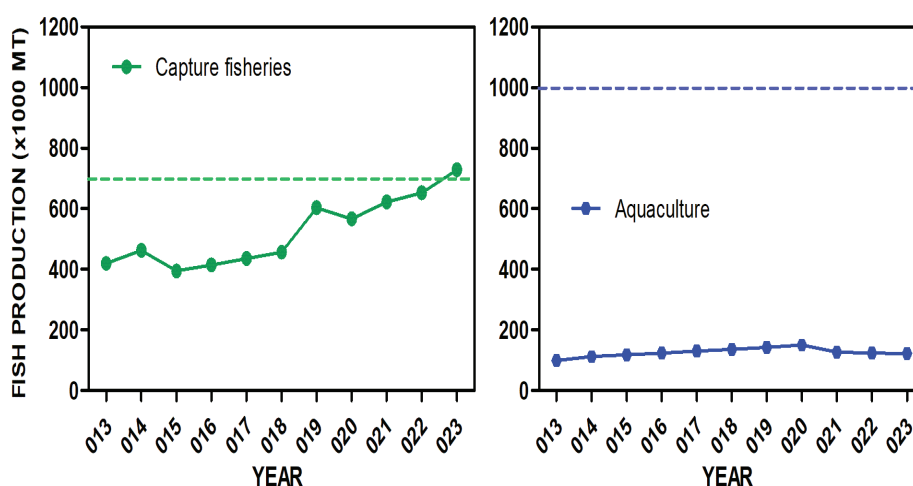


Figure 2: Fish production trends versus policy targets for capture fisheries and aquaculture (Source Directorate of Fisheries Resources, Entebbe)

As a result of anthropogenic factors, the fisheries of large commercial species have been on a declining trend (Nyamweya et al., 2020). Nile perch stocks on Lake Victoria decreased from an estimated 1.9 million tons in 1999 to 0.35 million tons in 2009. The annual catch of Nile perch per hook on Lake Victoria drastically dropped by 75% between 2000 and 2023 (LVFO, 2016) the United Republic of Tanzania and the Republic of Uganda sharing Lake Victoria have been managing the lake through agreed management plans to ensure sustainability of the fisheries resources. The first Fisheries Management Plan was developed in 2001 and implemented from 2005 to 2008. This was followed with the second Management Plan for the period 2009 to 2014. The lessons from the first two plans were used during the review process to come up with the Lake Victoria Fisheries Management Plan III (FMP III. Moreover, 99.9% of the Nile perch in Lake Victoria is currently below the legal harvestable size of 50 cm and only 7% of the total biomass of Nile perch is harvestable (LVFO Hydroacoustic survey report, 2022). Available information indicates that use of illegal fishing gears have increased over years (Kariuki, 2012) and together with pollution and climate

change (LVFO Hydroacoustic survey report, 2022) contributed to massive fish kills in 2021.

2.4 Water and Environment

The importance of water and environmental resources is generally accepted; however, the value of that importance in economic terms is not. Uganda's economy is largely dependent on its stock of environmental and natural resources. Most sectors of the economy rely on environmental and natural resource goods and services to enhance their productivity, provide the necessary raw materials, and reduce the cost of public expenditure for providing the services in those sectors. A rapidly growing population poses an increasing challenge to environmental and natural resources management, calling for greater efforts to ensure that these resources are sustainably managed for present and future generations.

2.5 Marine Transport

Inland Water Transport is vital in the provision of low-cost access to remote islands and shoreline locations on the lakes and connecting desired destinations along banks of navigable rivers. It further enhances agricultural production and the fast-growing fishing industry by facilitating movement of agricultural produce and fish to markets and processing facilities. Unfortunately, inland water transport in Uganda is mainly characterized by obsolete water vessels which are in a state of disrepair; poor landing infrastructure and facilities, disjointed laws and regulations; and inadequate planning and monitoring. In addition, private operators provide informal services on waterways, mainly using open canoes with onboard or outboard engines. The canoes carry passengers, goods and livestock. The vessels are often overloaded, with the attendant risk of capsizing. Because of the above situation, inland water transport continues to experience frequent accidents. The impacts of climate change are also significantly affecting maritime transport. The recent floods in 2020 left several of the landing shores submerged and inaccessible. Prolonged droughts associated with reduced water levels make navigation difficult.

2.6 Oil and Gas

Prospecting for oil in the Albertine Rift is a major threat to biodiversity. It is estimated that about 10000 barrels will be produced per day. The oil and gas exploration and prospect regions include the following regions: the Albertine graben that runs from Arua to Kisoro: L. Wamala basin; L. Victoria basin Lake and L. Kyoga basin. This could pose a serious threat to aquatic biodiversity if strict measures are not put in place. Moreover, exploration activities such as road construction, drilling and movement of heavy machinery are likely to interfere with the behavior of wildlife. It has been reported that to complement the discoveries, the Government plans to develop an inland refinery at Kabaale (Hoima district) in the Albertine Graben of which the feasibility study has already been done. Habitat loss due to construction of roads and other infrastructure, pollution, population increase and increased pressure of extraction of resources are likely to occur. Moreover, there are no proper guidelines to minimize the negative impacts on biodiversity (li & Order, 2006) as of now. The Albertine Graben, which is the main oil and gas exploration region, is an ecologically sensitive region, harbouring most of the nation's unique species of high conservation value, distinct ecosystems and several tourist destinations. Therefore, oil and gas exploration threaten biodiversity conservation. Major challenges to be addressed include; minimizing its various negative effects on surrounding ecosystems, including adjacent and downstream communities; coping with pollution problems such as soil contamination by drill wastes and oil spills which affect the nearby water and aquatic

life like fish around lake Albert and coping with air emissions due to combustion as the primary source of gaseous pollution (CO₂, CO, HCO₃, SO₂). Oil exploration requires vegetation clearance, causing loss of plant species and leaving the soil bare to erosion (NEMA, 2022)

2.7 Tourism

Tourism in Uganda is largely dependent on the country's biodiversity, which is increasingly being relegated to the protected area estate (Bwindi Impenetrable National Park, Murchison Falls National Park, Queen Elizabeth National Park, etc.). Unfortunately, protected areas in Uganda are experiencing increasing pressure from adjacent populations that experience limited benefits and increasing costs because of their proximity to wildlife, politically and economically- motivated gazettement, and limited government investment in their management and development of products and services. Despite various achievements, tourism planning and management at the local and regional level still faces challenges of limited coordination and mainstreaming of regional tourism strategies in national plans, limited range and uneven quality of tourism products across the member nations, inadequate and inefficient infrastructure, insecurity in some nations, negative publicity in key source markets, and stiff competition from cheaper destinations elsewhere in Africa and beyond.

2.8 Energy Generation and Utilization

According to Ministry of Energy and Mineral Development (MEMD), nearly 79% of Uganda's electrical energy is contributed by hydropower with the rest coming from fossil fuels, solar, geothermal and biomass power. Only 19% of Uganda's population has access to national power grid (UBOS, Household Survey 2019/2020), with per capita consumption of 215 kWh which is less than 50% of the Sub-Saharan country average of 552 kWh per annum. About, 92% of the population depends on traditional biomass for cooking, 7% depends on fossil fuels and only 1% depends on electricity. Most of the biomass energy is from wood, which is consumed in the form of charcoal and firewood. This exploitation pattern is not sustainable because it heavily relies on non-renewable biomass energy that is costly, untimely, limited and has serious environmental effects. The low level of access to electricity, high tariff and low generation capacity explains why the majority of Ugandans use woody biomass energy as a source of fuel and biomass will remain the main supply of energy for the Country in the near future. Uganda is undertaking of number of addition hydropower generation projects including Karuma hydropower dam that are expected to generate up to 2500 MW at completion. The limited access and use of energy significantly slows down economic and social transformation. The low energy consumption per capita in Uganda has largely contributed to the slow economic transformation by limiting industrialization as well as value addition. It is one major factor that has negatively impacted on the Country's competitiveness over the last decade. Other challenges related to blue energy development are;

- High depletion rate of biomass resources which is providing about 90% of the total energy consumed in the country with very low funding allocations to support replacement and management of the biomass resources.
- Climate change impacts on the energy sector are one of the constraints toward sustainable development. Indeed, Energy is at the core of this challenge, being both part of the problem through Greenhouse Gas (GHG) emissions as well as a range of local pollutions.

- Lack of appropriate legislation, regulation and standards on integration of small intermittent renewable energy technologies of solar rooftops on the national grid.

Because of the immense contribution of the BE to economic growth and transformation, employment opportunities and food security, BE resources are recognized and targeted for strategic development. However, sustainable utilization of these resources is crucial to avoid depletion and environmental degradation.

2.9 Climate change impacts

Climate change effects in Uganda are being felt through manifestation of extreme weather events including floods and drought. The temperature has kept on rising evidenced by the recent severe drought and change in glacial extent on the Rwenzori Mountains for the between 1906 to 2003 (Taylor et al., 2006). With the current trends in global warming, it can be expected that ice cover

remaining on three of the six main mountains of the Rwenzori will disappear (Taylor et al., 2006) resulting in reduced water flow in the streams supplying lake George and Edward, Semliki river and eventually lake Albert and the Albert Nile.

3.0 Key Policies and Regulations related to the Blue Economy

3.1 Global Policies

These Global Policies and environmental management Instruments provide a Framework for International cooperation and action to address biodiversity conservation, climate change, wetland conservation, and trade in endangered species, hazardous waste management, and the reduction of persistent organic pollutants. Some of the global instruments are as below;

3.1.1 *United Nations Convention on the Law of the Sea (UNCLOS).*

Is a comprehensive International Treaty that establishes the Legal Framework for the use and conservation of the World's Oceans and their resources. It defines the rights and responsibilities of Countries in relation to marine spaces, including the Exclusive Economic Zone (EEZ) and the Continental shelf, and addresses issues such as marine biodiversity, navigation, and marine scientific research. It was put in place following a decision taken by the United Nations General Assembly in its resolution 69/292 that established a Preparatory Committee to provide recommendations on the conservation and sustainable use of marine biological diversity in marine areas beyond National jurisdiction. This presented opportunity for transboundary cooperation on management of transboundary water and fisheries resources.

3.1.2 *The 2015 UN Agenda 2030 (Sustainable Development Goals, SDGs); SDG 14*

Sustainable Development Goal 14 (SDG 14) on Life below water is part of the United Nations' 2030 Agenda for Sustainable Development. It specifically focuses on the conservation and sustainable use of Oceans, Seas, and marine resources. It calls for actions to address marine pollution, sustainably manage fisheries, protect coastal ecosystems, and promote sustainable tourism in the marine sector. All African States are furthermore working towards the accomplishment of the SDG6 dedicated to clean water and

sanitation in direct linkage with the Continental dimension of the Blue Economy.

3.1.3 Convention on Biological Diversity (CBD) 1992:

The CBD is an International Treaty that sets out principles for the conservation and sustainable use of biodiversity. It includes provisions for the protection of ecosystems, species, and genetic resources, as well as the fair and equitable sharing of benefits derived from genetic resources. The specific objectives of The CBD Treaty are to guide the efforts of CBD Member Countries in addressing the Global challenges of biodiversity loss, habitat degradation, and unsustainable resource use. The CBD encourages International cooperation, the development of National Strategies and action plans, and the integration of biodiversity considerations into various sectors and decision-making processes to achieve these objectives

3.1.4 The Convention on International Trade in Endangered Species (CITES)

The CITES was entered into by states to regulate the International wildlife trade. In the past, unregulated trade had caused massive declines in the numbers of many species and ecological biodiversity. Member States act by banning commercial International trade in an agreed list of endangered species and by regulating and monitoring trade in others that might become endangered.

It thus aims to ensure that international trade does not threaten the survival of wild plants and animals. The main objectives of the Convention are: Regulation of International Trade; Protection of Endangered Species; Sustainable Use and Conservation; Collaboration and Cooperation; Combating Illegal Wildlife Trade and Public Awareness and Education. The CITES ensures promotion of conservation of endangered species by limiting their trade and fostering sustainable use practices that benefit both species and communities reliant on them.

3.1.5 The Ramsar Convention on Wetlands of international importance 1971:

The Ramsar Convention on wetlands 1971 provides the framework for the national action and international cooperation for the conservation and wise use of wetlands and their resources. It aims to halt the loss and degradation of wetlands and promote their sustainable use. Wetlands play a vital role in supporting biodiversity and providing important ecosystem services. Uganda is a signatory to the Convention and the conservation of wetlands with its habitats is important for the fisheries and other aquatic biodiversity.

The main objectives of the Convention are as follows:

1. Conservation of Wetlands: 2. Sustainable Use of Wetlands: 3. International Cooperation: 4. Wetland Inventory and Assessment: 5. Research and Capacity Building: 6. Public Awareness and Education:

By pursuing these objectives, the Ramsar Convention aims to protect and sustainably manage wetland ecosystems, recognizing their ecological significance, their importance for biodiversity, and their essential role in providing valuable ecosystem services

3.1.6 United Nations Framework Convention on Climate Change (UNFCCC): The UNFCCC

The Convention focuses on addressing climate change by aiming at stabilizing greenhouse gas (GHG) emissions and reduce their concentrations in the atmosphere. It includes; provisions for adaptation to

climate change impacts and the mitigation of greenhouse gas emissions. The UNFCCC has specifically defined five main objectives, for which an annual Conference for Parties is scheduled enabling all Countries to negotiate and implement measures to address climate change. The most notable outcome of the UNFCCC process is the Paris Agreement, which sets specific targets for greenhouse gas emissions reduction and provides a framework for international cooperation on climate actions.

3.1.7 Paris Agreement:

The Paris Agreement is an International Treaty under the UNFCCC, adopted in 2015. The agreement emphasizes the need to enhance adaptive capacity and promote sustainable development. Objectives of this Agreement collectively aim to address climate change comprehensively and foster Global cooperation to tackle the challenges posed by a changing climate. Its major goal is to limit Global warming to well below 2 degrees Celsius above pre-industrial levels and to pursue efforts to limit the temperature increase to 1.5 degrees Celsius. While the Paris Agreement primarily focuses on addressing climate change, it also recognizes the close relationship between climate change and biodiversity. The Agreement acknowledges that climate change exacerbates the loss of biodiversity and that the conservation and sustainable use of biodiversity can contribute to mitigating climate change and enhancing resilience to its impacts. The Paris Agreement contributes to biodiversity conservation in the following ways; examples are as follows: Ecosystem Resilience: Synergies with Biodiversity Goals: Ecosystem-Based Adaptation: Co-Benefits for biodiversity conservation and Financial Support. Overall, the Paris Agreement recognizes the important interlinkages between climate change and biodiversity and aims to promote the conservation and sustainable use of biodiversity as a means of enhancing resilience to the impacts of climate change and mitigating its causes. Although the Agreement does not have specific objectives related to biodiversity conservation, it indirectly supports biodiversity conservation through its overarching goals and provisions.

3.1.8 The FAO Code of Conduct for Responsible Fisheries:

The Code provides principles, practices and standards applicable to the utilization, conservation, management and development of all fisheries. It also covers the capture, processing and trade of fish and fishery products, fishing operations, aquaculture, fisheries research and the integration of fisheries research into coastal management. This code contributes to sustainable fishing to conserve fish species and their habitats.

3.1.9 International Maritime Organization (IMO) Regulations:

The IMO is the specialized agency of the United Nations responsible for the safety and security of international shipping and the prevention of marine pollution. The IMO develops and enforces regulations related to maritime safety, marine pollution prevention, and the reduction of greenhouse gas emissions from ships. These Regulations contribute to the sustainability of the shipping industry, which plays a significant role in the Blue Economy

3.1.10 International Maritime Spatial Planning (MSP) Initiatives:

Various International initiatives focus on promoting sustainable maritime spatial planning to balance competing uses and activities in marine areas. Examples include; the MSP Global Initiative led by UNESCO's Intergovernmental Oceanographic Commission and the Joint Roadmap to accelerate Maritime/Marine

Spatial Planning Processes Worldwide developed by various International organizations and Governments

3.1.11 Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal:

The Basel Convention is an International Treaty that aims to minimize the generation of hazardous wastes and control their transboundary movements. It promotes environmentally sound management of hazardous wastes and prohibits their disposal in a manner that may cause harm to human health or the environment. The main objectives of the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal - Basel Convention are as follows:

1. Minimize Transboundary Movements of Hazardous Wastes: 2. Environmentally Sound Management of Hazardous Wastes: 3. Prior Informed Consent: 4. Promote Waste Minimization and Resource Recovery: 5. Capacity Building and Technology Transfer: 6. International Cooperation and Information Exchange. By pursuing these objectives, the Basel Convention seeks to protect human health and the environment from the adverse effects of hazardous wastes, promote sustainable waste management practices, and foster international cooperation to address the challenges associated with transboundary movements of hazardous wastes

3.1.12 The Stockholm Convention on Persistent Organic Pollutants (POPs):

The Stockholm Convention addresses the production, use, and release of persistent organic pollutants. It aims to protect human health and the environment from the adverse effects of these chemicals. The Convention calls for the reduction and elimination of POPs, and it promotes alternatives and best practices for managing these substances.

The objectives of the Stockholm Convention on Persistent Organic Pollutants (POPs) relevant to biodiversity are as follows:

1. Protecting Human Health: 2. Protecting the Environment: 3. Minimizing or Eliminating Releases: 4. Promoting Sustainable Alternatives: 5. Enhancing Scientific Understanding and Cooperation:

By pursuing these objectives, the Stockholm Convention aims to reduce the impact of persistent organic pollutants on both human health and the environment, including biodiversity. It calls for International cooperation, the exchange of information and experiences, and the implementation of effective measures to address POPs throughout their life cycle. Ultimately, the Convention contributes to the conservation and sustainable use of biodiversity by minimizing the risks posed by POPs to ecosystems and the species they support.

3.1.13 Convention on Conservation of Migratory Species of Wild Animals (CMS), 1979

This Convention obligates Uganda to conserve migratory species of wildlife across their migratory range. It also requires Uganda to cooperate with other states that form part of the migratory range of wildlife resources found or migrating through Uganda. Other protocols have been formulated under this convention and they include African-Eurasian Waterbird Agreement (AEWA) which Uganda is a party to. Other applicable national and international laws that govern management and sustainable utilization of wildlife are listed in appendices to this policy.

3.2 Continental policies

Africa has been developing Policies and Regulations to support sustainable development of marine and coastal environments. Key Policies related to the Blue Economy in Africa include:

3.2.1 *The African Union's Agenda 2063*

The strategic framework for the socio-economic transformation of the Continent over the next 50 years and includes a strong focus on sustainable development and environmental conservation. It refers specifically to the Blue and Ocean Economy as the Goal 6 for accelerated economic growth especially for the priority areas of Marine Resources and Energy; and Ports Operations and Marine Transport. While it does not have specific objectives solely dedicated to biodiversity, Goal 7 also addresses BE by having priority areas such as Sustainable natural resource management and Biodiversity conservation; Sustainable consumption and production patterns; Water security; Climate resilience and natural disasters preparedness and prevention; Renewable energy that are integral to BE Development in Africa.

The following key areas of Agenda 2063 relate relate to biodiversity:

1. Sustainable Development: 2. Climate Change Adaptation and Mitigation: 3. Integrated Water Resource Management: 4. Sustainable Agriculture and Food Security: 5. Conservation of Protected Areas: 6. Research and Innovation:

By integrating biodiversity considerations into these broader objectives, Agenda 2063 seeks to ensure the conservation, sustainable use, and equitable sharing of Africa's rich biodiversity for the benefit of present and future generations

3.2.2 *The Policy Framework and Reform Strategy for Fisheries and Aquaculture in Africa 2014*

The provisions of the Policy Framework and Reform Strategy for Fisheries and Aquaculture in Africa (PFRS) incorporate best practices for sustainable fisheries management and responsible aquaculture development which have been identified as priorities by stakeholders. The rational implementation of the PFRS entails the identification of user-friendly appropriate strategies that would facilitate the alignment of National and Regional fisheries and aquaculture Policies to these provisions of the PFRS. This document has been developed as a complementary document to the parent PFRS to provide guidance for the implementation of the PFRS. It, therefore, describes the criteria/parameters for the alignment of National and Regional Policies and Strategies to the provisions of the PFRS, the indicators to monitor the progress of alignment of National and Regional Policies to the PFRS, implementation as well as the mechanism to support or facilitate its implementation of the PFRS. The Guide also includes indicators to measure the medium and long-term impact of the anticipated reforms in the sector that are gendered by this pan-African Policy and other Instruments.

3.2.3 *The African Blue Economy Strategy*

The Africa Blue Economy Strategy was developed following the Sustainable Blue Economy Conference that took place in Nairobi, Kenya in 2018. The African leaders at that Conference urged the African Union (AU) to work with relevant stakeholders to develop Africa Blue Economy Strategy. The strategy guides sustainable development and the utilization of aquatic resources in Africa. From the observation that most

conservation efforts are directed towards terrestrial biodiversity, efforts to conserve aquatic biodiversity by bringing together and coordinating the Blue economy activities were required.

3.2.4 The 2016 African Charter on Maritime Security and Safety and Development in Africa

- Lomé Charter - The Charter refers to the security and safety of the BE. It aims at preventing and curbing National and transnational crime, especially terrorism, piracy, and armed robbery against ships, as well as all forms of trafficking at sea. It also aims at protecting the environment in general and particularly the maritime environment in coastal and island States, as well as strengthening cooperation in the field. The Charter commits signatories to create National, Regional, and Continental institutions to promote maritime security and safety.

3.2.5 *The 2014 Africa's Integrated Maritime Strategy (2050 AIMS)*

The African Union has developed the AIM Strategy, which provides a framework for sustainable development of the maritime sector in Africa. It aims to promote integrated Governance, sustainable resource management, maritime security, and the development of maritime-related industries. The Strategy was designed as a tool to solve Africa's marine issues for competitiveness and sustainable development. By creating a robust marine economy and using the full potential of sea-based activities in an ecologically friendly way, it seeks to promote greater wealth generation from Africa's Oceans, Seas, and inland waterways. The strategy outlines several BE sectors and components (conservation, research, education, and governance), however, they are mostly restricted to maritime and marine regions, whereas the BE strategy will also effectively address inland water bodies. In the AIMS 2050, extractive minerals, oil and gas, novel finance methods, as well as the problem of ecosystem services like blue carbon and its uses for climate change, were not taken into consideration. Africa depends on environmentally friendly maritime domains and self-sustaining biological systems that include many kinds of organisms.

This requires the preservation of the variety of life, by:

1. Ensuring the sustainable use, conservation, and regeneration of the maritime resources;
2. Promoting the economic, social, and environmental importance of the Sea and inland waterways; and,
3. Establishing a set of indicators to evaluate the sustainable performance of the activities and their monitoring.

3.2.6 *The African Convention on the Conservation of Nature and Natural Resources (Algiers Convention):*

The Algiers Convention is a Regional Treaty that aims to promote the conservation and sustainable use of Africa's natural resources. It provides a framework for cooperation among African Countries to protect and manage their biodiversity and ecosystems.

3.2.7 *African Strategy on Sustainable Development and the Environment:*

This strategy, adopted by the African Union, provides a roadmap for African Countries to achieve sustainable development while addressing environmental challenges. It emphasizes the integration of environmental considerations into Policies, planning, and decision-making processes across various sectors. It outlines a comprehensive Framework for promoting sustainable development and addressing environmental challenges in Africa.

The Strategy has several key objectives, including:

1. Integrating Environment and Development: 2. Enhancing Natural Resource Management: 3. Addressing Climate Change: 4. Promoting Green Economy and Sustainable Consumption and Production: 5. Strengthening Environmental Governance: 6. Enhancing Knowledge, Research, and Education:

3.2.8 Fisheries Management and Conservation:

African Countries have implemented Policies and Regulations to manage fisheries sustainably and combat illegal fishing practices. This includes setting catch limits, establishing protected areas, promoting responsible fishing practices, and implementing monitoring and surveillance systems

3.3 Regional policies

3.3.1 The Treaty for the Establishment of the East African Community

The Community brings together the three partner states of Kenya, Uganda and Tanzania. The Treaty was signed on 30th November, 1999 by the Heads of State of the participating governments. Article 114 provides for the management of natural resources. The Partner States agreed to co-operate through the adoption of common policies and regulations for the conservation, management and development of natural resources including fisheries resources.

3.3.2 East African Community Protocol on Environment and Natural Resources.

This protocol obligates Uganda to sustainably conserve wildlife resources in partnership with the local communities. The Protocol requires Uganda to cooperate in management of transboundary wildlife resources, promoting of social and economic incentives for conservation and to conclude Agreements aimed at conserving transboundary wildlife resources.

3.3.3 Convention for the Establishment of the Lake Victoria Fisheries Organization (LVFO) 1994

The Partner States of Kenya, Uganda and Tanzania adopted the convention that established the LVFO in 1994. The objectives of the convention are to foster cooperation among the parties; harmonize National measures for the sustainable utilization of the living resources of Lake Victoria; and, develop and adopt conservation and management measures.

3.3.4 Protocol for the establishment of the Lake Victoria Basin Commission (LVBC)

The signing of the Protocol for sustainable development of the Lake Victoria basin on 29th November, 2003 by the three Partner States of Kenya, Uganda and Tanzania and its ratification in December, 2004 cleared the way for establishment of the LVBC. The objectives and broad functions of the Secretariat of the Commission are to promote, coordinate and facilitate development objectives with the Lake Victoria basin.

3.3.5 Regional and Bilateral Agreements:

Many Regions have developed their own Regional Agreements and initiatives to support sustainable development in the Blue Economy. Bilateral Agreements between Countries addressing specific aspects of the Blue Economy include; regional or Bilateral Fisheries Agreement between The Republic of Uganda and The Democratic Republic of Congo which established the Lake Edward Albert Fisheries and Aquaculture

Organization to coordinate transboundary management of fisheries resources between Uganda and Congo;

3.3.6 *The East African Community Climate Change Policy, 2011*

The overall objective of the EAC Climate Change Policy is to guide Partner States and other stakeholders on the preparation and implementation of collective measures to address Climate Change in the region while assuring sustainable social and economic development. It has strategies for addressing various climate change vulnerabilities like floods, droughts, landslides and others.

3.3.7 *The East African Tourism marketing strategy*

The EAC Tourism Marketing Strategy (2021-2025) is anchored on the vision of the EAC region becoming the leading sustainable regional tourism destination in Africa while its mission is to develop and promote inclusive and sustainable intra-regional and international tourism across the EAC region. It encompasses interventions for promoting sustainable blue tourism in the region.

The AU-IBAR therefore commissioned a consultancy to support the Republic of Uganda to review and align national policies and regulatory frameworks to relevant global and continental instruments related to aquatic biodiversity conservation, climate change adaptation and mitigation and environmental management.

4.0 Terms of Reference

4.1 Key Terms of Reference

- a) Identify, source and review relevant National Regulatory, Policy related documents in National MDAs responsible for environmental management and aquatic biodiversity conservation;
- b) Identify gaps in the National Instruments based on the provisions of the prioritized Global Instruments on conservation of aquatic biodiversity and environment management;
- c) Develop guidelines or mechanisms for filling the identified gaps for domestication of prioritized Global Instruments on conservation of aquatic biodiversity and environmental management into identified National Instruments relating to aquatic biodiversity conservation and environment management;
- d) Facilitate National level workshop to validate the reviewed relevant National Instruments and the guidelines to facilitate domestication of relevant Global Instruments; and,
- e) Develop a comprehensive report on the consultancy and the workshop report.

4.2 Expected outputs

- a) Relevant MDAs with mandate in aquatic biodiversity conservation and environmental management identified and consulted;
- b) Relevant National Instruments relating to aquatic biodiversity conservation and environmental management identified;
- c) Relevant National Instruments reviewed and gaps identified in line with the provisions of identified prioritized Global Instruments identified in the consultancy report;
- d) Based on identified gaps, priority actions and guidelines developed for filling the gaps for domestication of Global Instruments on conservation of aquatic biodiversity and environment management into National Instruments with identified priority;

- e) National workshop conducted and supported; and,
- f) A Comprehensive technical report on the consultancy and the workshop report.

5.0 Methodology

The review and alignment of National Instruments for Uganda was undertaken through literature search, document reviews and stakeholder engagement for validation. An extensive literature search was conducted for Global, continental and regional instruments related to aquatic biodiversity, climate change and environmental management. This was followed by a desk review of National Instruments for Uganda for alignment with the Global Instruments. The preliminary findings were developed into a draft report, which was presented to the participants. Following the presentations, participants were divided to five groups based on the MDAs. The groups reviewed the MDA-specific policies for alignment with Global Instruments, gaps, challenges and recommendations. The stakeholders were experts from MDAs: Ministry of Agriculture, Animal Industry and Fisheries (MAAIF); Ministry of Water and Environment (MWE); National Environment Management Authority (NEMA); Ministry of Works and Transport (MoWT); Ministry of Gender, Labour and Social Development (MGLSD); Ministry of Tourism, Wildlife and Antiquities (MTWA); Ministry of Energy and Mineral Development (MEMD); Makerere University Kampala (Mak); National Fisheries Resources Research Institute (NaFIRRI); Civil Society; East African Community (EAC) and AU-IBAR.

6.0 The National Regulatory and Policy Instruments on Blue Economy

6.1 National Policy Instruments

Uganda has developed Policies related to the Blue Economy. These focus on sustainable economic activities in the BE sectors and biodiversity conservation. The relevancy of these policies is given below.

6.1.1 *National Environment Policy, 1994.*

This is the key National Policy framework for management of biodiversity in Uganda. The Policy provides for the institutional structure as well as policy measures for biodiversity management. Specifically, the objectives of the policy are to:

- a) Conserve, preserve and restore ecosystems and maintain ecological processes and life support systems, including conservation of national biodiversity;
- b) Optimize resource use and achieve sustainable level of resource consumption;
- c) Integrate environmental concerns in all development-oriented policies, planning and activities at national, district and local levels, with participation of the people;
- d) 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;
- e) Raise public awareness to understand and appreciate linkages between environment and development, and;
- f) Ensure individual and community participation in environmental improvement activities.

6.1.2 National Oil and Gas Policy, 2008

The discovery of oil in Uganda could pose a serious threat to aquatic biodiversity if adequate measures are not undertaken. The national oil and gas policy highlights aspects of environment management of oil and gas activities. Among the key principles of the policy is the “Protection of the Environment and Biodiversity”. The corresponding objective is “To ensure that oil and gas activities are undertaken in a manner that conserves the environment and biodiversity”. It is however worth noting that most of the existing laws and regulations on environmental protection, such as the National Environment Act, 1995, the Uganda Wild Life Act, 2000, the National Forest and Tree Planting Act, 2003, the Water Act, 1997, were developed without oil and gas discoveries in consideration as they were formulated earlier. Yet, the discoveries have been made in an area that is rich in biodiversity and ecologically sensitive. Although the inadequacies in the aforesaid legislation have been acknowledged, there is need for review and harmonization of these legal frameworks to accommodate oil and gas issues.

6.1.3 National Blue Economy Strategy (2023-2027)

The Uganda National BE strategy was endorsed under coordination of the MWE and in close collaboration with the Intergovernmental Authority on Development, MAAIF, MEMD, MTWA and MoWT. The BE is of importance to the country especially that it provides opportunities for fisheries, aquaculture, oil and gas, energy and minerals, water transport and environmental sustainability. The BES proposes interventions for conservation and sustainability of fisheries, aquaculture and aquatic ecosystems. It combines a thorough analysis of challenges and proposes strategic intervention areas for sustainably increasing fish production and productivity from fisheries and aquaculture.

6.1.4 National Biodiversity Strategy Action Plan (2015-2025)

The government developed the National Biodiversity Strategy and Action Plan II (NBSAP II) whose goal is to enhance biodiversity conservation, management and sustainable utilisation and fair sharing of its benefits by 2025 and its vision is to maintain a rich biodiversity benefiting the present and future generations for socio-economic development. The NBSAP II is the main Instrument to aid implementation of the CBD at Country level. It is a framework for implementing its obligations under the CBD as well as the setting of conservation priorities, directing of investments and building the required capacity for the conservation and sustainable use of biodiversity in the Country.

The seven objectives of the NBSAP II are to:

- a) strengthen stakeholder co-ordination and frameworks for biodiversity management;
- b) facilitate and enhance capacity for research, monitoring, information management and exchange on biodiversity;
- c) put in place measures to reduce and manage negative impacts on biodiversity;
- d) promote the sustainable use and equitable sharing of costs and benefits of biodiversity;
- e) enhance awareness and education on biodiversity issues among the various stakeholder;
- f) harness modern biotechnology for socio-economic development with adequate safety measures for human health and the environment; and,
- g) promote innovative sustainable funding mechanisms for implementation of NBSAPII.

6.1.5 The National Plan of Action for Securing Sustainable Small-Scale Fisheries

This National Plan of Action for Securing Sustainable Small-scale Fisheries (NPOA-SSF) applies the Voluntary Guidelines for Securing Sustainable Small-Scale Fisheries in the Context of Food Security and Poverty Eradication (SSF-Guidelines) that the FAO developed to increase Visibility and participation of small-scale fishers and fish workers (SSFFW) in conservation, sustainable development and management of fisheries resources. In relation to aquatic biodiversity conservation, the pillars of the NPOA include: recognizing human rights and responsibilities of SSFFW, organizing governance systems, managing the fish habitat health, applying lake productivity processes, sustaining and increasing fish production and utilization, providing enabling support services, and supporting implementation, monitoring, evaluation, and sustainability.

6.1.6 The National Energy Policy, (2002)

The policy emphasizes that government improves the level of energy supplies at the least cost to the National economy, by promoting efficient use and conservation of energy resources. However, several problems have persisted and continue to threaten woodland and forest resources. Demand for biomass is very high and growing, with wood representing 98% of the fuel used for cooking and this has promoted deforestation. The effect of this has been increased erosion and deposition resulting in siltation of water bodies and threatening aquatic biodiversity and ecosystems. Of late, there are policy shifts against use of charcoal as an energy source. Government is promoting use of gas for cooking although costs remain unaffordable to the population.

6.1.7 The National Water Policy, (1997)

The objective of the National Water Policy is to manage and develop water resources in an integrated and sustainable manner to secure and provide water of adequate quantity and quality for all social and economic needs of the present and future generations with the full participation of stakeholders. This goal is set to be achieved under two broad components of water resources management.

- Water resources management; that encompasses monitoring, assessments, allocation and protection of water resources.
- Water development and use: that encompasses allocating and regulating water use for recreation and ecosystem needs as well as measures for controlling water pollution. Under water allocation principles, the policy provides for ensuring that sufficient water is reserved for meeting environmental requirements and services, i.e., maintain minimum flow to maintain water quality and aquatic ecosystems.

6.1.8 The National Policy for Conservation and Management of Wetland Resources (2005)

The objective of the policy is to promote the conservation of Uganda's wetlands in order to sustain their ecological and socio-economic functions for the present and future well being of the people.

The following provisions apply to the oil and gas exploration and production activities.

- Establish the principles by which wetland resources can be optimally used, and their productivity can be maintained into the future.
- Maintain a biological diversity in wetlands either in the natural community of plants and animals or in the multiplicity of agricultural activity.

- Promote the recognition and integration of wetland functions in resource management and economic development decisions making about sector policies and programs such as forestry, agriculture, fisheries, and wildlife and sound environmental management. These wetlands and water bodies with their diverse array of macrophytes and phytoplankton, support the blue carbon sequestration by acting as “blue carbon” sinks, absorbing and storing significant amounts of carbon dioxide, thereby mitigating climate change impacts.

6.1.9 *Climate change policy, 2015*

The Global nature of climate change necessitates widespread coordination, cooperation and participation. By signing and ratifying both the United Nations Framework Convention on Climate Change (UNFCCC) and the Kyoto Protocol, Uganda has committed to the adoption and implementation of policies and measures designed to mitigate climate change and adapt to its impacts. At the regional level, the climate change policy for the East African Community urges Partner States to develop consistent national policies to ensure harmonised action. In Uganda, the development of a National Climate Change Policy and its implementation Strategy enables the country to fulfil its obligations under the convention, and therefore to contribute to addressing the global problem. Uganda’s five-year National Development Plan (2015/16-2019/20) already recognises that addressing the challenges of climate change is crucial to enhancing sustainable economic and social development. The goal of the National Climate Change Policy is to ensure a harmonised and coordinated approach towards a climate- resilient and low-carbon development path for sustainable development in Uganda. The overall objective of the policy is to ensure that all stakeholders address climate change impacts and their causes through appropriate measures while promoting sustainable development and a green economy. To achieve this objective, the specific policy objectives are to:

1. identify and promote common policy priorities to address climate change in Uganda.
2. identify and promote adaptation policy responses for Uganda.
3. identify and promote mitigation policy responses for Uganda.
4. identify and promote monitoring, detection, attribution and prediction policy responses for Uganda.
5. support the integration of climate change issues into planning, decision making and investments in all sectors and trans-sectoral themes through appropriate institutional arrangements and legal framework.
6. facilitate the mobilisation of financial resources to address climate change in Uganda.

6.2 National Regulatory Instruments

6.2.1 *The Constitution the Republic of Uganda, 1995:*

The legal regimes for the management of biodiversity and environment in Uganda are grounded in the Constitution of the Republic of Uganda, 1995. It has provisions for enhancing conservation and management of the environment and natural resources. Objective XIII and article 237(2)(b) of the Constitution address the public trust doctrine requiring the State to protect important natural resources, including land, water, wetlands, minerals, oils, fauna, and flora on behalf of the people of Uganda. A right to a clean and healthy environment is enshrined under article 39 and it has sometimes, been enforced by Civil Society using article 50 to enforce this right through public interest litigation. 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 and biodiversity, some of which are discussed below.

6.2.2 The Fisheries and Aquaculture Act, 2023:

The act provides for the conservation, sustainable management, utilisation and development of the fisheries. In addition, the act provides for establishment of fish breeding and nursery areas as aquatic reserves which are vital for conservation of aquatic biodiversity. To enable sustainable exploitation of fisheries resources, government through the Minister can make regulations to limit the number of boats per lake, nets per boat and set the catch limits for fish species. The regulations provide for allowable fishing gears in terms of mesh sizes and sizes of hooks which reduce efficiency of catching fish and thus prevent over-exploitation. Ultimately, the act and its subsidiary legislation promote responsible fishing practices, and combating Illegal, Unreported, and Unregulated (IUU) fishing activities to ensure sustainable fishing and biodiversity conservation. To ensure compliance, the act provides for establishment of a Monitoring, Control and Surveillance (MCS) Unit under the Directorate of Fisheries Resources. The MCS unit once established will ensure compliance with fisheries and aquaculture Regulations. These include: The Fish (Fishing) Rules, 2010, Fish (Quality Assurance) Rules, 2017; This includes; monitoring fishing activities, enforcing gear restrictions and closed seasons, and conducting inspections to verify compliance with aquaculture Standards and Regulations. The act further provides for protection of critical fish habitats like Fish breeding and nursery areas (FBAs). The FBAs have been identified and validated awaiting gazettment and protection as aquatic reserves. These FBAs will serve as critical habitats for biodiversity and support the resilience of aquatic species and ecosystems in the face of overexploitation, habitat degradation and climate change.

6.2.3 The National Environment Act, Cap 153, 2000

The National Environment Act is the principal law on environmental management in Uganda. It establishes the National Environment Management Authority (NEMA), a body charged with the overall management of environmental issues and provides for sustainable management of the environment. The Authority, in consultation with the lead agencies, is empowered to issue guidelines and prescribe measures and standards for the management and conservation of natural resources and the environment. The Act provides for environmental monitoring and impact assessment; environmental audit; environmental restoration orders and improvement notices; environmental easements; environmental performance bonds; licensing and standard setting; use of economic and social incentives; civil and penal sanctions, including community service, among others. It establishes the Policy Committee on Environment; the National Environment Fund and a collaborative framework with lead agencies and other stakeholders in environmental management.

The following principles of the Act directly apply to environmental management and biodiversity conservation:

- I. Reclaim lost ecosystems where possible and reverse the degradation of natural resources (Restoration).
- II. Establish adequate environmental protection standards and monitor changes in environmental quality.
- III. Publish relevant data on environment quality and resource use.
- IV. Require prior environmental assessments of proposed projects that may significantly affect the environment or use of the natural resources.

- V. Ensure that the true and total costs of environmental pollution are borne by the polluter.
- VI. Promote international cooperation between Uganda and other states in the field of environment.

In undertaking the environmental management responsibilities, NEMA has put in place a number of regulations: National Environment Act, (2000); National Environment (Management of Ozone Depleting Substances and products) Regulation No.48 (2020); National Environment (Waste Management) Regulation No.49 (2020); National Environment (Mt & Hilly areas Management) Regulation 152-6 (2000); National Environment (Wetlands, Riverbanks and Lake Shore management) 153-5 (2000); National Environment (Standards for discharge of Effluent into water or land) Reg. (2020); National Environment (Oil Spill Prevention, Preparedness and Response (2020); National Environment (Environmental and Socio-economic Assessment) SI No 143 (2020); and Guideline for Management of Landfills in Uganda and Strategic Environment Assessment (2020).

The main gap regarding enforcement and compliance to environmental standards especially under the Oil and Gas sector is inadequate support by the current licenses and Permits to the application of “Polluter Pays Principle”. Although this Act provides for environmental protection, it does not specifically address the issues related to oil and gas exploration, production and transportation. NEMA does not also have adequate capacity to deal with the peculiar environmental challenges posed by the discovery of oil and petroleum. The National Environment Act, Cap. 153 is, therefore, one of the legislations that are undergoing review to ensure that oil and gas activities are provided for.

6.2.4 The National Environment (Wetlands, Riversbanks and Lake shores Management) Regulations (2000):

These Regulations provide for the protection of wetlands; their conservation and wise use; inventorying of wetlands; and wetland use permits for regulated activities. The Regulations also provide for protection zones for riverbanks and lakeshores. In particular, the rivers and lakes outlined in the sixth and seventh schedules to the Regulations have a protection zone of two hundred meters from the low water mark for lakes and one hundred meters from the highest water mark for rivers. Other lakes and rivers have a protection zone of one hundred meters from the low water mark for lakes and thirty meters from the highest water mark for rivers. No activity is permitted in the protection zone without the written authority of the executive director of the National Environment Management Authority. The regulations provide for minimizing and controlling pollution of wetlands but also wetlands management. However, Schedule 3 of the Regulations lists only Lake George and surrounding wetlands as wetlands of international importance. There is need to review and specify all Ramsar Sites. For Riverbanks and lakeshores, prevention of siltation and controlling pollution-degrading activities are provided for together with special measures for the protection of riverbanks and lakeshores as preventing soil erosion, siltation and water pollution. Section 23 entails permits to use riverbank and lakeshore on activities of drilling, excavating and disturbance of lake shores while Section 29 on Protection zones for riverbanks in reference to the Nile and Lake Albert and, Section 35 on Environmental Restoration Orders. Under the sixth schedule, River Nile is considered as being from Lake Victoria to Lake Albert and therefore, the Albert Nile north of Lake Albert is left out. Consequently, environmental management and aquatic biodiversity in the Albert Nile may be at risk especially that Oil and gas activities are ongoing on Lake Albert

6.2.5 The Water Act -CAP 152 (2003):

The Water Act is one piece of Uganda's sectoral legislation with key provisions to enhance sustainable development. It provides for the use, protection and management of water use and supply. Important aspects in the Act include water rights; planning for water use; control on the use of water resources; water easements; and control over water works and water use. The following provisions apply to oil and gas sector activities: Part II provides for regulating motorized water pumps through permits. Section 3 provides for application of permit, Section 7 provide conditions attached to and transfer of water permits, Section 15 provides for water drilling permits, Sections 21 and 22 provide conditions attached to drilling and construction permits respectively, Section 23 provides for access to water use records, Section 25 establish water permit fees and section 27 specifies the offenses under these Regulations. The current water abstraction by oil and gas activities are regulated by water permits and general permits conditions. However, there is a challenge of determining the special conditions associated with the oil and gas activities due to logistical constraints on the part of the Regulator (DWRM). Secondly, there is an issue of capacity to analyze samples or to afford costs for analyzing these samples in privately operated laboratories. Thirdly, there is need for "gazetting" laboratories whose results would be accepted by both parties, i.e., the Regulator and Operator.

6.2.6 The Water Resources Regulations (1998):

Water quality and quantity are taken into account when considering applications for water permits to ensure drainage regimes and the environment, among other things are not compromised. The regulations also address issues of safety regarding works on waterways and protection and enhancement of in-stream uses of water; government policy on conservation; and plans and information to be provided to the Director as a condition for registration of the permits. However, the regulations are not explicit on EIA requirements as a tool that elaborates potential impacts and mitigation.

6.2.7 The Mining and Minerals Act, 2023

This Act vests the ownership and control of all minerals in Uganda in the Government and provides for the acquisition of mineral rights and other related rights. The Act requires every holder of an exploration license or a mining lease to carry out an EIA of their proposed operations in accordance with the provisions of the Environment Act. A holder of such permit is also required to carry out an annual environmental audit and to keep records describing how far the operations conform to the approved environmental impact assessment. The Act also provides for environmental protection standards, environmental restoration plans and environmental performance bonds in accordance with the Environment Act. The Act generally provides for the protection of the environment but this is not explicit regarding particular ecosystems such as rights in waters and wetlands.

6.2.8 The Mining Regulations, 2004

The regulations apply to section 121 of the Mining Act, 2003, Act No. 9 of 2003. They address prospecting licenses, priority for applicants, retention licenses, location licenses, mining leases, representatives, records and returns, beacons, boundaries and surveys, registration, protection of the environment and financial provisions.

6.2.9 *The Climate change Act, 2021*

An Act gives the force of law in Uganda to the United Nations Framework Convention on Climate Change, the Kyoto Protocol and the Paris Agreement.

The other objectives of the Act are;

to provide for climate change response measures; to provide for participation in climate change mechanisms; to provide for measuring of emissions reporting and verification of information; to provide for institutional arrangements for coordinating and implementing climate change response measures; to provide for financing for climate change; and for related matters.

6.2.10 *The Wildlife Act, 2019*

An object of the Act include: to provide for the conservation and sustainable management of wildlife; to strengthen wildlife conservation and management; to streamline the roles and responsibilities of institutions involved in wildlife conservation and management; to continue the existence of the Wildlife Fund. The act provides for protection of biodiversity hotspots although on water bodies, these are not yet gazetted.

6.2.11 *The Inland Water Transport Act, 2021*

It developed the maritime policies including the Inland water transport Act, 2021. This act provides for registration of vessels, prevention of pollution and protection of marine environment; regulation of ports; and regulation of inland water transport. The act, under section 143-148 spells out measures for prevention and management of oil spills, oily waste, sewage and garbage disposal, pollution contingency plans, pollution emergency plan, oil records book and marine pollution incidents. The provisions on ports govern their operations covering aspects of vessel traffic management, cargo handling, customs procedures, port security, and environmental protection. They ensure efficient port operations, facilitate trade, and promote safety and security in ports. To ensure compliance to existing laws and regulations under this act, inspections of vessels, ports, and maritime facilities to verify compliance with safety, security, and environmental regulations are provided for with subsequent penalties and fines in case of non-compliance.

7.0 Institutions for policies and laws on aquatic biodiversity, climate change and environmental management

7.1 The Ministry of Water and Environment

The MWE was established in 2007, from the then Ministry of Water, Lands and Environment, following the cabinet decision taken on 15th April, 2007. Its overall responsibility is the development, managing, and regulating water and Environment resources in Uganda. Some of the functions of MWE include:

Provision of water for production and use in agriculture, rural industries, tourism and other uses; Coordinating the national development for Water for Production (agriculture, industry, aquaculture, tourism, trade) and promotion of effective management of forests and trees to yield increases in economic, social and environment benefits for the current and future generations. By so doing, MWE meets key

strategic objectives related to climate change, aquatic biodiversity conservation and environmental management including: to improve water resources management to ensure adequate quantity and quality for the various uses focusing on compliance to existing laws and regulations; to increase the sustainable use of the environment and natural resources through restoration and to maintain the hitherto degraded ecosystems and undertake massive nationwide tree planting and, to promote the wise use of wetlands through implementation of approved management plans developed in a participatory manner.

7.2 Ministry of Tourism, Wildlife and Antiquities

The ministry is mandated to formulate and implement policies, strategies, plans and programs that promotes tourism, wildlife and cultural heritage conservation for socio-economic development and transformation of the country. It envisions sustainable tourism, wildlife and cultural heritage contributing to the transformation of the Ugandan society from a peasant to a modern and prosperous one. Among the key result areas is Sustainable management of wildlife and cultural heritage conservation areas. This is achieved through a commitment to:

- a. Maintain ecological integrity of wildlife protected areas
- b. Maintain integrity of gazetted sites and monuments
- c. Enforce wildlife and cultural heritage conservation laws and regulations
- d. Enforce tourism laws and regulation
- e. Maintain safety and security in wildlife protected areas
- f. Reduce incidences of human wildlife conflicts by 50 percent
- g. Monitor impacts of oil and gas, tourism, mining and hydropower development in wildlife and culturally protected areas
- h. Respond to all incidences of wildlife disease outbreaks

7.3 Ministry of agriculture, Animal Industry and Fisheries

The ministry through its Directorate of Fisheries Resources is mandated to “Support, Promote, Guide and Regulate the fisheries sub-sector, so as to improve quality and increase the quantity of fish and fishery products produced for domestic consumption, food security and export”.

The functions of the Directorate are:

- Provide technical guidance for formulation and implementation of policies, plans and strategies in fish production, marketing, inspection and certification.
- Supporting, supervising and monitoring of fisheries and fishery products;
- Sustain market-oriented fish production from capture fisheries and aquaculture.
- Fish quality assurance and inspection for quality and safety
- Fisheries Control and regulation
- Support and promote aquaculture production and management

7.4 National Fisheries Resources Research Institute (NaFIRRI)

Fisheries research (both capture fisheries and aquaculture) in Uganda now falls under the mandate of the National Fisheries Resources Research Institute (NaFIRRI), which is one of the six semi autonomous Public Agricultural Research Institutes of Uganda under the policy guidance of the National Agricultural

Research Organization (NARO) to provide agricultural research services. The mission of NaFIRRI is to generate the knowledge base, develop and disseminate fisheries technologies for increased but sustainable fish production, conservation of the fisheries genetic resources, water quality and fish habitat, and to develop and manage the fisheries and required linkages with stakeholders. Among other, NaFIRRI addresses research programmes on:

Capture fisheries and Biodiversity Management: Seed production, breeding and nursery areas for tilapia, Nile perch, Mukene, Semutundu and Kisinja; fish stock dynamics and harvest technologies for recovery of Nile perch.

Fish Habitat Management: Environmental (water quality) and socio-economic factors that facilitate fish production and Water weeds (water hyacinth, salvinia) management.

7.5 Lake Victoria Fisheries Organisation (LVFO)

The Lake Victoria Fisheries Organisation (LVFO) is established by a treaty under the East African Community. It is purposed to promote better management of fisheries on Lake Victoria, to co-ordinate fisheries management with conservation and use of the lake resources, to collaborate with agencies and programs on the lake, to coordinate fisheries extension and to advise on introduction of non-indigenous organisms. Similar organizations have been set up on other major water bodies:

- a. Lake Kyoga Integrated Management Organization (LAKIMO) established under a cooperation agreement of riparian district Councils around Lake Kyoga
- b. Lake George Basin Integrated management organization (LAGBIMO) established under a cooperation agreement of riparian district Councils around Lake George.
- c. Lake Edward and Albert Fisheries and Aquaculture Organization (LEAFAO) established through a bilateral agreement between Uganda and the Democratic Republic of Congo

The key challenge with these organizations, except LVFO, is lack of sustainable financing arrangements. It was envisaged that districts and governments would contribute funds for running these organizations. However, the perennial budgetary constraints limit execution of activities, partly affecting efforts to conserve aquatic biodiversity on these water bodies.

7.6 The Ministry of Works and Transport

Uganda is a signatory to the International Maritime Organization (IMO) Conventions and protocols covering maritime safety, security, and environmental protection. Examples include the International Convention for the Safety of Life at Sea (SOLAS), the International Ship and Port Facility Security (ISPS) Code, and the International Convention for the Prevention of Pollution from Ships (MARPOL). To comply with the conventions and protocols, the Ministry of Works and Transport formulates policies, plans, sets standards, builds capacity, carries out advocacy, regulates, monitors and evaluates the Works and Transport sector.

7.7 Ministry of Energy and Mineral Development

The ministry has the function of developing and implementing policies related to electricity, minerals, petroleum and petroleum products. The ministry is responsible for energy policy, investments in mining,

and the establishment of new power generating infrastructure using hydro power, thermal power, solar power, wind power and nuclear power. Apart from the power generation plant at Owen falls in Jinja, the two largest power development projects in the country are the 183-megawatt Isimba Hydroelectric Power Station and the 600-megawatt Karuma Hydroelectric Power Station under development.

8.0 General gaps in the National Policies and Regulations

- a. **Lack of coordination:** Ineffective and disjointed institutions develop policies and enforce laws, lack of commitment and occasionally corruption among law enforcers. Additionally, lack of participation and commitment from beneficiary communities to sustainable resource management are some of the obstacles to the conservation and sustainable use of aquatic biodiversity. Adequate mechanisms for Institutional Coordination and Collaboration are needed. Even with promotion of the programme-based approach and development of the BE strategy meant to bring together several MDAs, coordination between MDAs remains to be seen in practice.
- b. **Lack of reliable data:** The effective implementation of conservation measures relies on reliable data and information on the status of biodiversity. Generally, conservation of freshwater biodiversity in Uganda is limited by data mainly because few freshwater ecosystems are considered for regular monitoring. Existing data is scattered and in non-user-friendly formats, limiting accessibility and use. There is need to digitalize and centralise freshwater biodiversity data and information for easy accessibility and retrieval so as to guide aquatic biodiversity conservation. Enhancing data collection, monitoring, and knowledge-sharing mechanisms can help bridge this gap. For effective aquatic biodiversity management, data and information should be converted into recommendations for enabling policies, laws and regulations. NaFIRRI has made great strides towards this attempt but possibilities for routine update are minimal and based on availability of funding.
- c. **Obsolete policy and legal frameworks:** Uganda discovered oil and will very soon commence commercial oil and gas production on Lake Albert. Prospects for oil and gas on Lake Kyoga are also high and promising quantities of commercial value are anticipated. However, the key challenge is inadequate policies, laws and regulations to address aquatic biodiversity concerns from oil and gas. The existing policies, Laws and Regulations were developed before discovery of commercial oil and gas quantities. Therefore, alignment will be necessary for effective aquatic biodiversity conservation efforts.
- d. **Weak enforcement mechanisms:** These are limited by capacity, resources, and joint mechanisms needed to ensure enforcement and compliance to existing laws and regulations. Strengthening enforcement mechanisms through training, retooling, recruitment and sustainable funding will improve compliance for effective management of biodiversity and environmental issues.
- e. **Integration and implementation of Biodiversity interventions into Sectoral Policies:** Mainstreaming biodiversity considerations into various sectoral Policies, such as agriculture, infrastructure, and energy, is vital for holistic environmental management. Identifying and addressing gaps in integrating biodiversity objectives across different sectors can help ensure sustainable development practices and minimize

negative impacts on ecosystems

- f. ***Gazette and demarcate and protect aquatic biodiversity hotspots:*** There are currently no aquatic reserves under protection which puts aquatic biodiversity at a high risk. Gazetting and protecting critical aquatic habitats as aquatic reserves is desirable. Develop regulations and protect critical aquatic habitats as sources of refugia and breeding habitats.
- g. ***Even when massive extinctions of aquatic species have been documented in aquatic habitats in Uganda, there are glaring gaps in efforts towards Species-specific conservation:*** Some African Countries have specific Policies and Regulations focused on the protection of endangered or endemic species. This is an area worth considering in Uganda.
- h. ***Biodiversity Monitoring and Research:*** The availability and quality of biodiversity data, monitoring programs, and research initiatives is highly limited and thus hinders evidence-based decision making.
- i. ***Financial Resources and Investment:*** Adequate financial resources and investment are essential for effective biodiversity conservation and environmental management. The availability of funding for environmental projects, research, monitoring, and conservation efforts can be a significant gap. Strengthening financial mechanisms and exploring innovative funding sources can help bridge this gap.

9.0 Sector- specific climate change challenges and strategies

Table 1: Challenges, Adaptation and Mitigation strategies against climate change impacts

Sector	Challenges	Policy response	Adaptation Strategies	Mitigation Strategies
Biodiversity and ecosystem services	Rapid degradation of biodiversity and ecosystems due to climate change and increasing human pressure.	To effectively address the challenges posed by climate change impacts on biodiversity and ecosystems, so as to ensure ecosystem health and provision of ecosystem services that are crucial to sustainable and resilient development.	<ul style="list-style-type: none"> -Identify biodiversity hotspots where only restricted development should be allowed. -Build on efforts underway to strengthen sustainable land management in fragile ecosystems, especially rangeland ecosystems and hilly and mountainous ecosystems. -Encourage collaborative management and sustainable use of biodiversity and ecosystems. -Promote valuation and payment for ecosystem services, and streamline other ecosystem benefit-sharing schemes. -Ensure that any human activity within the vicinity of protected areas does not compromise the integrity of the ecosystem. -Strengthen the capacity for monitoring the impacts of climate change on biodiversity, ecosystems and ecosystem services. 	
Wetlands	<ul style="list-style-type: none"> -wetland degradation through drainage for agriculture, urban and industrial expansion, over-harvesting of wetland resources, over-fishing and poor use of wetland catchments leading to siltation of wetlands and rivers. -Climate change and intensified land use will exacerbate wetland degradation, as wetlands will be encroached upon further for farming, and the incidence of wetland fires is likely to rise. 	-To promote long-term wetland conservation and restoration of degraded wetlands so that they can continue to provide global services, including mitigating climate change, while Supporting the sustainable development needs of communities and the country.	<ul style="list-style-type: none"> -Strengthen the existing national wetland policy to prevent wetland degradation and encroachment. -Promote and intensify wetland protection and restoration of degraded wetlands. -Strengthen collaborative and participatory management of wetland resources. -Strengthen existing wetland research and encourage conservation and restoration of ecosystems critically threatened by climate change. 	<ul style="list-style-type: none"> -Promote and intensify wetland protection and restoration in order to enhance sinks of greenhouse gases. -Promote sustainable use of wetlands.
Fisheries	<p>Aquatic ecosystems are threatened by resource overexploitation, conversion and degradation of habitat, pollution, and climate change.</p> <ul style="list-style-type: none"> -Fish catches and fish stocks are declining, mainly due to over-fishing. -With climate change, reduction in water levels will lead to decline in fish stocks and other aquatic resources 	<p>To strengthen efforts to promote integrated fisheries resource management and improve aquaculture in order to ensure sustainable fisheries production.</p> <p>Regulating illegal fishing, promoting and supporting aquaculture and stocking small water bodies, including dams.</p>	<ul style="list-style-type: none"> -Promote and encourage climate change resilient fishing practices. -Promote sustainable fish farming as a means of economic diversification and enhancing the resilience of the fishing sector to the impacts of climate change. -Promote and encourage collaborative and participatory management of aquatic ecosystems. -Promote awareness of the climate change-related impacts on fisheries amongst the various stakeholders, such as local communities, resource managers and policy makers. -Provide economic incentives to diversify livelihood options in order to reduce dependence on climate-sensitive fisheries resources. -Promote biological engineering and restoration of stress-tolerant organisms. -Improve and strengthen transboundary cooperation regarding fisheries ecosystems. 	

Sector	Challenges	Policy response	Adaptation Strategies	Mitigation Strategies
Forestry	<p>Increased rate of deforestation resulting from clearing for settlements and agriculture, overgrazing, wildfires, charcoal burning, over-exploitation of wood resources for commercial purposes.</p> <p>Climate change and intensified land use will exacerbate degradation and desertification, as tree mortality increases with reduced rainfall and the incidences of pest, diseases and forest fires rise.</p>	<p>To ensure the sustainable management of forestry resources so that they can continue to provide global services, including mitigating climate change, while supporting the sustainable development needs of communities and the country.</p>	<p>-Strengthen the existing national forestry policy to reduce deforestation and forest degradation.</p> <p>-Promote intensified and sustained afforestation and reforestation programmes implemented by the government, institutions, households and individuals, the private sector, civil society and multilateral organisations.</p> <p>-Promote and encourage efficient biomass energy production and utilization technologies to reduce biomass consumption.</p> <p>-Encourage agro-forestry, which will enable poor rural households to meet their subsistence and energy needs.</p> <p>-Strengthen existing forestry research and encourage conservation and restoration of forest ecosystems critically threatened by climate change.</p>	
Energy	<p>Overdependence on biomass energy—mainly from firewood and charcoal as heat sources</p> <p>Dependency on hydropower for electricity</p> <p>Electricity shortages in the recent past caused an energy crisis that led to an increase in thermal electricity generation.</p> <p>Increasing rate of energy demand.</p> <p>-prolonged droughts lead to a reduction of water levels in dams and reservoirs, thereby reducing hydropower production potential.</p> <p>-The melting of glaciers is also causing a reduction of water flow in rivers.</p> <p>-Storms and floods further affect the energy supply chain.</p>	<p>To promote sustainable energy access and utilisation as a means of sustainable development in the face of uncertainties related to climate change.</p>	<p>Promote and participate in water resource regulation so as to ensure the availability of water for hydropower production.</p> <p>-Promote and participate in water catchment protection as part of hydroelectric power infrastructure development.</p> <p>-Diversify energy sources by promoting the use of alternative renewable energy sources (such as solar, biomass, mini-hydro, geothermal and wind) that are less sensitive to climate change.</p> <p>-Promote energy-efficient firewood cook stoves, solar and liquefied petroleum gas (LPG) Cookers.</p> <p>-Conduct research to determine the potential impacts of climate change elements like rainstorms on the country's power supply chain.</p>	<p>Energy utilization</p> <p>-Promote investment in clean energy generation under public-private partnerships.</p> <p>-To promote, encourage and incentivise cogeneration, which is the production by industries of heat or steam and electricity from renewable biomass.</p> <p>-Provide tax incentives and other benefits to private-sector companies who invest in cleaner energy generation.</p> <p>-Promote the use of alternative renewable energy sources such as solar, biomass, wind and biofuels, as well as their associated technologies.</p> <p>-Develop hydroelectric and geothermal power systems and integrate them into the East African Power Pool in the medium term.</p> <p>Energy utilization</p> <p>-Promote the use of combined-cycle gas turbines in cases where there is a shortfall in renewable energy power generation systems.</p> <p>-Regulate the oil and gas sector and use of fossil fuels to reduce GHG emissions.</p> <p>Promote the development of energy conservation and efficiency projects in all sectors; for example, to promote the use of stabilised bricks and efficient brick kilns in the building sector.</p> <p>-To enforce building codes with the aim of reducing energy consumption and encouraging designs that maximise the use of natural daylight in buildings.</p> <p>-Promote the use of energy-efficient technologies such as compact florescent lamps and other commercially available high-efficiency lamps.</p>

Sector	Challenges	Policy response	Adaptation Strategies	Mitigation Strategies
				<ul style="list-style-type: none"> -Promote efficient firewood/charcoal stoves and solar and LPG cookers, and address the high upfront costs of acquiring these technologies through household subsidies or tax waivers. -Reduce deforestation by providing alternative clean energy sources and efficient appliances for energy use, management and conservation.
Transport	<p>climate change threatens vital transport infrastructure such as roads, bridges and rail networks.</p> <p>-The economic cost of the impacts of climate change on infrastructure damage, repairs and reconstructions, though difficult to estimate, is very high.</p>	<p>To develop and ensure integrated planning and management of transport and other physical infrastructure that builds on insights from climate predictions.</p>	<p>Integrate climate change into the existing infrastructure risk assessment guidelines and methodology.</p> <ul style="list-style-type: none"> -Building on work already underway, establish and enforce climate change resilient standards for transport and infrastructure planning and development through monitoring and reporting systems. -Encourage the integration of climate change into transport and infrastructure development strategies. -Promote and encourage water catchment protection in transport infrastructure development and maintenance. -Climate-proof existing and future infrastructure by conducting geotechnical site investigations (GSIs) to determine whether areas are appropriate or inappropriate for infrastructural development. 	<p>Improve road infrastructure, and traffic management in urban centres to reduce traffic congestion and GHG emissions.</p> <ul style="list-style-type: none"> -Promote and encourage reduction of greenhouse emissions from the transport sector. -Promote private-sector investment in the biofuel industry, covering the whole biofuel chain from cultivation to fuel processing. -Establish national standards for emissions and implement strict vehicular emissions standards in tandem with measures to gradually phase out old, inefficient motor vehicles, while encouraging the importation of efficient ones.
Wildlife and tourism	<p>wildlife and biological diversity are increasingly threatened by ecosystem fragmentation, consumptive utilisation of resources and conflicts between wildlife and human activities such as agriculture and settlement.</p> <p>-Droughts, unreliable rainfall patterns and increasing temperatures affect the habitats of animal and bird species.</p> <p>-Changes in ecosystems will lead to the disappearance of some wild animal species.</p>	<p>To ensure the conservation of wildlife resources and plan for improved resilience of tourism resources and infrastructure to climate change.</p>	<ul style="list-style-type: none"> -Develop park management practices that will enable wildlife to adapt to the changing climate. -Encourage mechanisms of improving local vulnerable populations' livelihoods using revenues generated from the tourism industry. -Develop a national wildlife adaptation strategy that includes well-assessed climate change adaptation strategies. -Promote measures that preserve the integrity of ecosystems that provide critical wildlife habitats and host endangered species. -Develop and diversify tourism products that are less sensitive to climate change, as an adaptation and substitute for the many natural attractions that are quickly disappearing. -Develop weather-resilient infrastructure to support tourism in the region while ensuring minimal damage to wildlife habitats. 	

10.0 Specific gaps in Policy and Regulatory mechanism for the various sectors

Table 2: Gaps, Challenges and Recommendations on policies and Regulatory frameworks under the Ministry of Water and Environment

No	SECTOR POLICY/ ACT/REGULATIONS	PROVISIONS OF ALIGNMENT	POLICY GAPS TO ADDRESS	IMPLEMENTATION CHALLENGES	RECOMMENDATIONS
1	The National Environment Act (2019)	Provides for protection of both renewable and non-renewable environment resources	<ul style="list-style-type: none"> The law only bans manufacture, export, import and usage of polythene/plastic materials of 30 microns limit on plastic bags ban (Section 76) There is no regulation on chemical management 	<ul style="list-style-type: none"> Governance alignment and understanding of risks and negative impacts of using plastic material. Inadequate compliance and enforcement Inadequate financing Limited staff capacities 	<ul style="list-style-type: none"> Total ban on single use plastics to reduce on pollution Enhance the reuse, recycling and incentives on takeback. Strengthen coordination between the blue and green economy Development of regulation on chemicals Domesticate the Stockholm convention by formulating a regulation on chemical management (persistent organic pollutants)
2	Uganda's Water Act Cap 152:	Provides for protection and management of water usage and supply	<ul style="list-style-type: none"> There is a narrow scope focusing on domestic usage. There are new emerging issues like climate change, disasters etc Competing government priorities 	<ul style="list-style-type: none"> Delayed reviewing of the water Act Financing Capacities Conflicting institutional mandates Implementation approaches 	<ul style="list-style-type: none"> Fast-tracking reviewing process Increase investments to harness the potential of water bodies Prioritizing national interest when negotiating agreements, treaties and commitments
3	National Water Policy (1999):	<ul style="list-style-type: none"> -Develop and efficiently use water for agricultural production and mitigate effects of adverse climatic variations -Promoting measures for maintain water quantity -Promote measures for maintaining water quality by controlling pollution of water resources. 	<ul style="list-style-type: none"> Financing 	<ul style="list-style-type: none"> Lack of coordination Low coverage in terms of connection 	<ul style="list-style-type: none"> Fast-track the review process Increase investment to fasten implementation
4	National Policy for the Conservation and Management of Wetland Resources (1995):	<ul style="list-style-type: none"> -End existing unsustainable exploitative practices in wetlands to avert the decline in their productivity. -Maintain a biological diversity in wetlands either in the natural community of plants and animals or in the multiplicity of agricultural activity. -Maintain the functions and values derived from wetlands resources throughout Uganda. -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 	<ul style="list-style-type: none"> Continued wetlands degradation through filling, waste dumping and conversion for agriculture 	<ul style="list-style-type: none"> Lack of coordination Lack awareness of its existence Population increase Inadequate livelihood options 	<ul style="list-style-type: none"> Government should create more alternative livelihood options Community mobilisation and mindset change Increase in financing

No	SECTOR POLICY/ ACT/REGULATIONS	PROVISIONS OF ALIGNMENT	POLICY GAPS TO ADDRESS	IMPLEMENTATION CHALLENGES	RECOMMENDATIONS
5	National Forestry Policy	Provides for the establishment, rehabilitation and conservation, and protection of forests	<ul style="list-style-type: none"> The policy focusses only on central forest reserves Financial motivation to plant forests is not there Governance issue 	<ul style="list-style-type: none"> Lack of coordination Lack awareness Population increase Enforcement Inadequate livelihood options Limited options and lack of incentives to protect preserve forests 	<ul style="list-style-type: none"> More investment in renewable energy Advocate for good governance Incentivize private investors into forestry sector Government control on the market distortion
6	National Environmental Management Policy (1994):	Advocate for control on land degradation in the country	<ul style="list-style-type: none"> Needs to review policy to accommodate the new Act and emerging challenges Enforcement on implementation 	<ul style="list-style-type: none"> Lack of coordination Lack awareness of its existence 	<ul style="list-style-type: none"> Financing Capacities
7	National Climate Change Policy (2015):	Policy ensures a harmonized and coordinated approach towards a climate resilient and low-carbon development path for sustainable development in Uganda	<ul style="list-style-type: none"> Need to review policy and operationalization Implementation challenges 	<ul style="list-style-type: none"> Lack of coordination Lack awareness Financing Capacities 	<ul style="list-style-type: none"> Streamline institutional mandates and coordination Invest into climate action
8	The National Climate Change Act 2021	Gives the force of law in Uganda to domesticate and implement the three international climate change instruments and climate change response measures among others	<ul style="list-style-type: none"> Need to create awareness on the Act Enforcement on implementation 	<ul style="list-style-type: none"> Financing capacities 	<ul style="list-style-type: none"> Need to develop regulations

Table 3: Gaps, Challenges and Recommendations on policies and Regulatory frameworks under Ministry of Tourism, Wildlife and Antiquities

N0.	SECTOR POLICY/ACT/REGULATIONS	PROVISIONS OF ALIGNMENT	POLICY GAPS TO ADDRESS	IMPLEMENTATION CHALLENGES	RECOMMENDATIONS
1	Uganda Wildlife Policy, 2014	<p>Guiding Principle 2.1.8 Climate change mitigation and adaptation: The wildlife policy shall promote climate change awareness, mitigation and adaptation. The policy shall pursue initiatives that build capacity of wildlife populations and people to be more resilient to climate change shocks.</p> <p>Objective 2; Strategy(m)- Support initiatives for climate change mitigation, adaptation and resilience.</p> <p>Objective 7, strategy (f)- Pursue biodiversity offsets and payment for ecosystem services initiatives where mitigation is inappropriate</p>	Silent on conservation Aquatic resources	<p>Coordination challenge between different MDAs mandated to protect aquatic resources.</p> <p>Lack of technical capacity to implement the proposed intervention</p> <p>Limited funding</p>	Coordination platform. Ensure that issues of climate change and Blue-economy are well captured in the policy during the review process.
2	Uganda Tourism Policy, 2015	<p>The Overall goal of this policy is to strategic objectives and a broad framework for management and development of the sector by creating an enabling environment for investment and growth necessary for the social-economic transformation of the country.</p> <p>Strategic action 7.1 (14); encourages support for water-based tourism attractions and activities including boat cruising, aquaria, house boats, rafting and floating restaurants.</p> <p>Strategic action 7.2 (3): Develop water-based tourism infrastructure on major lakes and rivers.</p>	<p>Does not cater for likely negative impacts arising from these developments and mitigation measures.</p> <p>No regulation</p>	<p>Lack of technical capacity.</p> <p>Non-compliance of private sector players</p>	Develop regulations to operationalize the policy
3	National Museums and Monuments Policy, 2015	<p>Chapter 2 (2.7) recognises Climate change as one of the major causes of destruction to cultural heritage properties reducing the authentic value.</p> <p>Recognises Lakes as natural heritage whose intangible heritage associates with human experience</p>	Silent about adaptation and mitigation measures.	<p>Limited funding to implement the objects.</p> <p>Lack of technical capacity</p>	<p>Review of the policy and include issues of water resources and climate change.</p> <p>Mobilise financial resources for implementation of the policy.</p>
4	Uganda Tourism Development Master plan 2014-2024	Chapter 2.4; Infrastructure development including water transport is highlighted as urgently needed to improve water-based tourism			

NO.	SECTOR POLICY/ACT/REGULATIONS	PROVISIONS OF ALIGNMENT	POLICY GAPS TO ADDRESS	IMPLEMENTATION CHALLENGES	RECOMMENDATIONS
5	Constitution of the Republic of Uganda 1995 as amended	Objective XIII The State shall protect important natural resources, including land, water, wetlands, minerals, oil, fauna and flora on behalf of the people of Uganda. Objective XXVII-Emphasizes protection and sustainable utilization of natural resources. Article 123; Execution of treaties, conventions and agreements. Section (1) The President or a person authorised by the President may make treaties, conventions, agreements or other arrangements between Uganda and any other country or between Uganda and any international organisation or body, in respect of any matter. 2) Parliament shall make laws to govern ratification of treaties, conventions, agreements or other arrangements made under clause of this article.	Silent about climate change	Establishes different MDAs with conflicting mandates in the conservation and sustainable utilisation of Water resources- MAAIF, MWE, MTWA	Parliament should execute its powers under Article 123 (2) and make laws to enable implementation of these articles of the constitution. Create awareness among sector players
6	Uganda Wildlife Act, 2019	Section 25 (1) empowers the Minister to declare any area deemed viable for conservation of biodiversity as a protected area. And one of the purposes of such a protected area is to provide water catchment conservation (Section 27 (d)) Section 35 provides for wildlife User rights, Establishes the Management and Scientific authority.	Silent about climate change. Does not pronounce itself on protected of water resources and threatened aquatic species.	Segmented parts of the ecosystem mandated under different MDAs Limited financial resources. Inadequate technical capacity especially for research and Monitoring.	Review the act Develop regulations and guidelines to operationalise the act. Establish marine protected areas.
7	Uganda Wildlife Research and Training Institute Act, 2015	Establishes the UWRTI and its functions of conducting research and capacity building training in wildlife conservation	Silent about climate change	Limited funding Limited technical capacity	Lobby for funds
8	Museums and Monuments Act, 2023	The Act primarily focuses on the protection, conservation and management of cultural and natural heritages resources and sites, including those found in the territorial waters of Uganda. *Sections 3(d), 32(1&3)	Silent about climate change.	Inadequate technical capacity. Limited funding Lack of regulations to operationalise the act.	Develop regulation to operationalise the Act (Section 97)
9	Uganda Tourism Act, 2008	Provides for licensing, regulating and controlling of the tourism sector	Silent about biodiversity, water resources and climate change issues	Inadequate technical capacity. Limited funding	Review the act. Awareness campaigns about the importance of aquatic resources and climate change to the tourism sector

Table 4: Gaps, Challenges and Recommendations on policies and Regulatory frameworks under the Ministry of Energy and Mineral Development

SECTOR POLICY/ACT/REGULATIONS	PROVISIONS OF ALIGNMENT	POLICY GAPS TO ADDRESS	IMPLEMENTATION CHALLENGES	RECOMMENDATIONS
National Energy Policy, 2002	<ul style="list-style-type: none"> -Emphasizes promotion of efficient generation, use and conservation of energy resources -Biodiversity action plan for the energy sector developed 	<p>Issues are addressed but implementation of measures is inadequate</p>	<ul style="list-style-type: none"> -Limited funds -Demand for biomass is very high and growing, -Cost of promoted alternatives is very high and unaffordable to the poor -High costs of hydroelectric power. Infrastructure to harness green energy like wind energy are greatly limited. 	<ul style="list-style-type: none"> -Deliberate efforts to reduce cost of liquified Pressure Gas and HEP are required. -Develop infrastructure for generation and use of wind and thermal energy -Implement aquatic biodiversity conservation activities
Mineral policy, 2018 and Mining Act, 2023	<ul style="list-style-type: none"> -maximise the economic and social benefits of mineral exploitation, promote all technically feasible and environmentally sound exploitation alternatives -minimise and mitigate the adverse social and environmental impacts of mineral exploitation; -encouraging the application of environmentally friendly technologies in mineral exploitation -Ensuring that sufficient water is reserved for meeting environmental requirements and services, i.e., maintain minimum flow to maintain water quality and aquatic ecosystems. 	<p>Environmental and biodiversity issues are mentioned but no proper indicators are provided to aid monitoring.</p> <p>-The valuation of resources is not mentioned and so, cost of mitigation is in most cases lower than the negative impacts.</p> <p>-No technical regulations for Health Safety and Environment (HSE) for the mining sector</p>	<ul style="list-style-type: none"> -The economic aspects are more preferred than the environmental and biodiversity ones. -No adequate evaluation of resources to enable evaluation of damage for proper costing of mitigation. -Ecologically sensitive and hotspots of aquatic biodiversity are not identified and marked -Limited Technical capacity & technology for monitoring risks -Limited resources for monitoring and enforcement 	<ul style="list-style-type: none"> -Mark sensitive areas for aquatic biodiversity conservation against extractive activities like sand mining -Provide resources for valuation and protection of aquatic biodiversity hotspots. -Undertake spatial planning to designate areas in which the different Blue Economy activities can be undertaken
National (oil spill) regulations	Provision for environment and biodiversity conservation	The necessary institutional set up especially laboratories for testing and monitoring chemicals from oil spills are inadequate.	<p>Inadequate skills and infrastructure to manage oil spills</p> <ul style="list-style-type: none"> -Cost and responsibility of the cleaning up after the pollution incidents -No mechanism for management and coordination of the activities -Limited technical capacity and infrastructure to manage such incidents -Limited resources to respond to incidents of significant magnitude. 	Need for capacity building and infrastructure establishment

SECTOR POLICY/ACT/REGULATIONS	PROVISIONS OF ALIGNMENT	POLICY GAPS TO ADDRESS	IMPLEMENTATION CHALLENGES	RECOMMENDATIONS
Oil and Gas policy	<p>-Environment and Social Impact Assessments (ESIAs) prior to undertaking activities.</p> <p>-Tools like Environment Sensitivity Atlas, environment Monitoring Plan & indicators, enforcement and compliance monitoring strategy being implemented.</p> <p>-Guidelines for operation of Oil Companies in Protected Areas developed.</p> <p>A Strategic Environment Assessment for Oil and Gas Activities has been prepared</p> <p>-A National Oil Spill Contingency Plan was developed.</p> <p>-Management plans for the protected areas within the AG such as Murchison Falls National Park, Budongo Forest have been updated</p>	<p>The policy adequately elaborates issues and strategies for addressing them.</p> <p>-Protected areas in the aquatic ecosystems are not known to enable development of plans for management</p>	<p>-Inadequate awareness and coordination between MDAs to manage challenges posed by oil and gas</p> <p>-Very limited consideration has been accorded to aquatic ecosystems since hotspots in these systems have not been identified and marked for monitoring and protection.</p>	<p>-Raise awareness and consideration for hotspots of aquatic biodiversity needs to be made. Such sites should be demarcated for monitoring, restoration and protection.</p> <p>-Provide scholarships for impacts of oil and gas on aquatic biodiversity</p>
	<p>The International Convention on Oil Pollution Preparedness, Response and Co-operation 1990 (OPRC 90)</p>	<p>Uganda is not a signatory</p>	<p>.Cost and responsibility of the cleaning up after the pollution incidents; and,</p> <ul style="list-style-type: none"> • Management and coordination of the activities • Limited technical capacity and infrastructure to manage such incidents; and, • Limited resources to respond to incidents of significant magnitude. 	<p>Uganda should ratify the conventions given its phase in oil and gas production</p> <p>Provision for funds for implementation</p>
Mining Act, 2023 and the Mining and Mineral Policy, 2018	<p>Provision for environment conservations and climate change</p>	<p>No technical regulations for Health Safety and Environment (HSE) for the mining sector</p>	<p>Limited Technical capacity, limited technology for monitoring risks.</p> <p>Limited resources for monitoring and enforcement</p>	<p>Development of HSE technical regulations for the mining sector</p>

Table 5: Gaps, Challenges and Recommendations on policies and Regulatory frameworks under the Ministry of Works and Transport

SECTOR POLICY/ACT/REGULATIONS	PROVISIONS OF ALIGNMENT	POLICY GAPS TO ADDRESS	IMPLEMENTATION CHALLENGES	RECOMMENDATIONS
Inland Water Transport Act, 2021	Prohibition of pollution (Section 143) Reception facilities and discharge of waste (s144)	Regulations on going No regulations	Limited funding; Capacity building and training of the enforcers. Limited funding	-Initiate and fast track the development of regulations -Create awareness to stakeholders -Training and recruitment
	Pollution Emergency Plan Pollution Contingency Plan Information regarding marine pollution incidents	Development of Statutory Instruments ongoing	No supporting Sis Limited funding Understaffing	Initiate development of SIs Recruit required staff Lobby for budgetary support and donor funding
	Wreck and Salvage (Part XII)	Only provides for the port and does not consider the open water ways	-Not provided for in the Act -Appropriate equipment and infrastructure to implement.	-Initiation of an SI by the minister to cater for the salvage of Wreckage along water ways -Country should ascent to the Nairobi Convention on removal of wreckage -2007
	Safety of Navigation and Prevention of Collision (Part VII)	Ignores invasive aquatic weeds that hinder navigation –Water hyacinth	There is no Regulation to support the implementation	Develop statutory instruments
Oil Spill Contingency plan	Oil spill preparedness, spill response and coordination	Does not consider traditionally built vessels	Still on going	Need to develop a legal instrument to deal with small vessels.
Traffic and Road Safety Act - 1998	Periodic inspection of motor vehicles for environmental and road safety compliance. (Section 131H)		-Human Capacity -Funding Resources -Infrastructure challenge	-Recruit and train staff -Provision of missing infrastructure -Lobby for funding from AU -IBAR
	Standards for safety and environmentally compliant motor vehicles, trailers and engineering plants. (Section 131A)	-Does not provide for disposal, and recycling of road unworthy vehicles	-Infrastructure challenge (Recycling plants)	-Provision of missing infrastructure

Table 6: Gaps, Challenges and Recommendations on policies and Regulatory frameworks under the Ministry of Agriculture, Animal Industry and Fisheries

SECTOR POLICY/ACT/ REGULATIONS	PROVISIONS OF ALIGNMENT	POLICY GAPS TO ADDRESS	IMPLEMENTATION CHALLENGES	RECOMMENDATIONS
Fisheries & Aquaculture Policy, 2018	<ul style="list-style-type: none"> -Biosecurity and disease control -Provides for environmental sustainability and climate change -Enhance the fish stocks in water bodies through restocking and protect critical fish habitats such as breeding and nursery grounds; -Regulate fishing capacity on all water bodies by setting up allowable fishing effort, institute closed fishing areas and seasons -Promote and enforce environmentally friendly fishing and aquaculture practices in collaboration with the Ministry responsible for water and environment; -Liaise with relevant agencies in regulating sand mining, other mineral exploration and pollution inducing activities in water bodies, wetlands and catchment; -Promote the management of invasive aquatic weeds and other invasive species; -Implement community level activities on climate change adaptation (CCA) and periodically review their impact on the health of the ecosystems that support fisheries and aquaculture; -Build Capacity for environmental management and climate change adaptation within the fisheries and aquaculture sub-sector in collaboration with other MDAs. 	<ul style="list-style-type: none"> -No updated regulations -Lack of national Biosafety and Biosecurity strategy and guidelines -Weak research framework and roadmap towards climate change adaptations. -No active collaboration with MDAs -Stock enhancements and critical fish habitats not marked for protection 	<ul style="list-style-type: none"> -Weak institutional coordination, collaboration for implementation. -Lack of guidelines for mainstreaming the regional and global instruments e.g., mainstreaming of climate resilient fisheries and integrated natural resources management. -Low political and civic literacy on the policies. -No designated coordination, research offices and guideline to implement key fisheries thematic areas in the National Blue Economy Strategy. -Inadequate and timely policy recommendations based on research. 	<ul style="list-style-type: none"> -Review, update and align to the policy and guidelines for climate change adaptations and mitigations. -Provide training and capacity-building programs to enhance implementation of biosecurity measures. -Strengthen institutional frameworks for coordination and collaboration. -Preparation of guidelines for mainstreaming the regional and global instruments e.g., mainstreaming of the -Development of dissemination strategy and political sensitization of the policies to increase literacy levels. -Strengthen the research capacity of NaFIRRI as Centre of Excellence for inland capture fisheries, aquaculture, and climate change in East Africa.
Fisheries and Aquaculture Act, 2023	<ul style="list-style-type: none"> -Provides for the formulation of regulations and guidelines relating to biodiversity and environmental principles. 	<ul style="list-style-type: none"> -No updated regulations to implement the Act. -The Act is silent about climate change adaptation and mitigations or citation of relevant climate change issues. 	<ul style="list-style-type: none"> -Low political and civic literacy on the Act -Lack of Information and Communication Strategy of the Act, for the intended stakeholders. 	<ul style="list-style-type: none"> -Fast tracking the review, and alignment of the stipulated regulations (under review) to National Climate Change Action Plan -Development of information and communication strategy and provide popular versions. -Translate, print, and circulate the Act to stakeholders.
<ul style="list-style-type: none"> Fish (Fishing) Rules, 2010 Fish (Fish Quality Assurance) Rules 2023 Fish (Aquaculture) Rules, 2022 Fish (Co-Management) Rules, 	<ul style="list-style-type: none"> -Provide for selective fishing gears, prohibition of use of chemicals in fishing and community participation in fisheries management including conservation of fish habitats for biodiversity 	<ul style="list-style-type: none"> -There is no clear provision for Aquatic Biodiversity Conservation, Climate Change Adaptation and Mitigation and Environmental Management. -There are gaps about the protection of fish breeding and nursery Areas; Closed fishing; Fishing capacity management; emerging fish and fishery products such as Fish Maw) 	<ul style="list-style-type: none"> -Limitations of financial, technical capacity and infrastructure. -Slow research and domestication of regulations, plans and activities. 	<ul style="list-style-type: none"> -Provide for amendments to align with Aquatic Biodiversity Conservation, Climate Change Adaptation and Mitigation and Environmental Management. -Conduct consultative meetings multi-stakeholder engagements for the development of regulations and guidelines. -Establish effective monitoring and evaluation mechanisms to assess progress, identify gaps, and adjust implementation strategies.

National Agriculture Policy (2009)	Enhance and strengthen the environmental concerns in the agricultural extension system, including research and training for extension workers, NGOs and land-users -Place greater emphasis on environmentally friendly means of increasing agricultural production -Where appropriate and practicable, offer land users tax incentives for soil and water conservation and good husbandry practices. -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.	-Low adoption of climate-smart and environment friendly agricultural practices	-Limited awareness by farmers -Inadequate extension capacity in terms of skills and equipment to ably guide farmers -Low staffing for extension staff	Retool and build capacity of staff Recruit to improve the extension worker- farmer ratio.
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11.0 Gender concerns

While Uganda has made tremendous strides over the last decade in particular in gender-responsive policy making across sectors, gender inequality is still deeply entrenched in women's and men's relationships, division of labor, and traditional and cultural life, especially at household level, with extremely high national fertility and gender-based violence rates among the symptoms of gender inequality. While women and men use natural resources differently and have unequal access to and control over natural resource management at all levels, priorities and strategies for conservation will require gender-responsive attention. As climate change worsens water scarcity, women and girls may have to move longer distances to collect water and firewood. This reduces chances of girl child education, increases risk and reduces time for productive work. There is need for deliberate policy strategies to address gender-related concerns. Under the National Gender Policy, 1997, measures to address some of the issues are highlighted. These need massive awareness for appreciation and implementation.

Table 7: Strategies to address gender concerns in environmental management

POLICY	PROVISION	STRATEGIES
National Gender Policy (1997)	Integrate gender concerns in environmental policy planning, decision making and implementation at all levels to ensure sustainable social and economic development.	-Integrate gender concerns in existing and proposed policies and programmes. -Collect gender dis-aggregated information related to the environment including the human factors. -Include gender roles and analysis in environmental management training programmes at all levels. -Facilitate participation of both men, youth and women in formal and informal education, training, public awareness campaigns and decision making in environmental and natural resources management. -Establish an institutional mechanism to review existing and proposed programmes to integrate gender issues. -Carry out research on the local knowledge and use of natural resources.

12.0. Summary and Conclusion

Uganda has put in place comprehensive policies, laws and regulations on climate change, aquatic biodiversity conservation and environmental management in line with continental and global instruments. However, in agreement with the earlier report, implementation of the policies still lags behind (AU-IBAR, 2023). Enhancement of implementation is anticipated through coordinated execution of the national Blue Economy Strategy by the relevant MDAs to ensure success. However, there still exists gaps and challenges in implementation which require addressing. Additionally, the level of domestication varies within sectors. Thus, sector-specific efforts to review and align these policies to continental and global instruments and strengthening compliance mechanisms will greatly improve conservation objectives.

Aquatic biodiversity in Uganda is extremely rich and supports many livelihoods. Unfortunately, the ecosystem of lakes, rivers and wetlands continues to be degraded, evidenced by ongoing changes in species composition of both its flora and fauna. The instability of the ecosystem is not simply damaging to the endemic fishes. It threatens the livelihoods of people who live along its shores and are dependent on fish for protein and income. It is now that we can utilize the opportunity to conserve some of this wealth by taking action, and providing alternatives. The need to fund and strengthen conservation interventions for aquatic life is imperative.

13.0 Adopted guidelines for addressing identified gaps by MDAs.

1. Domesticate all applicable Global Instruments that Uganda has acceded to in order to facilitate smooth implementation;
2. Set up desk officers in research and management within the MDAs to follow-up review and implementation of various instruments;
3. Fast-track implementation and reporting on all domesticated instruments
4. Liaise with National Planning Authority to establish and support coordination mechanisms for the Blue Economy sectors;
5. Strengthen Human Resource, institutional and technological capacity for implementation;
6. Lobby for increased funding to aid strategic research and implementation of relevant instruments;
7. Raise awareness locally and Nationally on the ratified International and Regional Instruments to enable technical officers understand the process required to internalize and domestic the Instruments accordingly;
8. Strengthen public private sector partnerships and Gender mainstreaming;
9. Promote community mobilization and mindset change

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