State of the **Wildlife Economy** in Africa

Case Study: Botswana

ALU SCHOOL OF WILDLIFE CONSERVATION

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DISCLAIMER
Although every attempt was made to collect data from as many sources as possible, both online and from numerous, varied other sources, this report is in no way exhaustive and there are a number of data gaps. For a number of the wildlife economy activities the 'latest' available data was often still 5-10 years old, highlighting a major gap in terms of relevant, recent, robust data to measure the value of the wildlife economy in Africa. The authors have taken care to ensure that the material presented in this report is accurate and correct. However, the authors do not guarantee the accuracy of the data or material contained in this report, and accept no legal liability or responsibility connected to its use or interpretation.

CONTENTS

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List of acronyms

ALU - African Leadership University
BDF - Botswana Defence Force
BPCP - Botswana Predator Conservation Program
BPS - Botswana Police Service
BTO - Botswana Tourism Organisation
BURS - Botswana Unified Revenue Service
BWP - Botswana Pula
BWPA - Botswana Wildlife Producers Association
CBD - Convention on Biological Diversity
CBNRM - Community-Based Natural Resource Management
CBO - Community-Based Organisation
CECT - Chobe Enclave Conservation Trust
CITES - Convention on International Trade in Endangered Species of Wild Fauna and Flora
CMS - Conservation of Migratory Species of Wild Animals
CT - Community Trusts
DIS - Directorate of Intelligence and Security
DWNP - Department of Wildlife and National Parks
EWB - Elephants Without Borders
FCB - Forest Conservation Botswana
GDP - Gross Domestic Product
GRP - Game Ranching Policy
HATAB - Hospitality and Tourism Association of Botswana
HWC - Human-wildlife conflict
IUCN ESARO - International Union for Conservation of Nature and Natural Resources, Eastern and Southern Africa Regional Office
JV - Joint Ventures
KAZA TFCA - Kavango Zambezi Transfrontier Conservation Area
KDT - Khwai Development Trust
MAWS - Maun Animal Welfare Society
MENRCT - Ministry of Environment, Natural Resources Conservation and Tourism
MET - Ministry of Environment and Tourism
MPI - Multidimensional Poverty Index
MZDT - Mababe Zokotshana Development Trust
NEMA - National Environmental Management Act
NTFPs - Non-Timber Forest Products
OCT - Okavango Community Trust
OKMCT - Okavango Kopano Mokoro Community Trust
RoB - Reserve Bank of Botswana
SADC - Southern African Development Community
SOWC - School of Wildlife Conservation
STMT - Sankuyo Tshwaragano Management Trust
TFCA - Transfrontier Conservation Area
TTDI - Travel and Tourism Development Index
UNEP-WCMC - United Nations Environment Programme World Conservation Monitoring Centre
UNFCCC - United Nations Framework Convention on Climate Change
UN - United Nations
USD - United States Dollar
WEII - Wildlife Economy Investment Index
WTTC - The World Travel & Tourism Council
WWF - World Wide Fund for Nature

CASE STUDY INTRODUCTION

Overview of the research

Conservation of wildlife is frequently seen as a cost to governments, resulting in little investment in wildlife resources despite the extensive contributions that the wildlife economy can, and does, make in terms of employment and revenues. The African Leadership University's School of Wildlife Conservation received funding to conduct research and produce the inaugural State of the Wildlife Economy in Africa Report, as well as country case studies for all African countries, to illustrate the current and potential value of wildlife to economies in Africa and through this to encourage investment in this important economic asset. The report development process highlighted data gaps that should encourage the collection of robust data related to wildlife economies in order to better understand the vast contribution of wildlife resources to local, national and regional economies.

For the purposes of this research, the wildlife economy is defined as:

> ***"The Wildlife Economy uses wildlife, plants and animals (marine and terrestrial), as an economic asset to create value that aligns with conservation objectives and delivers sustainable growth and economic development"***

Wildlife economies can include a mix of consumptive and non-consumptive uses. The growth and development of the wildlife economy in Africa is influenced by a number of factors, including, amongst others:

- The enabling environment which either facilitates (or not) various stakeholders, including communities and the private sector, to engage in and benefit from the wildlife economy
- This includes policy, legislation and supporting institutions
- The stock of wildlife resources for use in the wildlife economy
- Investment in wildlife resources to 'grow' the asset base on which the wildlife economy depends
- Political will and support
- Infrastructure to support the wildlife economy, such as roads, airports, hotels, etc.

As the first comprehensive regional assessment of the wildlife economy in Africa, the State of the Wildlife Economy in Africa report had the following main objectives:

1. To provide an overview of the status of the wildlife economy in Africa, including country case studies
2. To provide an overview of the regulatory framework governing the wildlife economy, including country case studies
3. To highlight gaps in the data in terms of country data, as well as data specifically relating to different types of wildlife economy activities
4. To analyse and highlight best practices of particular relevance to the region, through the use of case studies
5. To provide facts and figures required by governments and investors to make informed decisions, track progress and provide guidance for implementation in terms of the wildlife economy
6. To raise the profile of the wildlife economy in Africa and to highlight the importance of seeing wildlife as an asset to invest in
7. To promote the learning of lessons between countries and organisations
8. Where possible, to provide key recommendations for policy and practice

The overall aim of the report was to highlight the potential of the wildlife economy and encourage more public and private investments in protected and conserved areas to improve biodiversity outcomes and support economic development.

Success would include turning conservation into a growth industry, attracting young, inspired leaders, increasing private sector investment in wildlife resources and related businesses, involving communities and increasing their benefits and nature/wildlife becoming more abundant. Ultimately, the aim of the ALU SOWC research is to ensure that governments see wildlife as a key strategic asset and, therefore, create an enabling environment for the wildlife economy and the conservation of related wildlife resources.

The first full report focused on five main wildlife economy activities: ecotourism , wildlife ranching, carbon finance and forest products. The activities included in the report had the criteria of having to contribute to both biodiversity conservation and social and/or economic development. For all ALU SOWC wildlife economy reports, the activities are defined as follows:

Ecotourism includes non-consumptive tourism related to nature/wildlife includes trophy , game meat, as well as some aspects of fishing, such as artisanal, small-scale and recreational fishing.

Wildlife ranching includes the breeding of wild/indigenous animals for game meat, products and other uses.

Other consumptive use includes forest products used commercially and for subsistence purposes.

The carbon market includes projects that earn income through REDD+ and other mechanisms that sequester carbon, reduce greenhouse gas emissions and conserve natural systems of carbon.

The full report covered 54 countries in Africa. Data for all 54 countries was, however, not available and a selection of case study countries, with diversity in terms of geographic location, biomes, wildlife economy activities, policy and socio-economic context were selected (selection criteria described below). Throughout the report, text boxes were included covering other countries in order to cover as many countries on the continent as possible and to provide examples of different approaches to the wildlife economy, as well as innovative examples and best practices. Wherever possible, attempts were made to allow for generalisations, and where not possible, caveats or specific enabling factors have been highlighted.

This report is part of the series of national State of the Wildlife Economy reports for Africa to provide an important baseline for the country, as well as to identify challenges and opportunities for growing and unlocking the wildlife economy.

Data collection process

A research project of this magnitude requires a number of different approaches to gathering the data and information required to present analyses and a useful picture of the wildlife economy in Africa. Given various time and budget constraints, and limited access to printed documents, it was decided to largely focus on conducting a literature review, as well as desktop research and, where possible, contacting in-country sources to gather data.

Where possible, future research aims to conduct more primary research and data collection. Currency amounts have been converted to USD for comparison purposes, with the local currency amount still included, using the average annual USD rate for the year of the data. Some graphs and tables have, however, been kept in the local currency because fluctuations in the exchange rates can affect the USD amount in such a way that it does not reflect the true local and national economic impacts as well as the local currency amounts do.

During the research for the full report, it was found that very few countries in Africa have a good understanding of the value of the wildlife economy at a national level. For certain wildlife economy activities there was information and data available at a local, and often only a project level, and often this data was only collected for the duration of the project, or when funding was available. This resulted in data for the continent, as well as per country, largely being inconsistent, incomparable, and often quite old. The overall research project highlights a large gap in data on the value of the wildlife economy and the important need to have consistent, comparable data to ensure that the value of the wildlife economy is truly understood. This information would allow for better policy and investment decision making and would encourage greater investment in the wildlife economy once the true value is understood. Research for the case study countries includes contacting relevant contacts in the specific countries, an extensive literature review and engaging stakeholders to collect as much relevant, up-to-date data as possible. It also, where possible, includes stakeholder workshops and external reviews of the case study by relevant experts.

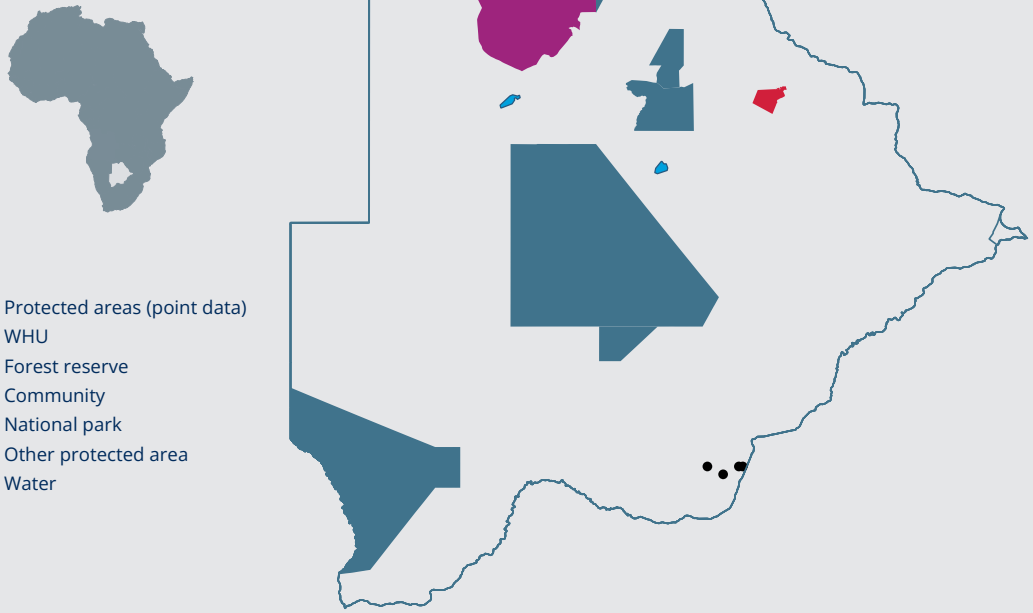
The complexity of stakeholders involved in the wildlife economy and the fact that a large amount of activity also occurs in the informal sector, also results in a difficulty in collecting and collating data that provides a true reflection of the value of the wildlife economy. The data collection process is in no way exhaustive and is done with the purpose of providing an illustrative overview/baseline report of the wildlife economy. Following on from the full report, the Roadmap for Africa's Wildlife Economy report and numerous country case studies, this case study focuses on the state of the wildlife economy in Botswana. The data collection process for this case study followed the same steps as for the main report but also included a virtual stakeholder inception workshop and engagements with stakeholders via email.

All country case studies follow the same structure to allow for comparisons and ease of reading. The general structure is as follows:

- Country map with key statistics
- Wildlife economy summary graphic
- Key points related to the wildlife economy
- Introduction/background: conservation and socio-economic
- Regulatory framework/enabling environment
- Wildlife economy activities (where relevant):
  - Ecotourism
  - Wildlife ranching
  - Carbon
  - Forest products
  - Other activities
- Summary
- References

Please see https://sowc.alueducation.com/research/ for all publications to-date.

BOTSWANA



Socio-economic/governance

GDP per capita (USD)
7,737

Gini coefficient
53.3

Transparency International Corruption Perceptions Index
Ranked 39th
out of 180 countries

Total population
2.5 million

Mo Ibrahim Governance Index
Scored 65.8
out of 100

Mo Ibrahim Governance Index
Ranked 5th
out of 54 countries

Protected areas

578,043km² total land area

22 protected areas

168,483km² total terrestrial protected area

3 bird sanctuaries

6 forest reserves

6 game reserves

1 game sanctuary

4 national parks

Species numbers

157 mammal species

587 bird species

131 reptile species

99 fish species

Sources: IIAG, 2025; IUCN ESARO, 2024; Transparency International, 2024; UNEP-WCMC, 2025; World Bank, 2023a

Overview of the wildlife economy in Botswana

Forest products

- NTFPs hold historical significance in Botswana for food, medicine, construction materials, and fuelwood.
- The diverse range of NTFPs are accessible throughout the year and have the potential to enhance food security, household stability, and rural economy diversification.
- In 2013, it was estimated that medicinal plants generated income of approx. USD 7.3 million for rural communities and in 2012, wild fruits generated income of approx. USD 3.6 million.

Carbon finance

- The carbon market in Botswana is still in its infancy although the government has shown commitment to get it started.
- The carbon market has the potential to support livelihoods in Botswana as well as reduce its greenhouse gas emissions.
- In 2018, Botswana's GHG emissions were approx. 7.253 million metric tonnes of carbon dioxide, accounting for just 0.02% of global emissions.
- Botswana has committed to further reducing GHG emissions by 15% in 2030.

Fisheries

- Northern regions such as the Chobe River and Okavango Delta offer recreational fishing, along with selected dams in the central, north-east, and southern areas.
- The broader Okavango system hosts over 80 fish species.
- In 2017, fish and fish product imports were valued at USD 10.3 million.
- The total fisheries production was 63 tonnes in 2018 and contributed USD 1.7 million in exports of fish and fish products.

Hunting

- Hunting has been part of Botswana's history since the late 1850s.
- The Community-Based Natural Resource Management (CBNRM) programme in Botswana allows communities to manage wildlife for tourism and hunting and use the proceeds to fund local development.
- The trophy hunting ban introduced in 2014 resulted in wildlife hunting areas having to find alternative sources of revenue.
- In 2021, the government reversed the ban and granted 287 licences for elephant trophy hunting, resulting in an estimated revenue of USD 2.7 million.

Wildlife ranching

- The Department of Wildlife and National Parks (DWNP) recognises the importance of game ranching to diversify Botswana's economy and the Game Ranching Policy of 2002 guides this approach.
- Prerequisites outlined in the policy have been met by only a few people.
- The limited availability of productive land and high costs to new entrants hinder wider participation in game ranching.

Tourism

- Tourism is a significant driver of Botswana's economy, contributing to its GDP and diversifying the economy from its focus on the mining industry.
- In 2023, the total contribution of travel and tourism to the country's GDP was approx. USD 2.4 billion, accounting for 12.1% of the overall economy.
- In terms of employment, the sector directly supported 30,340 jobs in 2023, representing 3.2% of total national employment.
- In the first quarter of 2024, Botswana received a total of 267,805 visitors.

Wildlife trade

- Legal CITES-listed exports are dominated by plant-based trade, specifically Devil's claw (*Harpagophytum procumbens*), with most specimens wild-harvested and sent to Europe.
- Despite being the second-largest global supplier of Devil's claw (*Harpagophytum procumbens*) after Namibia, Botswana's earnings remain modest (approx. USD 4.5-10 per kg), as most value is added abroad during pharmaceutical processing.

Sources: Ahmad, 2021; Dube, 2021; FAO, 2018; FAO, 2020, FAO 2022; Koro, 2021; Lindsey et al., 2007; Merron, 2020; O'Regan et al., 2021; Statistics Botswana, 2024; UNFCCC, 2022; World Bank, 2020; World Bank, 2021; WTTC, 2024

Key messages

- Botswana's wildlife economy is ready for growth, encompassing thriving sectors such as tourism, hunting, fisheries, and non-timber forest products. Yet, the key to sustained success lies in a balance between economic advancement and ecological conservation.
- Strategically aligning wildlife economy policies is crucial for promoting sustainable development that supports conservation goals. Encouraging strong private sector involvement and fostering meaningful partnerships will be key to achieving this alignment.
- Ecotourism emerges as a vital activity in the wildlife economy, propelling foreign currency inflow and driving socio-economic progress.
- Hunting is another important element, not only yielding economic benefits but also underpinning community livelihoods and broader wildlife sector growth. Channelling generated revenue into conservation, anti-poaching endeavours, and community initiatives can support habitat protection and development.
- While wildlife ranching holds promise, Botswana's potential remains largely untapped. Collaborations, governmental support, policy development and alignment, and fostering rancher capabilities are vital for scaling up productivity.
- Boosted by abundant water bodies, Botswana's fisheries sector offers substantial economic promise, concurrently uplifting local livelihoods and empowering women in fishing-reliant communities.
- Botswana has numerous non-timber forest products, encompassing diverse resources such as insects, fruits and medicinal plants, which hold significant economic value as well as cultural and subsistence value.

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Introduction to the natural resources and biodiversity in Botswana

Botswana **is a landlocked country located in southern Africa,** and it shares its borders with several neighbouring countries. It is bordered by Namibia to the west and north, South Africa to the south, Zimbabwe to the east, and Zambia to the northeast. The Caprivi Strip of Namibia provides a narrow corridor to the Zambezi River, which separates Botswana and Namibia in the northwest. The northern region of Botswana is defined by the Chobe River, which also forms part of its border with Namibia and Zambia. This strategic location places Botswana at the heart of southern Africa, with various waterways and diverse landscapes shaping its boundaries with neighbouring countries.

Botswana has a well developed network of protected areas that cover over 29.15% (approx. 168,483 km²) of the country's land area, comprising national parks, game reserves, and wildlife management areas (UNEP-WCMC, 2025). These protected areas are home to a diverse range of wildlife species, including elephant (*Loxodonta africana*), lion (*Panthera leo*), leopard *(Panthera pardus*), cheetah (*Acinonyx jubatus*), and numerous species of antelope (e.g *Oryx gazella*). The country's protected areas also include the Okavango Delta, which is the largest inland delta in the world and provides habitat to a variety of aquatic and semi-aquatic species, such as hippopotamus (*Hippopotamus amphibius*) and crocodile (*Crocodylus niloticus*) (Ramberg et al., 2006).

Botswana has a rich diversity of plant species, estimated between 2,150 and 3,000, 157 mammal species, 587 bird species, 44 amphibian species, 99 freshwater fish species and 131 reptile species (IUCN ESARO, 2024). The country's avian diversity is particularly notable in the Okavango Delta, an important breeding ground for various bird species, including storks (*Leptoptilos crumenifer*) and eagles (*Haliaeetus vocifer*) (Mmusi et al., 2021). These species are distributed across the country in protected areas with different designations, as shown in Table 1. These protected areas support different ecoregions, including tropical and subtropical grasslands, savannas, woodlands, and shrublands. Botswana's seven distinct eco-regions are the Kalahari Acacia-Baikiaea Woodlands, Southern African Bushveld, Zambezian Baikiaea Woodlands, Zambezian and Mopane Woodlands, Zambezian flooded grasslands, Zambezian Halophytics and Kalahari Xerix Savannah (IUCN ESARO, 2024).

Table 1: Number of protected areas in Botswana based on national and international designations

National Designations	Numbers
Bird Sanctuary	3
Forest Reserve	6
Game Reserve	6
Game Sanctuary	1
National Park	4
International Designations	**Numbers**
Ramsar Site, Wetland of International Importance	1
World Heritage Site (natural or mixed)	1

Source: UNEP-WCMC, 2025

Community-Based Natural Resource Management

The history of Community-Based Natural Resource Management (CBNRM) in Botswana dates back to the 1980s when developing countries, including Botswana, recognised the need for conservation with development (Mogende & Kolawole, 2016). This approach aimed to demonstrate the mutual interdependence of conservation and development (Stone & Nyaupane, 2013). As a result, the concept of CBNRM was adopted, emphasising the importance of local communities in the sustainable management of natural resources (Mogende & Kolawole, 2016). In Botswana, CBNRM was officially established in 1989 with the goal of granting communities direct control over the utilisation of, and benefits from, their surrounding natural resources.

One notable region where CBNRM has been implemented is the Okavango Delta. Within the Okavango, various community trusts (CTs) have been formed, such as the Okavango Kopano Mokoro Community Trust (OKMCT), Khwai Development Trust (KDT), Mababe Zokotshana Development Trust (MZDT), Okavango Community Trust (OCT), and Sankuyo Tshwaraganyo Management Trust (STMT) (Masunga & Girlie, 2022). These CTs play a crucial role in CBNRM activities, serving as legal entities that ensure rural communities have access to and can manage wildlife and other natural resources (Ibid.). The engagement of communities through these CTs highlights the shift from top-down approaches to bottom-up decision-making in natural resource management (Stone & Nyaupane, 2013).

One of the notable achievements of the CBNRM programme in Botswana is the increase in wildlife populations, however, this has also increased human-wildlife conflict (HWC) in most of the communal areas around protected areas (Mokgalo & van der Merwe, 2022). The effectiveness of CBNRM in Botswana can also be observed through the initiation of conservation projects by local communities. For instance, in the Sankuyo and Khwai communities, during a five-year period, the communities initiated a significant proportion of the conservation projects they had planned under CBNRM. The Sankuyo community initiated six out of seven (86%) of their planned projects, while the Khwai community initiated five out of seven (71%) projects (Masunga & Girlie, 2022). These projects have contributed to improved livelihoods, and reduced wildlife poaching, illegal safaris, and unlicensed harvesting of resources such as thatching grass. Despite the communities' perception that CBNRM was primarily introduced for rural development and community benefits rather than conservation, the high initiation rate of conservation projects demonstrates their recognition of conservation as an integral part of CBNRM for long-term sustainability (Masunga & Girlie, 2022). Additional information about CBNRM in Botswana is provided in Text box 1.

Biodiversity and ecosystem services are necessary for Botswana's economy and development. They provide a wide range of essential goods and services necessary for survival and to support economic activities in the country.

Wild plants and insects are crucial resources for rural communities in Botswana. These resources offer food and raw materials such as grasses, medicinal plants, firewood, wild foods, fish, honey, and timber. In the Zambezian flooded

Text box 1

Community-Based Natural Resource Management (CBNRM) in Botswana

Community-based natural resource management (CBNRM) is systematised through a community forming a trust (Community-Based Organisations (CBOs)) to engage in joint venture partnerships (JVs) on behalf of the community. The revenues of the CBOs experienced rapid growth from 1997 to 2008, reaching over BWP 20 million (approx. USD 1.4 million) (RoB, 2016). In 2016, the Reserve Bank of Botswana (RoB) stated that since 2008, the revenues of the CBOs had stayed the same in terms of the actual amount earned (stagnated in current terms), but when considering inflation and changes in the cost of living, the real value of those revenues had actually decreased. For example, in 2011, the average monthly gross revenue per person was BWP 28 (approx. USD 2), suggesting that CBNRM programmes had limited contributions to poverty reduction, especially considering that many villages do not have such programmes.

Ecosystems-related revenues differ across the different ecoregions in the country. The government of Botswana (2016) estimated that the ecosystems-related revenues from CBOs in dryland ecosystems are particularly low, with only BWP 5.2 million (approx. USD 385,821) reported in 2011. The Khama Rhino Sanctuary alone generated BWP 4 million (approx. USD 296,785) of this amount (Ibid.). This **reflects the limited income-generating potential of dryland ecosystems, primarily through activities such as ecotourism.** Regions such as Ngamiland and Chobe, with fewer CBOs compared to the dryland districts, generate much higher income, with combined revenues of BWP 19 million (approx. USD 1.4 million) (Rob, 2016). However, even in these regions, few CBOs generate gross revenues exceeding BWP 500 (approx. USD 37) per person per month, typically located on National Parks' edges. The limited income potential in dryland ecosystems and the uneven distribution of revenues across different regions are notable factors. This has led to calls for a redefinition of community conservation in Botswana that moves away from the highly politicised yet stagnant rhetoric of the current CBNRM model and towards more innovative approaches.

Sources: Cassidy, 2021; Rozemeijer, 2009; Taylor, 2006

grasslands, **the use of veld (forest) products generates a direct net value of BWP 27 million (approx. USD 2 million), with a gross value added of BWP 29 million (approx. USD 2.1 million)** (RoB, 2016)**.**

Botswana's tourism industry, activities, game ranching, and community-based natural resource management rely heavily on wildlife resources (Cassidy, 2021). The value of wildlife has doubled between 2001 and 2012 (RoB, 2016). In 2016, **the wildlife species in the country were estimated to have a total value of approx. BWP 3 billion (approx. USD 222 million)**, with the Zambezian flooded grassland ecoregion contributing 60% to this value (RoB, 2016). The value of wildlife products in Botswana has increased due to the growth in tourism, successful conservation efforts, community involvement in resource management, and alignment with global ecotourism trends (Mladenov et al., 2007; Thobega, 2022).

The use of biodiversity is essential for sustaining and safeguarding human systems. Although specific values for Botswana are generally unknown, **the Okavango and Makgadikgadi areas are estimated to provide a direct gross value added of BWP 379 million (approx. USD 28.1 million) and BWP 155 million (approx. USD 11.4 million)**, respectively (RoB, 2016). These figures emphasise the significance of ecosystem services in supporting human well-being. While difficult to measure, options (potential future resource uses and the perceived value of conserving the resource) and existence values (perceived value of resources irrespective of their use) hold considerable importance (Arntzen, 2003; RoB, 2016). Conserving genetic diversity ensures future opportunities, and the international recognition of ecosystems such as the Okavango and Chobe, highlights their existence value to the global community.

Threats to biodiversity

The diverse array of wildlife and habitats in Botswana face numerous threats, including habitat loss and degradation, poaching, expansion of human settlements, agriculture, mining, and infrastructure development (Baruti, 2018; Nkape et al., 2022). Although the country has made significant efforts to combat poaching and wildlife trafficking, including in the past the deployment of the Botswana Defence Force to patrol national parks, these threats still pose a severe threat to many species (Baruti, 2018; RoB, 2016). The effects of climate change on rainfall patterns, and weather extremes have been observed across Botswana (Moses & Hambira, 2018; Mpolokang et al., 2022). **The Okavango Delta, one of Botswana's most iconic natural features, is already experiencing significant changes due to climate change** (Tshipa & Thakadu, 2022). Invasive species are another significant threat to Botswana's biodiversity, including species such as the terrestrial invasive plant mesquite

(*Neltuma (previously Prosopis) juliflora)* and aquatic weed Kariba weed/Giant salvinia (*Salvinia molesta)* which threaten ecosystem services in Botswana (Kashe et al., 2020). **Four of the seven main eco-regions in Botswana are considered vulnerable.** The South African Bushveld is threatened by deforestation, overgrazing through unregulated cattle grazing, range degradation and wildfires (IUCN ESARO, 2024). The Zambezian Baikiaea Woodlands face bush encroachment, exacerbated by unregulated cattle grazing (Ibid.). Zambezian Halophytics are threatened by mining, rangeland degradation, bushfires, wind erosion, installation of cattle posts, overgrazing, lack of protection for avian breeding sites and uncontrolled tourism (IUCN ESARO, 2024).

Socio-economic overview

As of 2022, Botswana's population was estimated to be approx. 2.5 million people, with the Tswana constituting the largest ethnic group, comprising approx. 79% of the total population (World Bank, 2023a). Other ethnic groups in Botswana include the Kalanga, Basarwa (also known as San or Bushmen), and Yeyi (Ibid.). **The country has one of the lowest population densities in the world (4.0 people per square kilometre)** and a relatively young population, with 31.3% of its population under the age of 15 in 2022 (AFDB, 2024; World Bank, 2023a).

Botswana has transformed itself from an underdeveloped country to an upper middle-income country (AFDB, 2024; World Bank 2025). Its upward economic trajectory rests on astute macroeconomic policies and resilient institutions, notably in diamond revenue management. Botswana's economy is primarily anchored in the mining sector, with diamonds being the most significant contributor. **In 2022, Botswana had a Gross Domestic Product (GDP) of USD 20.35 billion which averaged approx. USD 7,737 GDP per capita** (World Bank, 2023a). Botswana's economic growth slowed to 3.2% in 2023 and further declined to 3.0% in 2024, largely due to reduced global demand for diamonds (World Bank, 2025). The extraction and processing of diamonds for export is the single largest contributor to public revenues (25.1%) and the principal source of export receipts (87%) (Ministry of Finance, 2024). **Heavy reliance on diamonds makes earnings susceptible to swings in global diamond prices and external shocks** (AFDB, 2024; ITA, 2022; Phiri et al., 2022). The economic downturn of 8.7% in 2020, attributed to reduced COVID-19-related diamond revenue, exemplifies this vulnerability (World Bank, 2023c).

The challenge of **inadequate job creation contributes to a structurally elevated unemployment rate of 25.9%** (AFDB, 2024). The underlying cause of unemployment in Botswana stems from limited economic diversification. Predominantly reliant on the mining sector, the country struggles to foster growth in other sectors that could alleviate unemployment (Matandare, 2018). According to the UNDP (2023), **Botswana recorded a score of 0.073 on the Multidimensional Poverty Index (MPI) in 2023, indicating that 17.2% of the population is living in poverty**. The MPI is a measure of severe multidimensional poverty across over 100 developing countries, and it ranges from 0 to 1. Higher values on the index indicate higher levels of poverty (OPHI, 2018). To provide a comparison, Botswana's neighbouring country, Namibia, scored 0.185 on the MPI (UNDP, 2023).

Botswana grapples with **persistently high inequality**, ranking among the world's highest (World Bank, 2023c). In 2020, Botswana was ranked the 9th amongst the most unequal countries globally (UNDP, 2021). The issue **of inequality has been a prominent policy concern in the country since 2002** (AFDB, 2024; Martorano et al., 2021). Notably, **the Gini Index for Botswana was recorded at 0.53 in 2015, reflecting a decrease from its peak of 0.647 in 2002** (World Bank, 2023b). The Gini Index measures the degree of income distribution inequality within a population, with values ranging from 0 (perfect equality) to 1 (perfect inequality) (Martorano et al., 2021). These figures underscore the ongoing importance of addressing inequality as a crucial priority for Botswana's policymakers and stakeholders.

In 2024, **Botswana ranked 39th out of 180 countries on the Transparency International Corruption Perceptions Index, scoring 59/100** (Transparency International, 2024). Transparency International uses the Corruption Perceptions Index (CPI) to rank countries around the world by their perceived levels of public sector corruption, with a score of 0 being highly corrupt and 100 being very clean (Transparency International, 2024). To attract the private sector and other investments, it is important that this ranking is improved year on year. **Botswana ranked 5th (out of 53 African countries) in terms of the African Leadership University School of Wildlife Conservation (ALU SOWC) Wildlife Economy Investment Index (WEII)**. The Wildlife Economy Investment Index (WEII) measures the investment potential in Africa's wildlife economy (see Text box 2 for more information).

In Botswana, land tenure is primarily governed by the Land Policy of 2019, which aims to promote sustainable land management and secure land rights for its citizens (RoB, 2015). **The land tenure system in Botswana consists of three main categories: tribal land, state land, and freehold land**. Initially, all land in Botswana was communal with the declaration of Botswana as a Protectorate in 1885, three tenure systems emerged (Adams et al., 2003). Tribal land, also known as native land, has gradually increased in proportion over the years and accounted for approx. 71% of land in 2013 (RoB, 2015). State land, which was formerly crown land, has decreased from 46% to 26% during the same period, primarily due to the conversion of rural state land into tribal land (Ibid.). Freehold land, initially created for settlers during the colonial era, has diminished from 5% to approx. 3% since 1966 (RoB, 2015; Adams et al., 2003). Efforts are ongoing to enhance land tenure security, promote responsible land use, and balance the rights of individuals, communities, and investors in Botswana's land management practices.

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Text box 2

Wildlife Economy Investment Index (WEII) results for Botswana

The Wildlife Economy Investment Index (WEII), developed by the African Leadership University's (ALU) School of Wildlife Conservation (SOWC), aims to evaluate the potential of African countries in terms of their wildlife assets and the investment-enabling environments related to the wildlife economy. It is a comprehensive tool that gauges five fundamental pillars: wildlife assets, wildlife management, ease of doing business, public sector capacity, and investment safety.

In the overall WEII rankings, **Botswana was ranked 5th out of 53 countries** (São Tomé and Príncipe were not included in the overall WEII score due to insufficient data), with a score of 57.15. For the Wildlife Status Sub-Index the country was ranked 37th (score of 38.95) and for the Investment-Enabling Environment Sub-Index, the country was ranked 3rd in Africa (score of 75.35). See Figure 1 for an overview of the country's scores across the WEII, with green denoting positioned in the upper third of African countries, orange in the middle third and red in the lower third.

According to the WEII report for Botswana, the country scored in the bottom third in terms of wildlife status, specifically in terms of wildlife management. The only sub-categories where the country fell in the bottom third of African countries were species richness and endemic species. However, the country performed very well in the Investment Enabling Environment Sub-index, where almost all the categories and sub-categories fell in the upper third except for the sub-category money growth which fell into the middle third.

In terms of recommendations from the WEII report, the below were highlighted. The need to:

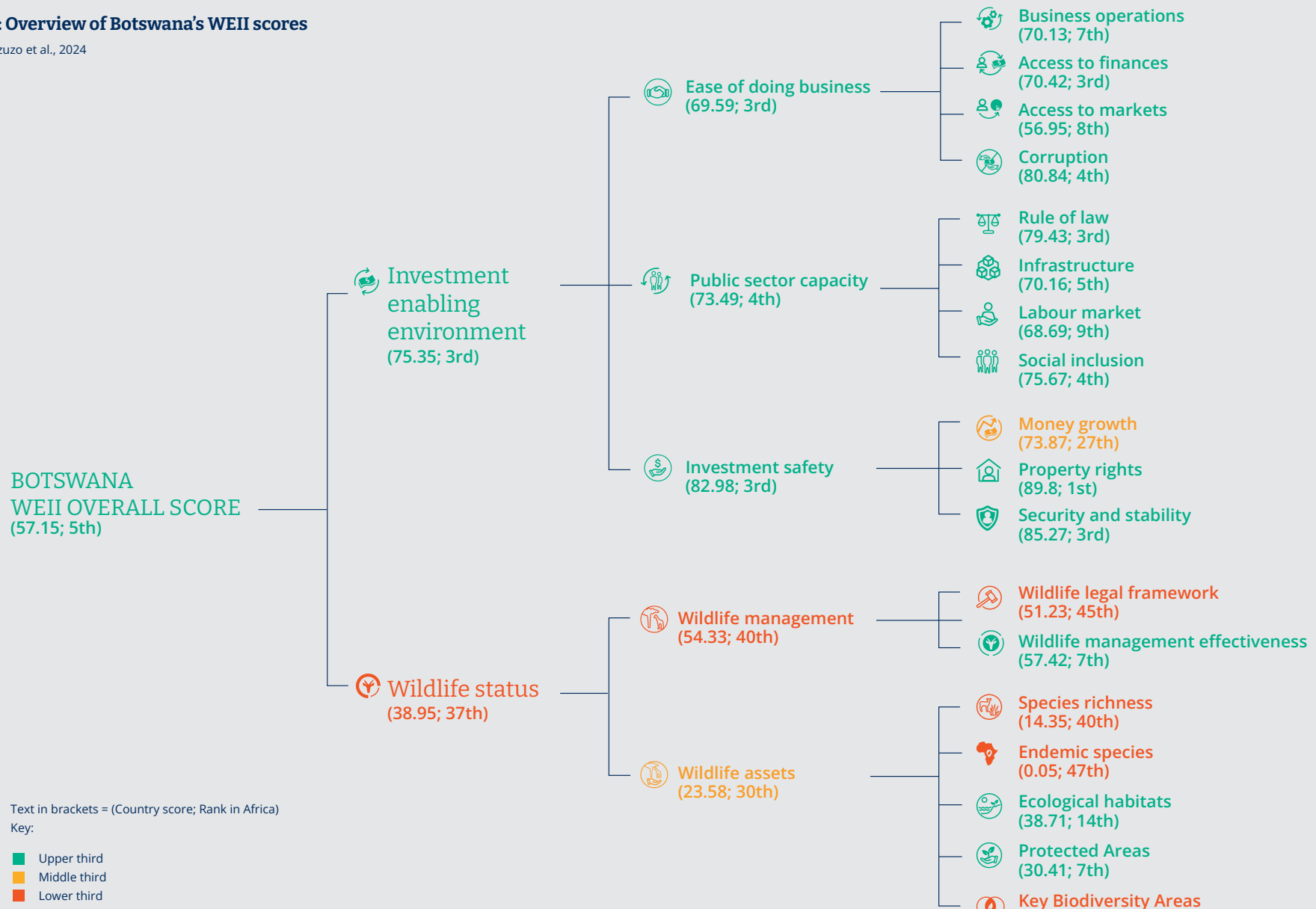
- To enhance biodiversity conservation;
- To ensure balanced labour reforms and public-private collaboration;
- To implement comprehensive, effective wildlife management and update the legal framework;
- To enhance the business environment;
- To improve monetary freedom;
- To reduce the complexity of tariffs.

For more details on these recommendations and for the full scorecard for Botswana on all 280 indicators, please see Botswana's WEII report.

Source: Cyuzuo et al., 2024

Figure 1: Overview of Botswana's WEII scores

Source: Cyuzuzo et al., 2024



Regulatory framework for the wildlife economy

Botswana has enacted a range of laws to enhance the implementation of comprehensive wildlife resource management policies (RoB, 2016). These laws also take cognisance of the traditional rights of numerous groups, notably the Bushmen, who reside on freehold, tribal, or public lands with no other means of sustenance.

Botswana, as a proactive steward of its natural heritage, has entered into various international conventions and treaties, forging a commitment to wildlife conservation on a global scale. These include, amongst others, the Ramsar Convention, the Convention on Biological Diversity (CBD), the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), the United Nations Framework Convention on Climate Change (UNFCCC), the African Convention on the Conservation of Nature and Natural Resources, the Convention on the Conservation of Migratory Species of Wild Animals (CMS), the International Plant Protection Convention (2002), the Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade, the UN Convention to Combat Desertification, and the Nagoya Protocol on Access and Benefit Sharing.

In alignment with its regional counterparts, Botswana's wildlife management adheres to other regional policies. These encompass the Revised Protocol on Shared Watercourses within the Southern African Development Community (SADC), the SADC Protocol on Wildlife Conservation and Law Enforcement, the SADC Protocol on Forestry and the KAZA Transfrontier Conservation Area Treaty.

Through its commitment to international and regional agreements, Botswana aims to ensure that its wildlife economy is not only sustainably managed but also harmoniously connected to a broader global conservation framework. The country's results in the WEII sub-category of Wildlife Management, however, indicated a need for improvement in some areas of implementation and management effectiveness. Table 2 provides a non-exhaustive list of legislation, policies and strategies related to the wildlife economy in Botswana.

Institutions for managing the wildlife economy

The Department of Wildlife and National Parks (DWNP) in the Ministry of Environment, Natural Resources Conservation and Tourism manages Botswana's protected areas (National Parks and Game Reserves) as well as wildlife conservation and utilisation throughout the country (DWNP, 2021). The DWNP is tasked with implementing policies and strategies to protect and conserve the country's natural resources, including wildlife and protected areas (Ibid.). The Department works in close collaboration with other government agencies, non-governmental organisations, the private sector and local communities to promote the sustainable use of natural resources, manage protected areas, and raise awareness about environmental issues (DWNP, 2021). These include, amongst others, the Botswana Police Service (BPS), the Botswana Defence Force (BDF), the Directorate of Intelligence and Security (DIS), the Botswana Unified Revenue Service (BURS), World Wide Fund for Nature (WWF) and BirdLife Botswana. A non-exhaustive list of institutions involved in the wildlife economy in Botswana is listed in Table 3.

Wildlife economy activities in Botswana

Botswana already has a number of established wildlife economy activities in the country. This section provides an overview of some of the main activities. Data on revenues and employment numbers was not always available and a large amount of the information on the value of the different wildlife economy activities was outdated, incomparable or unavailable. In order to have a good understanding of the state of the wildlife economy and its contribution to the economy, it is important that consistent comparable data is collected related to revenues, employment, etc.

Tourism

Tourism is recognised as an industry with potential to contribute to Botswana's economic diversification in a way that would broaden the country's economic base (Stone et al., 2017). **In 2023, the total contribution of travel and tourism to the country's GDP was approx. BWP 32.8 billion (approx. USD 2.4 billion), accounting for 12.1% of the overall economy** (WTTC, 2024). This figure was expected to rise to approx. BWP 37.5 billion (approx. USD 2.8 billion) in 2024. **In terms of employment, the sector directly supported 30,340 jobs in 2023,** representing 3.2% of total national employment (Ibid.). This includes employment by hotels, travel agents, airlines and other passenger transportation services.

International tourism is also a key driver of Botswana's travel sector. In 2023, foreign visitor spending generated approx. BWP 16.2 billion (approx. USD 1.2 billion), making up 41.1% of total exports (WTTC, 2024). Domestic tourism also plays an important role, contributing approx. BWP 8.0 billion (approx. USD 590.6 million) (33.1% of internal tourism spending) in 2023, with an expected rise to approx. BWP 11.3 billion (approx. USD 831.2 million) over the next decade (Ibid.). **In the first quarter of 2024, Botswana received a total of 267,805 visitors,** with March accounting for the highest share at 38.8% (101,774 arrivals) (Statistics Botswana, 2024). The majority of tourists during this period came from South Africa, which contributed 32.0% of the total, followed by Zimbabwe at 26.5% (Ibid.). Leisure travel accounted for 95% of total internal tourism expenditure (BWP 23.0 billion), compared to 5% for business travel (BWP 1.2 billion) (WTTC, 2024).

In 2024, Botswana ranked 75th (out of 117 countries) on the Travel and Tourism Development Index (TTDI) (World Economic Forum, 2024). The TTDI assesses each country's travel and tourism sector based on factors and regulations promoting resilient and sustainable economic growth. Amongst the Sub Saharan African countries assessed, Botswana was the 3rd after Mauritius (ranked 57) and South Africa (ranked 55) (Ibid.).

Considering the growth potential of the tourism industry, the Government of Botswana included this sector in its economic diversification strategy.

Tourism activities and offerings in the country are predominantly wildlife-based (Botswana Tourism, 2021; Vumbunu et al., 2022) with the bulk of the activity concentrated in the Chobe and Okavango Regions (Leechor et al., 2003). Part of the economic diversification strategy entails broadening the geographic horizons of the country's tourism activities, as well as introducing new tourism products.

In 2020, a new Tourism Policy was launched – an effort by the Government to encourage more participation in the tourism sector on the part of Batswana. An example of this is how this Policy sets aside exclusive tourism licences for Batswana operators, as well as safari concessions.

Tourism is an important pillar in Botswana's efforts to diversify its economy and promote sustainable development. Its substantial contributions to GDP, employment, and export earnings highlight the sector's economic relevance. With tourism largely driven by wildlife and nature-based experiences, and concentrated in a small area of the country, there is a clear opportunity to expand offerings and unlock untapped potential across the country. Government initiatives, including the 2020 Tourism Policy and targeted support for citizen participation, demonstrate a strategic move toward inclusivity and broader local benefit. As the sector continues to grow, tourism is well-positioned to contribute not only to economic growth but also to social empowerment, rural development, and long-term conservation efforts.

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Table 2: Non-exhaustive list of legislation related to the wildlife economy

Policy/legislation	Overview	Source
Wildlife Conservation and National Parks Act 1992	The Act gives effect to the CITES, which Botswana is a party to. It provides for the establishment, control and management of national parks and game reserves, for the conservation and management of wildlife in the country. It makes declarations for the specification of national parks and their control.	Available at https://botswanalaws.com/StatutesActpdf/1992Actpdf/WILDLIFE%20CONSERVATION%20AND%20NATIONAL%20PARKS%20ACT,%2028%20OF%201992.pdf [Accessed 30th June 2025].
Environmental Assessment Act, 2011	The Act outlines who is responsible and how environmental assessments of projects involving federal government decision-making should be conducted.	Available at https://www.gov.bw/sites/default/files/2020-02/Environmental%20Assessment%20Act%202011.pdf [Accessed 8th August 2022].
Fish Protection Act, 1975 (Chapter 38:04)	The Act promotes more effective fishing regulation, control, protection, and improvement in Botswana.	Available at https://importlicensing.wto.org/sites/default/files/members/15/Fish%20Protection%20Act_13.12.1975.pdf [Accessed 8th August 2022].
Forest Act	An Act to improve the management and conservation of Botswana's forests and forest products and address related issues.	Available at https://botswanalaws.com/StatutesActpdf/1968Actpdf/FOREST [Accessed 8th August 2022].
The Wildlife Conservation and National Parks Act (WCNPA), 1992	The WCNPA and the wildlife (Hunting and Licensing) regulations are the primary pieces of legislation that govern hunting in Botswana. This legislation outlines the rules for hunting, the issuance of licenses and permits, and the management of wildlife resources.	Available at https://botswanalaws.com/StatutesActpdf/1992Actpdf/WILDLIFE%20CONSERVATION%20AND%20NATIONAL%20PARKS%20ACT,%2028%20OF%201992.pdf [Accessed 24th August 2025].
Tourism Act (Chapter 42:09)	An Act to licence and regulate the tourism sector with the goal of fostering its growth and welfare.	Available at https://faolex.fao.org/docs/pdf/bot91749.pdf [Accessed 8th August 2022].
Declaration of Infested Waters Order, 1986 (Chapter 34:04)	These Regulations establish the following procedures for preventing the spread of aquatic weeds in Botswana: (a) entry of boats into the country; (b) inspection of boats by customs officers; (c) issuance of movement certificates; (d) movement of boats and aquatic apparatus from any surface water to any place in Botswana in accordance with the certificate; and (e) movement of boats from waters that are infested with aquatic weeds.	Available at https://faolex.fao.org/docs/pdf/bot18198.pdf [Accessed 19th August 2022].
Monuments and Relics Act (Chapter 59:03), 2001	This Act makes provisions with respect to the protection and conservation of national monuments and protected heritage areas.	Available at https://www.policyvault.africa/wp-content/themes/PolicyVault/pdfviewer/web/viewer.html?file=https://www.policyvault.africa/wp-content/uploads/policy/BWA294.pdf [Accessed 10th July 2023].
Game Ranching Policy (GRP), 2002	The 2002 Game Ranching Policy (GRP) in Botswana aims to establish game ranching as a profitable land use option, supporting sustainable wildlife product utilisation. Key objectives include boosting economic gains from wildlife outside protected areas, fostering a viable game ranching industry, enhancing private sector involvement, and leveraging game ranches for the conservation of endangered species.	Available at https://faolex.fao.org/docs/pdf/bot204289.pdf [Accessed 10th July 2023].

Table 2: Non-exhaustive list of legislation related to the wildlife economy

Policy/legislation	Overview	Source
National Aquaculture Strategy, 2011	This Strategy aligns with regional initiatives, such as the Southern African Development Community (SADC) Regional Aquaculture Strategy and Action Plan (2016-2026), which aims to promote sustainable aquaculture development across member states.	The strategy is referenced in Botswana's general statement at the 35th Session of the Committee on Fisheries (COFI). Available at https://www.fao.org/fileadmin/user_upload/COFI/COFI35/statements/BotswanaGeneralStatementCOFI35.pdf [Accessed 19th March 2025].
KAZA Transfrontier Conservation Area Treaty, 2006	By this Treaty, the Partner States established the Kavango Zambezi Transfrontier Conservation Area (KAZA TFCA) for the primary purpose of harmonising policies, strategies and practices for managing shared natural resources that straddle the international borders of the five (5) Partner States and derive equitable socio-economic benefits through the sustainable use and development of their natural and cultural heritage resources.	Available at https://kavangozambezi.org/about-kaza/ [Accessed 8th August 2022].
SADC Protocol on Wildlife Conservation and Law Enforcement	The Protocol on Wildlife Conservation and Law Enforcement was created by SADC (1999). The Protocol's objectives strongly focus on the necessity for regionally coordinated approaches to wildlife management, conservation, and enforcement of prohibited wildlife uses. Information exchanges on managing and using wildlife are crucial for effective conservation. Additionally, the Protocol encourages the development of regional and national capacities and promotes community-based wildlife management.	Available at https://www.sadc.int/sites/default/files/2021-08/Wildlife_Conservation.pdf [Accessed 18th February 2025].

Table 3: Government and non-governmental institutions supporting the wildlife economy in Botswana

Institution	Overview	Source
Government institutions		
Ministry of Environment, Natural Resources Conservation and Tourism (MENRCT), previously Ministry of Environment and Tourism (MET)	The main areas of responsibility are • To protect, conserve and derive value out of natural and cultural resources. • To promote a sustainable environment for the benefit of the country. • To formulate, implement and monitor environmental conservation policies and strategies. • To derive benefit/value from natural and cultural resources. • To ensure an empowered, adaptive and environmentally conscious country. • To build resilience to climate change.	Available at https://www.gov.bw/ministries/ministry-environment-and-tourism [Accessed 18th February 2025].
Department of Environmental Affairs	Promotes environmental-based protection and conservation initiatives to improve the efficiency with which natural resources are used and managed, maximising positive interactions and minimising negative environmental side effects.	Available at https://www.gov.bw/ministries/ministry-environment-natural-resources-conservation-and-tourism [Accessed 3rd August 2022].
Department of Wildlife and National Parks (DWNP)	The Department of Wildlife and National Parks (DWNP) role is to conserve and manage the country's wildlife resources and their habitats.	No official website
Department of Meteorological Services	In situations where weather plays an important role in socioeconomic development, it provides reliable weather, climate information, and related services to enable timely and informed decision-making for sustainable socioeconomic growth. It also offers suggestions for enhancing climate change resilience.	Available at https://www.gov.bw/ministries/ministry-environment-natural-resources-conservation-and-tourism [Accessed 3rd August 2022].
Department of National Museum and Monuments	The Department promotes Botswana's cultural and natural heritage for sustainable use. Additionally, it collects, conducts research, and exhibits to educate and inspire the public.	Available at https://www.gov.bw/ministries/ministry-environment-natural-resources-conservation-and-tourism [Accessed 3rd August 2022].
Department of Tourism	Develops, monitors, and puts into practice policies and strategies that enable sustainable tourism development in order to manage and promote it.	Available at https://www.gov.bw/ministries/ministry-environment-natural-resources-conservation-and-tourism [Accessed 3rd August 2022].
Department of Forestry and Range Resources	Responsible for conserving, managing, and protecting Botswana's vegetative resources and ensuring that they are managed responsibly for the good of both current and future generations.	Available at https://www.gov.bw/ministries/ministry-environment-natural-resources-conservation-and-tourism [Accessed 3rd August 2022].
Department of Corporate Services	The Department coordinates and ensures effective administration of ministerial resources and support services.	Available at https://www.gov.bw/ministries/ministry-environment-natural-resources-conservation-and-tourism [Accessed 3rd August 2022].
Forest Conservation Botswana (FCB)	A government agency that encourages activities that adhere to the terms of the Tropical Forest Agreement, the Forest Act, the National Forest Policy, and the Tropical Forest Conservation Fund Order to conserve, maintain, protect, and restore Botswana's forests.	Available at https://www.forestconservation.co.bw [Accessed 3rd December 2022].

Table 3: Government and non-governmental institutions supporting the wildlife economy in Botswana

Institution	Overview	Source
Botswana Tourism Organisation (BTO)	The Botswana Tourism Organisation (BTO) is in charge of all operational aspects of the tourism industry, including marketing, attracting investments, and grading tourist facilities in accordance with international standards.	Available at https://www.botswanatourism.co.bw/ [Accessed 3rd December 2022].
Hospitality and Tourism Association of Botswana (HATAB)	The Hospitality and Tourism Association of Botswana (HATAB) was formed in 1982 as a membership-based organisation of employers representing businesses in the tourism sector of Botswana. The Association's mandate is to drive the policy advocacy agenda in order to provide and promote an enabling environment for business development and growth within the hospitality and tourism sector.	Available at https://www.this-is-botswana.com/ [Accessed 18th February 2025].
Botswana Wildlife Producers Association (BWPA)	The Botswana Wildlife Producers Association is an association of stakeholders within the conservation and management of Botswana's wildlife. Its focus includes sustainable utilisation of natural resources through a process of responsible and ethical management options.	Available at https://ophaa.org/member-associations/botswana-wildlife-producers-association/ [Accessed 10th February 2023].
Non-Governmental Organisations		
Botswana Predator Conservation Program (BPCP)	The BPCP is a programme that works to conserve Botswana's large carnivores, such as lions (*Panthera leo*), cheetahs (*Acinonyx jubatus*), and African wild dogs (*Lycaon pictus*). The BPCP conducts research on these animals, works to reduce human-wildlife conflict, and educates the public about the importance of conserving large carnivores.	Available at https://royalafricansafaris.com/botswana-predator-conservation/ [Accessed 9th August 2023].
Maun Animal Welfare Society (MAWS)	The MAWS is a non-profit organisation that works to improve the welfare of animals in Botswana. The MAWS operates a number of animal shelters, and it also provides education and outreach programs to raise awareness of animal welfare issues.	Available at https://maunanimalwelfare.com/ [Accessed 9th August 2023].
Elephants Without Borders (EWB)	EWB is a non-profit organisation that works to conserve elephants in Botswana and the surrounding region. EWB conducts research on elephants (*Loxodonta Africana*), works to reduce human-elephant conflict, and educates the public about the importance of conserving elephants.	Available at https://elephantswithoutborders.org/about-us/funding/ [Accessed 9th August 2023].
BirdLife Botswana	Promotes and supports bird conservation as well as the habitats important for bird conservation. Raises awareness related to bird conservation in the country.	Available at https://www.birdlifebotswana.org.bw/ [Accessed 18th February 2025].

Ecotourism

Approximately 29.15% of Botswana's land area comprises national parks and wildlife reserves (UNEP-WCMC, 2025) which provide a solid foundation for ecotourism. The protected areas in Botswana attract travellers owing to the diverse animals, stunning scenery, and diversity of habitats such as wetlands and grasslands. Botswana has embraced ecotourism to diversify its economy and promote environmentally sustainable growth, similar to many other developing countries (Stone et al., 2017). As discussed in the biodiversity section, Botswana is well known for its species diversity comprising mammals such as buffalo (*Syncerus caffer*), crocodile (*Crocodylus niloticus*), hippo (*Hippopotamus amphibius*), lion (*Panthera leo*), and leopard (*Panthera pardus*), as well as a wide variety of plains game inhabiting the country from the scenic Kalahari Desert to the vast Okavango Delta. Camelback safaris are also a tourism activity in the country (Seifu et al., 2019)

The Okavango Delta and the Chobe National Park are the most popular destinations for tourists since they support a diverse range of species, including African wild dog (*Lycaon pictus*) and African elephant (*Loxodonta Africana*), amongst many others (Beyer, 2020). The unique habitat created by the Okavango River creates suitable habitats for countless species of game, including the unique red lechwe (*Kobus leche leche*). Other frequently visited tourist destinations include Makgadikgadi Pans, Nxai Pan National Park, Moremi Game Reserve, Kalahari Desert and North East Tuli Game Reserve.

The Okavango Delta, Chobe National Park and other protected areas provide the revenue necessary for the Department of Wildlife and National Parks (DWNP) to operate and protect these areas. **In 2018, protected area fees brought in a total of about BWP 41 million (approx. USD 3.8 million), with 66% of that coming from Chobe National Park and 21% from Moremi Game Reserve** (MENT, 2019). Entrance fees made up the majority of revenue (88%), followed by camping fees (5.2%), vehicle fees (5%), and miscellaneous fees (2.2%) (Ibid.). These returns are essential since they support the operational costs of DWNP, which were estimated to be BWP 371 million (approx. USD 3.7 million) in 2018 (MENT, 2019).

Ecotourism is also a major contributor to Botswana's livelihoods in the different areas where it exists (Stone et al., 2017). Beyond its economic impact, ecotourism plays a vital role in fostering conservation awareness, supporting local communities, and conserving the country's rich biodiversity. Some of the contributions of ecotourism to livelihoods are discussed in Text box 3.

The people of Botswana have historically relied heavily on wildlife for their livelihood and in most parts of the country, they continue to rely heavily on wildlife to meet their basic requirements (Mbaiwa & Stronza, 2010; Twining-Ward et al., 2018). For example, during the catastrophic foot-and-mouth epidemic of the late 1950s and early 1960s, wildlife was key to supporting livelihoods. Private companies have also used ecotourism to support the livelihoods of communities living near or around protected areas. Text boxes 4 and 5 discuss the contribution of Wilderness Safaris to ecotourism in Botswana.

Tourism undoubtedly serves as an avenue for boosting community livelihoods in Botswana's wildlife areas. Nonetheless, concerns persist regarding the sector's potential downsides (Gumbo, 2022). Despite the industry's celebrated success, worries persist about the actual benefits filtering down to local economies (Mogalakwe & Nyamnjoh, 2017). Mbaiwa and Darkoh (2006) and Gumbo (2022) have argued that Botswana's tourism sector primarily focuses on economic aspects, omitting comprehensive considerations spanning social, economic, environmental, and ethical facets such as poverty reduction, unemployment, inequality, and self-sufficiency. Failing to address these concerns could eventually cultivate unfavourable perceptions of Botswana's tourism. Further insights on these perceptions are elaborated in Text box 6.

Text box 3

The contribution of ecotourism to livelihoods in the Okavango Delta

The average annual contribution of the Okavango Delta towards the country's GDP was estimated to be 5% whilst also accounting for 40% of the jobs in northern Botswana. The northern parts of Botswana have benefited greatly from the high-value/low-volume tourism model advocated by Botswana's initial tourism policy in 1990. Although outdated, in 2006 it was estimated that the Okavango Delta generated BWP 1.03 million (approx. USD 74,196) in gross output, BWP 380,000 (approx. USD 28,194) in value contributed to the national economy, and BWP 210,000 (approx. USD 21,000) in resource rent.

The use of natural wetland assets for tourism purposes in the centre zone predominates the direct use values of the Okavango Delta. Households earn at least BWP 225 million (approx. USD 22 million) annually from utilising natural resources, sales, earnings, and wages in the tourism sector, and rents and royalties under CBNRM agreements. Tourism revenue has made it easier to diversify rural income production options in the Okavango Delta (Stone et al., 2017). The Sankoyo community's creation of Santawani Lodge, Shandrika Cultural Tourism Village, and Kazikini Campground are strategies supporting regional economic development. By providing employees with modern amenities such as the internet, television, modern housing, and radios, ecotourism has aided rural development. The local sourcing of goods and services is another local economic development activity that gives small sector enterprises the chance to interact indirectly with tourism, sustain their lives, and reduce poverty.

Source: Turpie et al., 2006

Text box 4

The contribution of private players to the government through the ecotourism sector

Private companies have many positive impacts on Botswana's economy through ecotourism. Wilderness Safaris has operated in Botswana since 1983. Its contribution to the government in the form of taxes and leases on state land as well as licences were estimated to be BWP 618 million (approx. USD 61 million) in 2022. In 2018 these payments were estimated to contribute 0.5% of the country's total revenues. Wilderness Safaris also employs 1,100 people and supports local services in the country through the purchase of goods and services. In 2022, the purchase of these goods and services from local suppliers was estimated to be BWP 1.5 billion (approx. USD 100 million) over the previous 10 years. This is possible since Wilderness Safaris purchases at least 90% of its goods and services from local suppliers. The purchase of goods and services from these local suppliers indirectly supports the employment of people in those sectors.

Source: Wilderness, 2023

Text box 5

Contribution of private ecotourism players to community socio-economic upliftment

Private ecotourism has also contributed significantly towards community upliftment in areas where they operate. This is mainly through the payment of concession fees, corporate social responsibility, employment projects and training programmes. Wilderness Safaris pays BWP 6 million (approx. USD 445,178) per annum in the form of payments to communities for the use of their concessions and BWP 19 million (approx. USD 1.4 million) per annum in staff salaries working in these communal areas.

During the COVID-19 pandemic, the most notable contributions were in the form of food relief distributed to local communities targeting families badly affected by the pandemic. The estimated cost of this food was BWP 3.7 million (approx. USD 274,526), excluding in-kind contributions of staff time, transport, and storage. This support was estimated to reach nearly 37,000 people across northern Botswana. Wilderness Botswana has also assisted vulnerable farmers in a bid to increase food security and reduce human-wildlife conflict. This support was done in seven villages, and the assistance included ploughing, de-stumping and seed distribution to the cluster farms in these areas. The seven villages involved in the programme were Mokgacha, Gunotsoga, Eretsha, Beetsha, Gudigwa, Shokomoka and Sankoyo. Community boreholes were also drilled for five villages as part of this same process.

Wilderness also aims to ensure conservation through support to education, and the support is provided through Eco-Clubs, which are environmental clubs for children in school and for recent school leavers. The programme has been running for 20 years, and a total of 2,100 children have attended annual camps, and nearly 2,700 participate in Eco-Clubs. Wilderness also signed a Memorandum of Understanding with the Okavango Sub-District Council to support Eretsha School. The programme will see the construction of school infrastructure to support the growing number of students enrolling at the school.

Source: Wilderness, 2023

Opportunities and challenges for ecotourism in Botswana

Below are some opportunities and challenges related to ecotourism in the country.

Opportunities:

- Joint ventures are being sought for hotel construction and expansion along the Trans-Kalahari Highway, which connects Botswana and Namibia, as well as for the development of lodges in the Makgadikgadi Pans National Park, Central Kalahari Game Reserve, and Chobe National Park's surrounding forest reserves.
- The Limpopo/Shashe Transfrontier Conservation Area (TFCA) which was changed to the Greater Mapungubwe TFCA shares a similar concept with the Kavango-Zambezi (KAZA) TFCA and can promote cultural tourism in the south-eastern part of Botswana.
- Through the introduction of the KAZA UniVisa for Botswana and the region, member countries are trying to make it easier for travellers to move across protected areas in the five-country (Angola, Botswana, Namibia, Zambia and Zimbabwe) region.
- Botswana has a strong commitment to conservation. The government has set aside over 17% of the country's land for protected areas. This commitment to conservation makes Botswana an attractive destination for tourists who are interested in learning about, and experiencing, nature.
- Botswana has well-developed tourism infrastructure, including airports, lodges, and tour operators. This makes it easy for tourists to visit Botswana and experience its natural attractions.

Challenges:

- The cost of tourism products and services in Botswana can be high, as can the capital costs to set up an ecotourism business, which can make it inaccessible to many people.
- There is a risk of over-tourism in some areas of Botswana, which could damage the environment.
- There is a need to ensure that ecotourism benefits local communities and does not lead to displacement or exploitation.
- There is a need to educate citizens and tourists about the importance of conservation and sustainable practices.
- There is a need to link the receipt of ecotourism benefits in local communities to the conservation of natural resources in the country.

Text box 6

Recommendations to ensure greater equity and benefit sharing from ecotourism in Botswana

Undoubtedly, Botswana's economy reaps substantial benefits from tourism, enhancing the economic prospects of remote rural communities within tourist destinations. However, within the country's tourism industry lies underexplored facets, notably the detrimental impacts on local livelihoods and the environment.

The landscape of Botswana's tourism is also seen to be shaped by foreign capital dominance, resulting in enclave tourism. This model has entailed significant sacrifices from local communities, encompassing land losses, property damage, and threats posed by wildlife. In addition, Botswana's hospitality sector often sources food from abroad even though local options are available. This situation underscores the weak interconnections between tourism and other local economic sectors. While local agriculture products could provide a solid foundation for supplying food to tourists, weak ties persist, limiting local empowerment and poverty alleviation prospects. Managerial roles in hotels are predominantly occupied by well-compensated expatriates, leaving local workers in low-paying and unskilled positions, including tour guides (Mbaiwa, 2005). This dynamic further perpetuates the marginalisation of local investment, which primarily occurs in less valuable periphery regions rather than prime areas.

The prevalence of enclave tourism, repatriation of profits, and weak local engagement underscore areas needing attention. To steer the sector toward a more inclusive and equitable trajectory, several recommendations emerge. First, there is a need to prioritise robust connections between tourism and local sectors, such as agriculture, to maximise economic benefits for communities. Second, elevating local involvement through skill-building initiatives can offer opportunities for citizens to occupy higher-level positions within the industry. Third, encouraging tourism establishments to prioritise local resources fosters economic circulations within Botswana. Fourth, involving local communities in policy formulation and decision-making can promote more harmonious industry growth. Lastly, exploring avenues beyond enclave tourism and fostering diverse economic activities can mitigate dependency risks. Through proactive collaboration and these recommendations, Botswana's tourism sector can evolve into a more balanced, mutually beneficial enterprise, driving prosperity while conserving its invaluable natural heritage.

Source: Gumbo, 2022

Hunting

Hunting has had a long history in Botswana, dating back to the late 1850s (Mbaiwa, 2017). The Community-based Natural Resource Management (CBNRM) programme, officially adopted by the Botswana Government in the 1990s, initially focused on safari hunting as the main tourism activity (Mbaiwa, 2017; Mokgalo & van der Merwe, 2022). Hunting was originally conducted in peripheral areas unsuitable for photographic tourism (Ibid.). Rural communities in Botswana were granted rights to manage land for wildlife tourism and hunting, with the proceeds of these ventures going towards community development (Muller, 2022). Through the CBNRM programme, many communities formed Community Trusts and partnered with trophy hunting operators (Ibid.). **Community-based hunting accounts for nearly two-thirds of community tourism revenue**, whereas photographic tourism contributes one-third to the community's revenue (Johnson, 2009; Mbaiwa, 2015). **In 2008, hunting generated BWP 7 million (approx. USD 5.4 million), while photographic tourism generated BWP 2.3 million (approx. USD 1.7 million)**, indicating that hunting is a significant contributor to tourism revenue in Botswana (Johnson, 2009). Although these figures are outdated, it is still important to note the contribution of hunting prior to the hunting ban.

In 2014, the Ministry of Environment, Wildlife, and Tourism banned hunting across government and community lands, excluding privately owned hunting ranches (Mbaiwa, 2017). A reported decline in wildlife populations led to the ban on safari hunting in January 2014 (Chase, 2011). This ban remained in effect for five years, from 2014 to 2019. Several San communities' cultural and economic practices, particularly in the western Kalahari region, were profoundly disrupted and rendered illegal due to this ban (LaRocco, 2020). All safari hunting concession areas, where possible, were converted to wildlife photographic tourism areas, though many of these areas were marginal and unlikely to become attractive photographic tourism sites.

The shift from hunting to photographic tourism affected many communities living in and around wildlife areas (Mbaiwa, 2017).

Before the ban, as discussed above, communities generated significant revenue from the sale of hunting quotas to professional outfitters (Blackie, 2019; Mbaiwa, 2017). When the ban was enforced, it led to job losses and decreased hunting tourism income for several communities, impacting rural livelihoods (Blackie, 2019; Gaodirelwe et al., 2020; Gomera & Rihoy, 2019). The effect of the ban on communities is discussed more in Text boxes 7 and 8. In 2021, **the government reversed the ban and granted 287 licences for elephant trophy hunting, resulting in an estimated revenue of USD 2.7 million** (Dube, 2021; Koro, 2021). This revenue exceeded the amount collected from ecotourism alone between 2014 and 2020. **Since 2021, rural communities have generated at least USD 5 million from the proceeds of elephant hunting** (Ibid.). The lifting of the ban was seen as a catalyst for transformation and increased resilience for communities (Coe et al., 2023; Mbaiwa & Hambira, 2021).

Text box 7

The impact of the 2014 hunting ban on rural livelihoods in Ngamiland and Chobe District Areas

The hunting ban in Botswana had a significant impact on rural livelihoods in the Ngamiland and Chobe districts. The ban resulted in a loss of employment and revenue for community-based organisations (CBOs), forcing them to suspend or abandon social services due to a lack of funds. **The revenue for Chobe Enclave Conservation Trust (CECT) had increased from approx. BWP 464,000 (approx. USD 34,427) to BWP 6.3 million (approx. USD 472,557) annually between the years 1997 and 2013 before the wildlife hunting prohibition in January 2014**. Previously, local communities also benefited from the meat of animals hunted in their concessions, which provided an income through the sale of biltong, as well as food. In 2010, **Sankuyo Tshwaragano Management Trust (STMT) raised USD 600,000 from the sale of meat** from the 120 animal hunting quotas allocated by the government (Onishi, 2015). However, with the hunting prohibition, this source of income was lost, leading to increased dependency on other programmes such as the drought relief work. The hunting ban was seen as a factor contributing to the failure of Community-Based Natural Resource Management (CBNRM) as a contributor to rural development on a larger scale.

Source: Blackie, 2019

© Credit Mary-Anne van der Byl

Text box 8

Effects of the trophy hunting ban on rural livelihoods and wildlife conservation in Northern Botswana

The government ban on trophy hunting in 2014 had adverse effects on communities across the country. The government decided to substitute non-consumptive tourism, particularly photographic tourism, for safari hunting. The restriction on safari hunting prevented homes and communities living in wildlife areas from access to meat and essential nutrients that were provided by the game meat. Prior to the ban, CBNRM villages usually made arrangements with safari hunters to collect the meat from trophy hunted animals. While part of the meat was sold at auction, the underprivileged people of the village were always given free meat. Communities that participated in trophy hunting also made large sums each year by selling quotas to specialised guides (see Text Box 7).

However, owing to the ban, communities could no longer obtain this kind of meat. In addition to the loss of game meat, there was the loss of income, jobs and provision of social services that were once provided by the trophy hunting industry. The prohibition resulted in the loss of 200 jobs and approx. BWP 7 million (approx. USD 527,423) in the Okavango Delta. According to the CBNRM Forum, the Sankoyo Village's income declined from BWP 3.5 million (approx. USD 350,000) to BWP 1.8 million (approx. USD 180,000), resulting in 35 job losses, and Mababe Village's income fell from BWP 4.8 million (approx. USD 480,000) to BWP 2.5 million (approx. USD 250,000), with approx. 40 people losing their jobs. In addition, the Mababe village's tourism revenue also decreased from BWP 3.5 million (approx. USD 350,000) to BWP 500 000 (approx. USD 5,000) and approx. 80 jobs were lost as a result of other initiatives in the Okavango Delta and Makgadikgadi Pans, including Seronga, Gudigwa, Phuduhudu, and Xai Xai. The number of poaching cases in Northern Botswana started marginally increasing after the prohibition yet previous CBNRM activities had been responsible for reducing poaching activities (Gaodirelwe et al., 2020). Poaching incidents rose to 323 in 2014 from 309 in 2012.

These effects reversed the accomplishments achieved under the CBNRM programme including expanding wildlife populations of threatened species in Northern Botswana. Furthermore, there were increasing negative sentiments towards wildlife conservation due to the ban on safari hunting in Northern Botswana and the increase in human-wildlife conflict.

Source: Mbaiwa, 2017

Fisheries

In Botswana, **there are three primary categories of fishing: commercial, subsistence, and recreational**. These fishing categories mainly occur in wetlands in the country's north, and this includes the Chobe River and the rivers and channels of the Okavango Delta (FAO, 2023a). In the central, northeast, and southern parts of the country, fishing is permitted in a few of the dams with specific regulations depending on the type of fishing (i.e. sport fishing or consumptive fishing). **Subsistence fishing is the major source of sustenance for rural fishers** who reside on the fringes of the Delta and Chobe systems, and commercial fishing is the primary source of income for the local fishing communities (FAO, 2023a; Mosepele et al., 2010; Ngwenya et al., 2012).

The **Okavango Delta, the largest water source in Botswana, accounts for approx. 80% of the national fish catch** (approx. 38 tonnes) (FAO, 2023a; Mosepele et al., 2022). The majority of fish consumed in the country is imported and **in 2017, fish and fishery product imports were valued at USD 10.3 million** (Ibid.). On the other hand, fish exports were limited to only USD 450,000 (FAO, 2023a). In 2022, the International Trade Administration (ITA) (2022) estimated that Botswana consumed approx. 4,000 tonnes of fish per year and only 300 tonnes were produced locally, with the remaining 3,700 tonnes imported from neighbouring countries.

In 2020, the catch profile was mainly dominated by Nile Tilapia (*Oreochromis niloticus)* (113 tonnes), Three Spotted Tilapia (*Oreochromis andersonii*) (32 tonnes), Tilapias nei (*Oreochromis Spp*) (30 tonnes) and Torpedo-Shaped Catfish (*Clarias spp*) (2 tonnes) (FAO, 2020). **The total fisheries production was 179 tonnes in 2020 and contributed USD 1.04 million in exports of fish and fish products** (FAO, 2020). This had increased from **63 tonnes in 2018 and had contributed USD 1.7 million in exports of fish and fish products** (FAO, 2018). This production supported fish available for consumption which was estimated at 2.9 kg/capita (Ibid.). **There is potential for developing fisheries in numerous small reservoirs which are primarily used for watering livestock in south-eastern and central Botswana** (FAO, 2023a). The Okavango Delta also provides communities with an additional source of income by employing people through small-scale recreational fishing (Ngwenya et al., 2012). The export and import of fish in Botswana is shown in Figure 2.

Text box 9

Fishing ban and illegal fishing in Lake Ngami

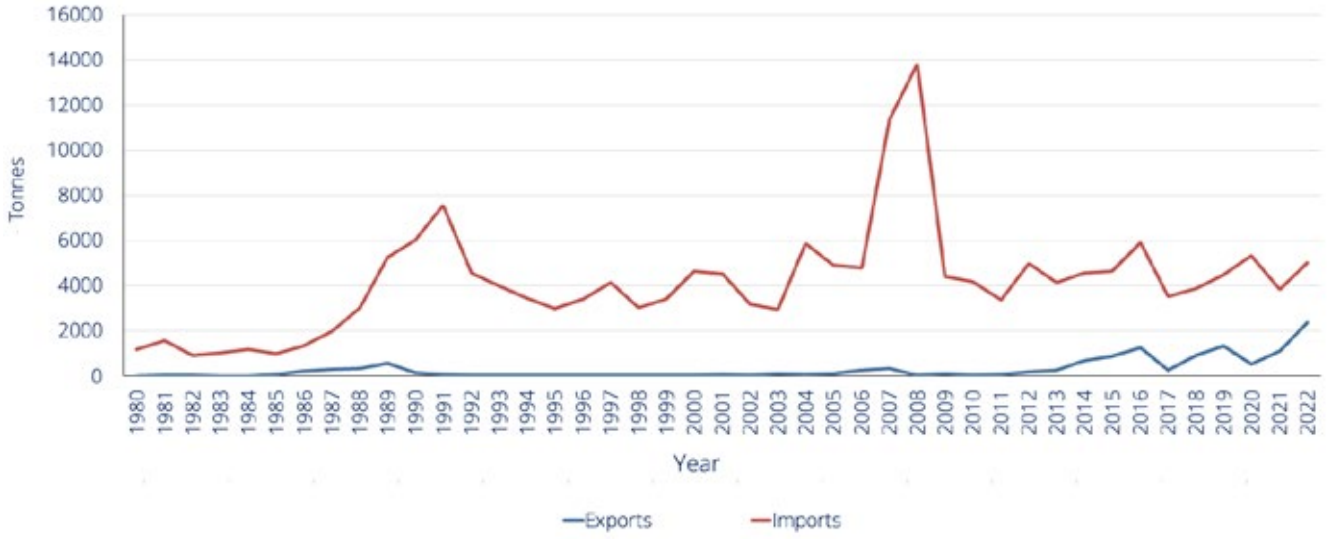
Illegal fishing has had a detrimental impact on the progress achieved in sustainable fishing practices and has posed a serious threat to the conservation of the ecosystems and fish populations in various lakes throughout Botswana. In 2014, in response to possible ecosystem deterioration, the Minister of Environment, Wildlife, and Tourism imposed a fishing ban on Lake Ngami to promote responsible fishing and encourage fishers to acquire permits. Unfortunately, the ban resulted in a low compliance rate, as only 200 out of 3,000 fishers obtained the required permits.

This fishing ban had severe consequences for the communities of Sehithwa and neighbouring villages, who rely heavily on the fishing industry. **These communities exported approx. 13,000 tonnes of dried fish annually, generating a monthly revenue of BWP 84,000 (approx. USD 8,400)**. Without this vital industry, poverty rates have remained high among the 4,000 inhabitants of Sehithwa, with only one in five adults having access to formal employment (Ibid.). Unfortunately, the fishing ban did not achieve its goal of improving fish populations. Instead, it increased illegal fishing activities within Lake Ngami.

Reports from 2016 drew attention to the invasion of Lake Ngami by illegal fishers, resulting in frequent arrests by the Sehithwa police. These people were charged with fishing without the necessary permits and were fined BWP 500 (USD 50) before being released. The local people have criticised the prolonged fishing ban, which was seen as detrimental to the livelihoods of local communities heavily reliant on fishing as their primary source of income.

Sources: All Africa, 2016 & INK, 2017

Figure 2: Export and imports of fish production in Botswana (1980-2020)



Source: FAO, 2023a

Local community access to fishing has been restricted, especially in tourist areas. A contentious policy within Botswana's tourism revolves around fishing on the Chobe River, which marks the border with Namibia (Gumbo, 2022). Historically, this River has supplied natural resources to communities on both sides, with fishing playing a vital role. However, strict regulations enforced due to the Chobe National Park's establishment prohibit fishing on the Botswana side, while Namibians are allowed to use gill nets on the other side. This divergence in policy is confusing for communities, especially when Namibian fishermen are permitted to cross the river into Botswana to sell their catch (Gumbo, 2010; 2022). This policy has deprived local communities of a resource integral to their economy over the years, exacerbating poverty levels (Ibid.). While locals are barred from fishing, tourists in Chobe Riverfront hotels engage in fishing, including catching the prized tiger fish (*Hydrocynus vittatus*). This incongruence between local access and tourism fishing packages raises questions about equity and sustainability. Text boxes 9, 10 and 11 discuss more related to fishing bans and the importance of fishing to local communities in key areas such as Ngamiland and Okavango Delta in Botswana.

Text box 10

The importance of fishing to subsistence fishers in the Okavango Delta

The **Okavango Delta supports both small-scale commercial and subsistence fisheries**. In 2003, the Delta's estimated potential annual fish production ranged from 5,000 to 8,000 tonnes (FAO, 2003). However, fluctuations in fish populations lead to lateral and longitudinal fish migrations, affecting households that rely on fishing as a primary source of income.

Subsistence fishing is vital in providing socio-economic, socio-cultural, and food security benefits for subsistence fishers in the Delta. A survey among 39 households highlighted that subsistence fishing was a significant livelihood activity for 47% of the respondents out of 17 potential livelihood activities. The fish caught were consumed within the households or exchanged for other commodities. Most subsistence fishers traded fish for grain, while others bartered for items such as sugar, cooking oil, and different types of meat from shops. Additionally, 18% of respondents reported buying food directly from fish sales.

The fact that most households (68%) consumed over half of their catch underscores the significance of fish as a vital resource. The survey also revealed that during times of scarcity, 27% of fishing households considered increased fish catches their most critical coping strategy, with an additional 22% ranking it as the second most important strategy.

These findings demonstrate that while fish availability in the Okavango Delta varies spatially and temporally, it remains a crucial resource for rural communities living near the Delta in terms of alleviating poverty. Subsistence fishers have developed coping mechanisms for these variations, including using multiple fishing gears to target different fish species in various habitats and employing post-harvest technology to conserve fish for tough times. Although this study was conducted a long time ago, the findings are still relevant today.

Source: Mmopelwa et al., 2009

Text box 11

Fisheries governance and management in Botswana

Fisheries governance and management in Botswana hold particular importance for riparian communities (communities living near main waterways or rivers) as they often serve as their sole means of sustenance. **Fish and fishing play a crucial role in addressing food and nutrition insecurity in Botswana, especially considering the country's arid climate and dependence on food imports.** To enhance food and nutrition security, Botswana is implementing progressive policies to boost fish production and facilitate access for riparian communities. The importance of fisheries was demonstrated during the 1990s outbreak of cattle lung disease in the Okavango Delta when riparian communities resorted to increased fishing as a coping strategy (Mosepele, 2000). In addition, across Botswana, children from fishing households were observed to have better nutritional statuses than those from non-fishing households (Nnyepi et al., 2007).

Challenges such as **poor governance and inappropriate management approaches** have hindered riparian communities from fully benefiting from the fishing sector. These challenges stem from structural and philosophical issues, often hindering the sector's capacity to deliver goods and services (Béné & Friend, 2011). **Botswana possesses water sources that have the potential to support a thriving aquaculture industry.** However, the failure to fully harness the potential of the numerous dams in southeastern Botswana for fish production, and consequently for ensuring food and nutrition security, highlights the **negative impact of the absence of a comprehensive national fisheries policy. This policy gap has led to a broader failure in Botswana's overall fisheries management and development approach.** This impacts the sector's ability to meet the diverse needs and demands associated with fisheries.

Source: Mosepele & Kolawole, 2017

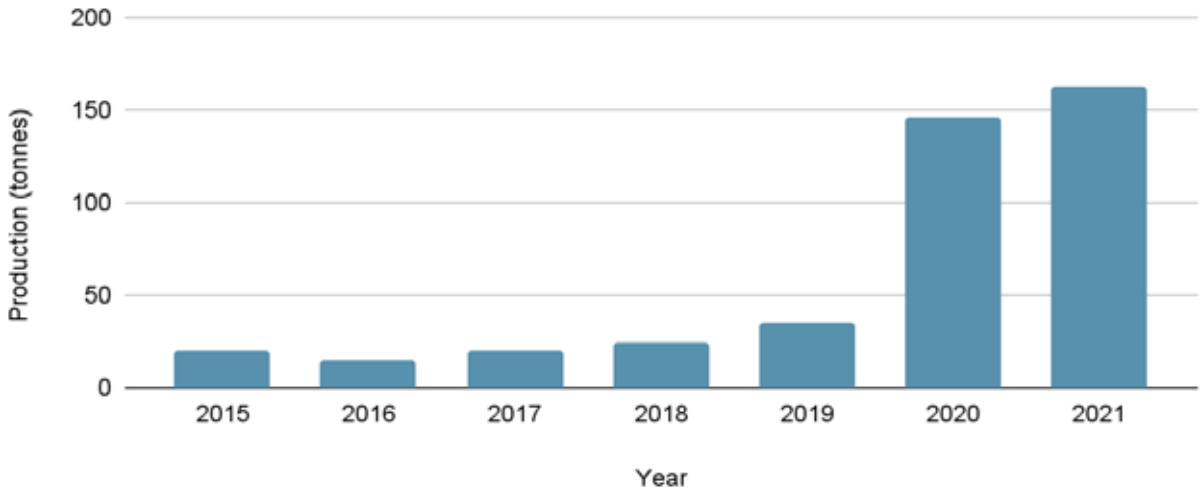
Aquaculture

Aquaculture in Botswana has been recognised as a means of promoting agricultural diversification and alleviating poverty (RoB, 2020). **Aquaculture production is mainly focused on tilapia farming, and the annual production was 15 tonnes in 2016** (FAO, 2023a). Among fish farmers in Botswana, other primary species of interest include the three-spotted tilapia or threespot bream (*Oreochromis andersonii)*. FAO (2023a) data **shown in Figure 3** indicates that **aquaculture production has increased in the country since 2015 and rose to 163 tonnes in 2021.** In 2022 the production further increased to 171 tonnes (Mosepele et al., 2022). The increase from 2015 to 2022 indicates a **positive growth trend in aquaculture production**, highlighting the potential significance and expansion of the industry (FAO, 2023a; Mosepele et al., 2022).

Most aquaculture activities occur in tiny ponds at government or educational organisations (RoB, 2020). The government's commitment to aquaculture development is evident in establishing an **Aquaculture Strategy for Botswana in 2011** (Moyo & Rapatsa, 2021). In addition, Botswana implements interventions in the aquaculture sector by establishing state hatcheries to provide fish seed and offering development finance to pioneer farmers (Mmopelwa et al., 2005). The Ministry of Agriculture in Botswana, in collaboration with the Food and Agriculture Organisation of the United Nations, launched an aquaculture development strategy to decrease the country's reliance on fish imports, and support local farmers in boosting fish production for both domestic consumption and export markets (Farmer's Weekly, 2022).

Other government initiatives that have been set to improve aquaculture in Botswana, include the establishment of a multi-million dollar tilapia project which is part of the Zambezi Integrated Agro-Commercial Development Project (Mapfumo, 2011). In establishing these projects, **the government prioritises indigenous species in their aquaculture policies due to environmental and biodiversity considerations** (Mapfumo, 2011). They permit the introduction of non-native species only after thorough risk assessments. However, some potential commercial farmers argue that indigenous species are less economically viable in terms of growth rates, food conversion efficiency, disease resistance, and management compared to indigenous species (*Nile tilapia*) (Mapfumo, 2011).

Figure 3: Aquaculture production in Botswana (2015-2021)



Source: FAO, 2023a

Wildlife trade

The Ministry of Environment, Natural Resources Conservation and Tourism (MENRCT) regulates the legal wildlife trade in Botswana by issuing permits for exporting and importing specific species (Heermans et al., 2021). The MENRCT also works with the Department of Wildlife and National Parks (DWNP) and several NGOs, such as the Botswana Wildlife Producers Association (BWPA), to promote sustainable wildlife trade (Ibid.). Botswana is a signatory to the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) and is a party to the Convention on the Conservation of Migratory Species of Wild Animals (CMS). Under the Minister's authority, the Wildlife Conservation and National Parks Act (1992) empowers licensing officers within the DWNP to issue various licences (e.g., game, bird, and trophy dealer licences).

CITES regulates the international trade in endangered species to ensure their survival and safeguard biodiversity. **Botswana, which joined CITES in November 1977 and entered into force in February 1978, is an active participant in CITES** (CITES, 2025a). It employs its regulations to manage and monitor the trade in endangered species. This section examines Botswana's CITES exports and imports over a 10-year period (2014-2023) CITES annual reports are due October 31 of the following year, so 2024 trade data was submitted in 2025 and likely unavailable before the deadline. Therefore, data up to the end of 2023 was used. The data was sourced from the CITES trade database, and all subsequent information on CITES-listed species is derived from this database (CITES, 2025b), unless stated otherwise.

Between 2014 and 2023, Botswana exported 324,016.30 CITES-listed specimens, 15 times the number of the 20,405.50 specimens imported. Accurately determining the exact number of CITES-listed species traded via the CITES database is challenging due to inconsistent recording methods. Quantities often include partial specimens, derivatives, and measurements by weight or volume, potentially leading to inflated figures. As a result, these quantities require scrutiny, as they may not reflect the actual number of taxa imported. Quantities are reported from both the exporter and the importer. Amounts reported were calculated using the highest reported value, whether from

Table 4: Purpose of Botswana's exports and imports of CITES-listed species (2014–2023)

Purpose	Exports		Imports	
	Quantity	%	Quantity	%
Breeding in captivity	0	0.00%	0	0.00%
Circus	5	0.00%	221	1.08%
Commercial	165,901	51.20%	19,798	97.02%
Educational	0	0.00%	28	0.14%
Hunting trophy	11,700	3.61%	71	0.35%
Introduction to wild	13	0.00%	192	0.94%
Law enforcement	721	0.22%	0	0.00%
Medical	89	0.03%	0	0.00%
Personal	220	0.07%	67.5	0.33%
Scientific	8,033	2.48%	18	0.09%
Uncategorised	136,818.10	42.23%	10	0.05%
Zoo	516	0.16%	0	0.00%
Total	**324,016.30**		**20,405.50**	

Source: CITES, 2025b

the importer or exporter, depending on which was greater. Table 4 indicates the purposes and reported quantities of exports and imports from Botswana.

CITES-listed species exports

Exports from Botswana are predominantly for commercial and uncategorised purposes, accounting for 51.2% and 42.23% of all recorded exports, respectively. Within the commercial category, 33.63% of exports consist of Devil's claw (*Harpagophytum procumbens*), while a further 44.85% are attributed to other species within the Harpagophytum genus (*Harpagophytum spp*). These specimens were sourced from the wild and exported exclusively to Germany. In the uncategorised export category, 99.97% also comprise Devil's claw, all of which were exported to France; however, the source of these specimens has not been recorded. The remaining commercial exports include specimens derived from Nile crocodile (*Crocodylus niloticus*) (21.47%) and other mammalian specimens, each accounting for less than 1% of the total. Tables 5 and 6 provide a detailed overview of Botswana's commercial and uncategorised exports of CITES-listed species.


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Table 5: Botswana's commercial exports of CITES-listed species (2014-2023)

Importer country	Species	Common name	Trade terms	Quantity
China				**9**
< 1% of commercial exports	*Panthera leo*	Lion	Claws	9
Germany				**130,200**
78.48% of commercial exports	*Harpagophytum procumbens*	Devil's claw	Dried plants, roots	55,800
	Harpagophytum spp.	Devil's claw spp.	Roots	74,400
Hong Kong				**2**
< 1% of commercial exports	*Panthera leo*	Lion	Bodies, skins	2
India				**1**
< 1% of commercial exports	*Panthera leo*	Lion	Claws	1
South Africa				**35,577**
21.44% of commercial exports	*Caracal caracal*	Caracal	Skins	1
	Crocodylus niloticus	Nile crocodile	Skins	35,515
	Mellivora capensis	Honey Badger	Skins	2
	Panthera leo	Lion	Live, skins	59
Switzerland				**8**
< 1% of commercial exports	*Crocodylus niloticus*	Nile crocodile	Skins	7
	Loxodonta africana	African elephant	Trophies	1
United States of America				**3**
< 1% of commercial exports	*Panthera leo*	Lion	Skins	3
Zimbabwe				**1**
< 1% of commercial exports	*Panthera leo*	Lion	Skins	1
Unknown				**100**
< 1% of commercial exports	*Crocodylus niloticus*	Nile crocodile	Skins	100
Total				**165,901**

Table 6: Botswana's uncategorised exports of CITES-listed species (2014-2023)

Importer country	Species	Common name	Trade terms	Quantity
France				**136,801**
99.99% of uncategorised exports	*Handroanthus spp.*	*Handroanthus spp.*	Sawn wood	20.10
	Harpagophytum procumbens	Devil's claw	Roots	136,781
Hungary				**4**
< 1% of uncategorised exports	*Loxodonta africana*	African elephant	Skin pieces	4
Italy				**2**
< 1% of uncategorised exports	*Loxodonta africana*	African elephant	Tusks	2
South Africa				**5**
< 1% of uncategorised exports	*Panthera leo*	Lion	Skins	5
Spain				**6**
< 1% of uncategorised exports	*Loxodonta africana*	African elephant	Tusks	6
Total				**136,818.10**

Text box 12

Empowering rural livelihoods through sustainable devil's claw harvesting in Kgalagadi South

In 2021, communities in Botswana's Kgalagadi South District earned approx. BWP 340,000 (approx. USD 31,600) from selling devil's claw (*Harpagophytum procumbens*), locally known as *Sengaparile*, an indigenous medicinal plant that grows abundantly in the area. According to the Department of Forestry and Range Resources, the harvesting season ran from May to September, during which 541 permits were issued to harvesters and dealers. Each harvester paid BWP 5 (USD 0.47) for a permit, while dealer permits cost BWP 110 (USD 10.2).

The plant not only provided seasonal income but also created temporary employment. Sales were recorded across several villages: BWP 86,000 (USD 7,998) in Kokotsha, BWP 61,000 (USD 5,673) in Omaweneno, BWP 40,000 (USD 2,418) in Werda, and BWP 26,000 (USD 2,418) in Bray. The price per kilogram increased from BWP 28 (USD 2.6) in 2020 to BWP 32 (USD 2.98) in 2021, due to inflation and the physical demands of harvesting. Harvesters were praised for their sustainable practices, such as replanting the taproot after collecting the tubers. However, concerns were raised about the impact of frequent veld fires, which threaten future harvests and biodiversity.

Mr. Gerrit Struyf of Matebeleng Milling Company, the leading buyer, noted that the plant is exported to Europe under the Economic Partnership Agreement, with a smaller share sold locally to pharmacies. Devil's claw is widely valued for treating pain, fever, liver and kidney ailments, and skin conditions. Harvesters shared how the income supported their households: some used earnings to cover school expenses, buy clothing, or invest in durable items. One first-time harvester earned BWP 2,800 (USD 261) and planned to buy something meaningful with her earnings. Another woman reported earning over BWP 7,000 (USD 653) from eight bags and anticipated even more in the following season.

Source: Kgautlhe, 2022

Botswana is the world's second-largest supplier of devil's claw (after neighbouring Namibia, which provides about 90% of global output) (DAFF, 2015). Most of Botswana's dried devil's claw is exported to Europe, with Germany, France, Italy and other EU countries being the primary markets (Ibid.). Smaller quantities also go to South Africa, China, and the United States (DAFF, 2015). Global demand has risen in recent years, reaching an estimated 700–1000 metric tonnes per year in total by 2019 (Brendler, 2019). **Devil's claw exports generate foreign revenue for Botswana's wildlife economy,** but the raw product is relatively low-value, EUR 4–9 per kg (approx. USD 4.5–10), depending on quality (Ibid.). Even with high volumes, the overall trade value remains modest because most economic value is added overseas when the plant material is processed into herbal medicines (Brendler, 2019). **Therefore, Botswana's earnings from devil's claw are far lower than the value of finished pharmaceutical products sold abroad. This indicates an opportunity for Botswana to develop value chains within the country to add value and create further employment.** Read more about how sustainable devil's claw harvesting supports rural livelihoods in Kgalagadi South in Text box 12.

Illegal wildlife trade

Illegal wildlife trade has significantly increased in Botswana as a result of the high demand for wildlife products in Asian countries, the porous borders of Botswana, and the lack of law enforcement resources in the country. (Humphreys & Smith, 2018; Rakenosi, 2020). The government has increased law enforcement efforts and has worked to strengthen international cooperation on wildlife crime. However, more needs to be done to protect Botswana's wildlife (Rakenosi, 2020). Text boxes 13 and 14 discuss the illegal wildlife trade in Botswana further.

Botswana recently launched its five-year National Anti-Poaching Strategy (2025–2030) to combat wildlife crime and safeguard biodiversity. The strategy focuses on cross-sector collaboration, stronger law enforcement, community engagement, and links wildlife protection to border control, financial governance, and regional cooperation.

Text box 13

Illegal bushmeat trade in the Okavango Delta

The illegal bushmeat trade has emerged as a significant contributor to the decline in wildlife populations in Northern Botswana, particularly in the Okavango Delta. The region, known for its rich biodiversity and economic importance, experienced alarming decreases in several ungulate species, as highlighted by the 2011 aerial wildlife survey (Chase, 2011). The survey shed light on the widespread nature of illegal bushmeat in the Delta, with an estimated 2,000 hunters annually capturing approx. 620,000 kg of medium-large herbivore biomass.

In the Delta, bushmeat hunting is predominantly carried out by relatively wealthier households as a means of supplementary income (Rogan et al., 2018). However, exceptions to this trend were found in the form of syndicate organisations that harvested over one tonne per year whilst households engaged in subsistence usage reaching 100 kg per year. The **drivers behind illegal bushmeat hunting** in and around the Delta were attributed to three main factors: (1) economic opportunities, (2) a lack of disincentives to discourage it, and (3) negative attitudes towards wildlife.

This underscores the urgent need to address the issue of illegal bushmeat hunting in the Okavango Delta. By tackling the economic drivers, implementing effective deterrents, and fostering positive attitudes towards wildlife, it is possible to mitigate the detrimental impacts of bushmeat and safeguard the country's biodiversity for future generations.

Source: Heermans et al., 2021

Text box 14

Elephant poaching in Botswana

While population estimates for elephants remained relatively unchanged, evidence from the 2018 aerial survey indicates a concerning increase in elephant poaching in northern Botswana. Between 2014 and 2018, the number of fresh and recent carcasses verified as poached rose by a staggering 593%, with 94 carcasses confirmed as poached. Additionally, 62 old carcasses, identified as poached, were concentrated mainly in the NG 15 (wildlife concession for non-consumptive wildlife utilisation). **The rise in poaching was noted during the period when the trophy hunting ban was in effect.**

The verification of 134 poached carcasses during the aerial survey and the evident damage to skulls and concealment techniques employed by poachers provided strong evidence of the poaching activities. It is estimated that there were 385 poached elephants within approx. one year prior to the 2018 survey raising concerns about elephant populations in Botswana. It is crucial to promptly address the growing poaching problem in northern Botswana. One approach could be through targeting the identified hotspots and implementing effective anti-poaching measures. Botswana has the opportunity to combat poaching while the levels are still relatively low, thereby contributing to the conservation of elephants in the country. Despite this Botswana still has a large number of elephant estimated at between 120,000 and 144,000 (MENT, 2024).

Source: Schlossberg et al., 2019

Wildlife ranching

Wildlife ranching is a slow, steadily growing industry in Botswana, but this growth has been mainly restricted to freehold (private) wildlife ranches. **In 2012, there were an estimated 111 wildlife ranches in Botswana, an increase from 17 registered wildlife ranches that existed in 1999** (Boast, 2014; BWPA, 2015). The government's Game Ranching Policy from 2002 encouraged the establishment of private game farms and conservancies to enhance the growth of game ranching in the country (RoB, 2002). The Policy cited insecure land tenure, insufficient capital, inadequate skills and extension services as some of the key challenges stalling the industry's growth (Ibid.). In addition, the reliance on cattle farming also suppressed the development of the wildlife ranching industry in Botswana (Child, 2009). During the 2014 hunting ban, private game ranches were exempted, allowing them to continue limited hunting activities within their confines under strict regulations and oversight.

Commercial ranches in the Kalahari significantly contribute to conserving threatened species (Dougill et al., 2016; van der Weyde et al., 2021). Wildlife ranches have consistently boosted their wildlife populations to the point where their returns now indicate a surplus of Impala (*Aepyceros melampus*), Blue wildebeest (*Connochaetes taurinus*), Kudu (*Tragelaphus strepsiceros*), Eland (*Taurotragus oryx*), and Waterbuck (*Kobus ellipsiprymnus*) compared to national protected areas (Johnson, 2018). Remarkably, **over half of Botswana's rhino are privately owned** (Ibid.). Given that game ranches encompass just a tenth of the land area of Botswana's national parks and game reserves, this statistic reveals the importance of private ranches in conserving the wildlife asset of the country (Johnson, 2018). Notwithstanding their conservation role, research by Favretto et al. (2014) suggests that **private tenure does not always yield optimal profitability or desired results, as private game ranches exhibited an average loss of -2.07 USD/ha/yr**. These ranches also deplete groundwater resources, valued at around 0.01 million USD/year (0.15 USD/ha/yr) (Ibid.). **Nonetheless, wildlife ranches hold great potential** as discussed in Text box 15. The recent decision by the Botswana government to permit local subsistence farmers to engage in game farming on their fields has the potential to improve the growth of the industry (Bosaletswe, 2022). However, this decision has been criticised since most of the land is unsuitable and earlier proposals to the government have been disregarded (Ibid.). An earlier proposal had recommended allocating land for wildlife ranching along the eastern buffer of the Central Kalahari Game Reserve (CKGR) and the south and west buffer of the Okavango Delta (Bosaletswe, 2022).

Forest products

Botswana has six officially designated Forest Reserves (FRs): Kasane, Kasane Extension, Chobe, Kazuma, Maikaelelo, and Sibuyu (CFA, 2013). In 2020, FRs and other forest areas collectively covered approx. 26.9% of the country's total land area and were primarily established to protect valuable timber resources (FAO, 2023b). **The diverse herbaceous and woody vegetation in Botswana provides a wide range of goods and services that support the country's needs** (CFA, 2013).

In Botswana, **forests serve direct and indirect purposes** (BirdLife, 2017; Garekae et al., 2017). Direct use involves utilising forest resources for human activities, such as timber and medicinal plants, while indirect use refers to essential ecosystem functions such as carbon sequestration, pollination services, groundwater recharge, and wildlife conservation (BirdLife, 2017; CFA, 2013). However, **since the suspension of timber logging in 1992, the direct use of Forest Reserves has been limited** (Ibid.). Only specific activities such as firewood collection and fruit gathering are permitted for surrounding communities (BirdLife, 2017; CFA, 2013). Access and utilisation of forests in communal areas are unrestricted, allowing community members to freely harvest and utilise forest resources for personal use or trade within and between

Text box 15

Wildlife ranching opportunities in the Kalahari and Northern systems

Wildlife ranching in Botswana is economically viable, however, it is still lagging when compared to neighbouring countries. Opportunities for wildlife ranching exist in Botswana's Kalahari and Northern systems, although restocking issues in the Kalahari can make it an expensive endeavour. **Game ranching has the potential to provide an alternative to traditional livestock production**, particularly in the Northern system, which faces challenges such as the outbreak of diseases such as Foot and Mouth Disease and Contagious Bovine Pleuropneumonia (BWPA, 2015). The Kalahari and Northern systems are good areas for the expansion of wildlife ranching since they are characterised by semi-arid environments, which support wildlife ranching into private land or areas with CBNRM programmes.

Intensifying wildlife ranching can also contribute to the diversification of Botswana's economy and create job opportunities for local communities. The Northern system benefits from tourism and the presence of high-value species such as elephant and buffalo. Another benefit of extending wildlife ranching into the Kalahari and Northern systems is how the Kalahari has already been observed to play an important role in the conservation of threatened species (van der Weyde et al., 2021). The development of wildlife ranching as a sustainable land use option and economic incentive for biodiversity conservation in the Kalahari and Northern systems is viable for Botswana.

Source: Sello, 2016

settlements (CFA, 2013). **In 2000, the annual value of forest products was estimated to be USD 15 million, whilst non-timber forest products (NTFPs) had the potential to contribute between USD 10 million and USD 26 million** (CSO, 2004). These figures are outdated and it is important to gather updated, consistent data to assess the state of forests in Botswana.

Botswana has abundant and extensive forest resources and biodiversity with considerable economic potential (BirdLife, 2017; Mogomotsi et al., 2018). Some commonly harvested NTFPs in Botswana include edible insects, fruits, nuts, honey, medicinal plants, fibres, and resins (BirdLife, 2017; Garekae et al., 2019). Fruits such as marula (*Sclerocarya birrea*), baobab (*Adansonia digitata*), and jambalau (*Ximenia americana*) are popular NTFPs in Botswana. These fruits are used for food, beverage, and medicinal purposes. Nuts from the oil palm (*Elaeis guineensis*) are also harvested for their oil, which is used in cooking and soap-making (Garekae et al., 2019; Timko et al., 2010).

Forest products provide crucial support to rural households, especially in the face of climate change and its adverse effects on agriculture (Dlamini, 2021; Mogomotsi et al., 2018). In Botswana, **it is estimated that approx. 50 different species (without fuel wood species) contribute to livelihoods** (BirdLife, 2017). These species include a wide range of uses such as water, firewood, wild foods, medicinal plants, and plant fibres (Ibid.). **These products are important safety nets when agricultural systems fail** (Dlamini, 2021). Text box 16 discusses the importance of non-timber forest products to households in the Chobe enclave.

Wild fruits

The surging demand for medicinal and edible fruit plants in Botswana offers a compelling opportunity to escalate their production as valuable resources (Motlhanka & Makhabu, 2011). These plants, now esteemed for health and broader purposes, have potential beyond healthcare and can significantly enhance the lives of rural populations (Asogwa et al., 2021; Motlhanka & Makhabu, 2011). For instance, Mongongo *(Schinziophyton rautanenii)* nuts form a staple food for bushmen, constituting a significant portion of their daily calorie intake (Maroyi, 2018). The fruit pulp from this plant contributes to local diets, illustrating the multifaceted impact of edible plants (Ibid.).

The unpredictability of wild fruits due to various factors underscores the need to sustainably utilise these wild fruits. Doing so would stabilise supply, foster trade, and usher new income avenues for rural communities. Additionally, tapping into the international market for trading wild fruits holds promise for bolstering Botswana's foreign exchange earnings (Motlhanka & Makhabu, 2011). Nevertheless, the overharvesting of these plants poses risks of depletion and extinction. Counteracting this involves initiatives for propagation, cultivation, and conservation via community-based and commercial nurseries.

Marula

The marula tree (*Sclerocarya birrea)*, holds deep ecological, cultural, nutritional, and economic significance across Southern Africa, including Botswana (Hlangwani et al., 2023). For over 10,000 years, it has served as a vital food and income source, especially for women and rural communities (Ibid.). All parts of the tree are utilised (fruits, bark, and leaves) contributing to both household subsistence and commercial value chains (Hlangwani et al., 2023; Mojeremane & Tshwenyane, 2004). **In Botswana, the marula fruit is processed into various artisanal and commercial products, ranging from fermented beverages to jams, syrups, cosmetics, and oils** (Ibid.). Companies such as Maungo Craft have led innovation in this space, creating marula-based gourmet condiments and exporting products such as 'Smoked Marula, Chillie & Ginger Jam' and 'Marula and Rose Syrup' to the United States (Hlangwani et al., 2023). **In 2022 alone, these exports generated approx. USD 8,080 (BWP 100,000) in revenue** (Ibid.). Air Botswana has also contributed to the domestic value chain by offering marula-based snacks, such as "Marula Nuggets," promoting local produce within the tourism sector (Hlangwani et al., 2023).

Nutritionally, marula fruit is considered a "superfood," with Vitamin C content over six times higher than that of oranges, along with significant levels of amino acids, polyphenols, and essential minerals such as potassium and magnesium (Hlangwani et al., 2023). These properties position marula products as viable health foods in both local and international markets. **The marula value chain has high potential for rural economic development, biodiversity conservation,**

Text box 16

Household forest dependency and the utilisation patterns of NTFPs in the Chobe Enclave

Forests play a crucial role in supporting the well-being of nearby communities, particularly in the Chobe Enclave, which encompasses five villages along the Chobe River basin. The Chobe Forest Reserve (CFR) borders the biodiverse Chobe National Park, home to a significant elephant population of approx. 100,000. CFR serves as a valuable source of resources for local communities, fulfilling their needs for household energy, construction materials, and agricultural inputs. The people living in the Chobe Enclave rely heavily on the CFR for their livelihoods, with an average annual direct use value of forest products per household amounting to USD 347.25, ranging from USD 28.75 to USD 1,677.24. The collection of forest resources, mainly for subsistence purposes, is a regular or occasional practice among the locals. Firewood is the most commonly collected product (85.8%) and fodder is the least utilised (2.7%). Given the significant reliance on forest resources for their sustenance, conservation programmes and strategies must acknowledge the vital role of non-timber forest products in supporting the livelihoods of forest-adjacent communities.

Source: Garekae et al., 2019

and agro-industrial innovation (Hlangwani et al., 2023; Mojeremane & Tshwenyane, 2004). Sustainable expansion requires formalising harvesting protocols, improving postharvest handling, introducing scalable processing technology, and expanding consumer awareness around the fruit's nutritional and cultural value (Hlangwani & Dlamini, 2025; Hlangwani et al., 2023). With appropriate investment in value chain development, ethical sourcing, and technological integration, Botswana's marula sector can serve as a model for how forest products can support inclusive, sustainable development.

Baobab

Baobab (*Adansonia digitata*) is a highly valued tree because the fruits, seeds, leaves, barks, flowers, and taproot of the seedlings and young saplings are used either for nutritional, medicinal, and/or cosmetic purposes (Tselaesele et al., 2023). Rural communities in Botswana harvest baobab fruit from the wild and use it both for subsistence and commercial purposes (Ibid.). The fruit pulp is reported to bear (mg/100 g) vitamin C 280–300, carbohydrates 75.6, fibers 52.0, K 2.31, protein 2.30 and lipids 0.27 (Rahul et al., 2015). The young leaves are rich sources of provitamin A carotenoids (0.9 to 2.7 mg/100 g as retinol equivalents), quality proteins and minerals (Eltahir & Elsayed 2019). The baobab seed oil fatty acids are 32 to 38% monounsaturated (oleic acid), 22 to 26% polyunsaturated (linoleic acid), and 17 to 22% saturated (palmitic acid), shown to be useful for the cosmetic industry (Muthai et al., 2019). These unique nutritional values highlight the baobab's immense value as a multipurpose resource that contributes significantly to food security, health, and income generation. **Its nutritional richness, medicinal properties, and commercial potential make it an important species for rural livelihoods and a promising wild fruit for sustainable natural product value chains in Botswana.**

Apiculture

Apiculture, or beekeeping, holds significant importance in Botswana, contributing to food security, biodiversity conservation, and rural community income generation (Gilbert et al., 2021). Recognising its significance, **the government has established the Beekeeping Development Services**, tasked with facilitating the initiation of apiculture projects, technology transfer, public assistance, project evaluation, and the formation of producer associations. Apiculture is predominantly practised by small-scale farmers and rural communities, offering additional income streams through honey, beeswax, and other bee products (Bareki et al., 2019; Keakopa et al., 2022). **Beyond its economic and ecological role, apiculture carries social and cultural significance, particularly in fostering skills development and entrepreneurship, notably among women.** Women have been actively engaged in entrepreneurial pursuits such as beekeeping, as highlighted by Mamabolo & Lekoko (2021). This commitment to beekeeping persists despite significant challenges, including limited access to financial resources, technical know-how, and viable markets.

Botswana has the potential to export honey, thereby contributing to economic growth and foreign exchange earnings. The country has in the past exported **129 metric tonnes of honey valued at USD 719,000**, showcasing the sector's potential (FAO, 2022a). **To nurture and enhance apiculture, targeted policies, programmes, and collaborative efforts involving government agencies, research institutions, and beekeeping associations are essential** (Mamabolo & Lekoko, 2021). This holistic approach should encompass training, capacity-building, access to finance and markets, and supportive regulatory frameworks. Notably, the government has established institutions such as Citizen Entrepreneurship Development (CEDA) and National Development Bank (NDB) to bolster this sector and provide funding to enable commercial-scale apiculture (Bareki et al., 2019; Turner & Makhaya, 2014). By fostering a conducive environment for beekeeping, Botswana can harness its potential for sustainable growth and socio-economic enrichment.


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Medicinal plants

Botswana has a diverse range of plant species that hold significant medicinal value. The high demand for these medicinal plants has resulted in overharvesting posing a risk of depletion and extinction (Motlhanka & Makhabu, 2011). Slow-growing and naturally rare plant species are particularly susceptible to these threats compared to fast-growing and more abundant species (Ibid.). **It is crucial to address the sustainable management and conservation of these medicinal plant resources to ensure their long-term availability.**

The Kalahari devil's claw (*Harpagophytum procumbens*) is one of the most commonly used and exported medicinal plant species in Botswana (Mncwangi et al., 2012) (see Text Box 12 in the trade section for more on devil's claw). It is widely used to treat various ailments such as rheumatism, arthritis, liver issues, stomach ailments, hypertension, urinary tract infections, diabetes, and malaria (Gxaba & Manganyi, 2022; Mncwangi et al., 2012). The list of medicinal plant species in Botswana is extensive, with some shown in Table 7. While the corresponding USD values for these medicinal plants were not found, considering their importance, it can be assumed that they are significant.

Table 7: A non-exhaustive list of some of the medicinal plants found in Botswana

Scientific name of species	Common name of species
Cassia abbriviata	Sicklebush
Hoodia gordonii	Hoodia, Bushman's Hat
Harpagophytum procumbens	Kalahari devil's claw
Capparis tomentosa	Wild Caper
Ziziphus mucronata	Buffalo Thorn
Bauhinia petersiana	White Bauhinia
Dichrostachys cinerea	Sicklebush, Chinese Lantern Tree
Peltophorum africanum	African Wattle
Cassine transvaalensis	Tansvaal Broom
Ozoroa paniculosa	Mountain Hard Pear
Clerodendrum uncinatum	Cork Bush
Securidoca longipenduculata	Violet Tree
Commiphora glandulosa	Glandular Commiphora
Colophospermum mopane	Mopane Tree
Myrothamnus flabellifolius	Resurrection Plant
Elephantorhriza goetzei	Elephant Root

Sources: Gxaba & Manganyi, 2022; Mncwangi et al., 2012

Edible insects

Edible insects play a significant role in rural economies as valuable forest resources (FAO, 2021; Ghazoul, 2006). Among the various insect species consumed as food, one of the most economically significant in Southern Africa is the mopane worm, the caterpillar of the Anomalous Emperor Moth (*Imbrasia belina*) (Grabowski et al., 2020). **These caterpillars have substantial economic value, with the yearly trade reaching over USD 85 million globally** (Ibid.).

According to Cloutier (2015), in Botswana, **mopane worms have an annual commercial value of approx. USD 26 million during favourable years and support around 10,000 people through employment**. As an example, in 2020, **50 kilograms of mopane worms sold for USD 220** in Gaborone (Ibid.). The mopane worms are primarily consumed in rural areas, with lesser consumption in urban areas (Madibela et al., 2009; Moreki et al., 2016; Selaledi et al., 2021). They are collected twice a year, from December to January and April to May, following periods of good rainfall (Ibid.). The abundance of mopane worms varies annually based on rainfall and the availability of fresh leaves from host trees (Cloutier, 2015; Ghazoul, 2006). For example, the prolonged dry spell of 2019 resulted in a shortage of mopane worms which affected rural livelihoods (Dube, 2020; FAO, 2021). These worms provide seasonal employment opportunities, particularly for rural women who often rely on them as their main source of income (Dube, 2020). **The demand for mopane worms in Botswana exceeds the available supply, and this has led to the overharvesting of these edible insects** (Kelemu et al., 2015; Matandirotya et al., 2022). In response to this, since 2013, Botswana has taken steps to address the issue by implementing a permit system to regulate the harvesting of worms (Dube, 2020). However, local communities in Botswana have advocated for further safeguards to be put in place to ensure the sustainable utilisation of these worms and to protect the interests of those dependent on them for their livelihoods (Ibid.).

The consumption of edible insects varies across Botswana based on the availability, culture and ethnicity of the community. For example, according to Obopile & Seeletso (2013), oleander hawk moth (*Daphnis nerii L.*), arrow sphinx (*Lophostethus dumolinii Angas*) and willow emperor moth (*Imbrasia tyrrhea*) were commonly eaten in Kweneng and Kgalagadi districts but are not eaten in other districts in Botswana. However, **there is currently a lack of comprehensive information regarding the nutritional and economic value of insects in Botswana** (Matandirotya et al., 2022; Musundire et al., 2021). This knowledge gap hinders the recognition of the true potential and, in some cases, underutilisation of these valuable resources (Moreki et al., 2016; Musundire et al., 2021). To shed light on the diversity of edible insects in Botswana, Table 8 presents a non-exhaustive list of some of the edible insects found in the country. While the corresponding USD values for these edible insects were not found, considering their importance, it can be assumed that they are significant.

Table 8: A non-exhaustive list of edible insects found in Botswana

Local name	Scientific name	Common name
Dikakabotha	*Sphingomorpha chlorea*	Sundown emperor moth
Kgonono	*Imbrasia tyrrhea*	Willow emperor moth
Khana	*Daphnis nerii*	Oleander hawk moth
Kokobele	*Hodotermes mossambicus*	Harvester termite
Kokomochane	*Hypotrigona gribodoi*	Stingless bee
Lebitse / Lebezana	*Sternocera orissa*	Giant jewel beetle
Lentloro	*Acrida acuminata*	Common stick grasshopper
Mmamati	*Acrotylus spp.*	Burrowing grasshopper
Monakamongwe	*Agrius convolvuli*	Convolvulus hawk-moth
Mookotsane	*Meliponula spp.*	Mopane bee
Morwerwe	*Hippotion celerio*	Silver-striped hawk-moth
Nato	*Cirina forda*	Pallid emperor moth
Notshe	*Apis mellifera*	Honey bee
Ntlhwa	*Carebara vidua*	African thief ant
Ntsi ya mooka	*Plebeina hildebrandti*	Stingless bee
Phane	*Imbrasia belina*	Mopane worm
Phata	*Bunaea alcinoe*	Common emperor moth
Segonono	*Imbrasia tyrrhea*	Willow emperor moth
Sekala	*Heniocha spp.*	Marbled emperor moth
Sengana/Shega	*Lophostethus dumolini*	Arrow sphinx
Senyanyantsodi	*Gynanisa maja*	Speckled emperor moth
Senyetse	*Monomatapa insingnis*	Cicada
Setotojane	*Acanthoplus discoidalis*	Armoured ground cricket
Thethe	*Oryctes boas*	Scarab larvae
Tsiakgope	*Cyrtacanthacris tatarica*	Brown-spotted locust
Tsie molome	*Nomadacris septemfasciata*	Red locust
Tsie segogwane	*Locustana pardalina*	Brown locust
Tsie ya matebele	*Zonocerus elegans*	Elegant grasshopper
Tsie ya Naga	*Schistocerca gregaria*	Desert locust

Sources: Moreki et al., 2016; Obopile & Seeletso 2013; Selaledi et al., 2021

Text box 17

The profitability of oyster mushroom farming

Oyster mushrooms (*Pleurotus spp*) have witnessed a surge in popularity. This can be attributed to their dual benefits of being both nutritious and versatile in culinary applications. What makes them even more appealing is their ability to be cultivated in a limited space, requiring low initial investment and utilising inexpensive raw materials that are readily available. Despite these promising characteristics, in 2015, the cultivation and promotion of oyster mushrooms in Botswana had received limited attention.

A study done to examine the cost-profit analysis reveals that oyster mushroom cultivation holds substantial potential as a profitable business venture, particularly for farmers in Botswana. Even when accounting for conservative yield estimates, the analysis consistently indicates the capacity to generate income. In fact, **with an expected yield equivalent to 80% of the experimental yield, an estimated monthly income of BWP 5,248 (approx. USD 500) can be achieved**.

This analysis serves as a strong indication that oyster mushroom cultivation in Botswana possesses promising prospects, making it a viable avenue for entrepreneurial farmers seeking sustainable income opportunities. By harnessing the advantages offered by oyster mushrooms, farmers can tap into a potentially profitable market while catering to the growing demand for this nutritious and versatile fungus.

Source: Khare et al., 2015

Mushrooms

The high import costs of mushrooms present an opportunity for the growth of mushroom farming within Botswana as a means to reduce reliance on imports (Khare et al., 2015; Motlhalamme, 2019). **In 2015, Botswana imported approx. BWP 2.4 million (approx. USD 240,000)** worth of mushrooms annually from neighbouring countries (Fendekete, 2015). The import price per kilogram of mushrooms remained relatively stable over the past five years. In 2015, it stood at USD 3.00 per kg and remained unchanged in 2016 and 2017 (Selina Wamucii, 2023). There was a slight decrease in 2018 to USD 2.50 per kg, followed by an increase to USD 5.00 per kg in 2019 (Ibid.). By developing a local mushroom farming industry, Botswana can potentially mitigate the escalating import expenses associated with mushrooms. For instance, the inclusion of oyster mushroom production within small-scale cereal production systems holds great potential for enhancing food and nutrition security among small-scale farmers while simultaneously generating employment opportunities for unemployed youth in rural areas (Khare et al., 2015; Motlhalamme, 2019). Motlhalamme (2019) estimated **the potential additional income from mushrooms cultivated on a hectare of millet stalks to be BWP 102,695 (approx. USD 10,000)**, whereas grain production yielded only BWP 233.95 (approx. USD 23) per hectare. This highlights the significant financial advantage that mushroom cultivation can offer in comparison to traditional grain farming. The profitability of oyster mushrooms is presented in Text box 17. **Although oyster mushrooms are not indigenous to Botswana, there are other mushroom species that are and production of these could be encouraged as part of the wildlife economy.**

Carbon market

Botswana's contribution to the global increase in greenhouse gas (GHG) emissions since 1990 has been limited due to its relatively low emissions profile (UNFCCC, 2022). **In 2018, Botswana's GHG emissions were approx. 7.253 million metric tonnes of carbon dioxide, accounting for just 0.02% of global emissions** (World Bank, 2020). While these emissions are comparatively low, **Botswana has committed to further reducing GHG emissions by 15% in 2030** as part of its Intended Nationally Determined Contribution (INDC) under the Paris Agreement (UNFCCC, 2022). Although the country's commitment may seem modest compared to other countries, any reduction in GHG emissions will contribute positively to global efforts in combating climate change (Ibid.). Botswana's efforts to reduce emissions reflect its commitment to environmental sustainability and alignment with the global agenda to address climate challenges.

Reducing Emissions from Deforestation and Forest Degradation (REDD+) in Botswana

Although efforts have been made to promote the existence of REDD+ initiatives, there are currently no REDD+ projects in Botswana based on the International Database on REDD+ projects and programmes (IDRECCO, 2022).

In 2012, the Botswana government **initiated afforestation efforts to plant over 120,000 seedlings** and in 2015 the Botswana Forest Distribution Map showed that approx. 27% of Botswana comprised forests (Nachmany et al., 2015, RoB, 2017). **These forests are immensely important for the conservation of biological diversity and also in their contribution to carbon dioxide sequestration** (RoB, 2017). However, these forests are threatened by deforestation given the significance of fuel wood as a source of energy particularly in rural areas (Climate Analytics, 2022). In recognition of the challenges posed by deforestation and climate change, **Botswana has taken initial steps towards implementing the REDD+ (Reducing Emissions from Deforestation and Forest Degradation) initiative in forested landscapes**.

From 2011 to 2015, Botswana was a part of the GIZ project commissioned by the German Federal Ministry of Environment, Nature Conservation, Building and Nuclear Safety (BMUB) to support the Southern African Development Community (SADC) Secretariat in a REDD+ MRV (Measurement, Reporting, and Verification) project (GIZ, 2015). As part of this project, a pilot site was established to focus on the conservation and sustainable management of *Baikiaea* woodlands in northern Botswana (Ibid.). This was a significant step towards integrating REDD+ principles into national forest management practices. The government of Botswana has also declared conservation and sustainable management and utilisation of forests as one of its main policy goals (Climate Analytics, 2022). One of the flagship initiatives listed in the National Development Plan are Community-Based Natural Resource Management Programmes

(CBNRMs), focused on promoting the sustainable use of forestry resources through REDD+ initiatives (RoB, undated).

Challenges and opportunities for the wildlife economy in Botswana

Challenges

- **Concentration of tourism**: The concentration of tourism activities in northern regions has led to imbalanced development, leaving other areas with fewer opportunities. Ensuring equitable growth and expanding wildlife-related activities to various regions is crucial to avoid disparities, as well as to avoid over-utilisation in some areas.
- **Illegal wildlife activities and trade:** Illegal hunting and poaching pose a significant threat to Botswana's wildlife economy. Despite significant efforts to combat illegal wildlife trade, poaching remains a challenge, particularly for high-value species such as elephant (*Loxodonta africana*). This threatens biodiversity, disrupts ecosystems, and undermines conservation efforts, potentially impacting tourism and revenue generation. In addition, this can damage the country's reputation, affecting future revenue from wildlife-based activities.
- **Anti-hunting campaigns and the proposed trophy import ban in the UK**: The wildlife economy in Botswana faces the challenge of anti-hunting campaigns and the proposed trophy import ban in the UK, as well as other countries. These campaigns negatively impact the perception of hunting and wildlife-based activities, reducing demand and potential revenue.
- **Community restricted access to resources**: Limited access to resources can create tensions between local communities and wildlife conservation efforts. Balancing the needs of communities reliant on these resources with conservation priorities is challenging. Collaborative management strategies that involve local stakeholders can help address these conflicts and ensure sustainable resource use.
- **Land tenure issues**: The complex land tenure system in Botswana, comprising tribal, state, and freehold land, can lead to conflicts over resource use and management. Ensuring that land rights are respected and integrated into conservation planning is essential for sustainable wildlife management. Land tenure reforms and supportive regulatory and legislative frameworks, that involve local communities in decision-making, can help to address these challenges.
- **Possible construction of dams on the Okavango river system**: The possible construction of dams on the Okavango River system in northern countries presents a significant transboundary challenge. Changes in water flow and habitat disruption could impact the delicate ecosystem of the Okavango Delta which is a prime component of ecotourism in Botswana. Diplomatic efforts and regional cooperation are essential to ensure that any developments are environmentally responsible and consider the downstream effects.
- **Foreign currency retention**: The enclave nature of elements of the tourism industry in Botswana poses challenges related to the limited retention of foreign currency and remittances within the country. Much of the revenue generated from tourism may flow out of the country due to the dominance of foreign-owned tourism companies. Developing equitable mechanisms to encourage local ownership and reinvestment of tourism revenue into the local and national economies can help mitigate this challenge.

Opportunities

- **Carbon/biodiversity credits and climate change mitigation**: Botswana's forests, desert and savannas contribute to carbon sequestration and present opportunities for generating carbon and/or biodiversity credits through sustainable land management practices. Engaging in carbon trading markets and selling carbon credits can generate income while promoting sustainable land management and climate change mitigation. Additionally, the provision of ecosystem services such as water purification and habitat conservation can yield related economic benefits.
- **Value-added wildlife products**: The sustainable utilisation of non-timber forest products and other wildlife resources can lead to the creation of value-added products such as traditional medicines, handicrafts, and organic cosmetics. Developing value-added processing industries for wildlife products, can create jobs and boost local economies. These products can contribute to rural livelihoods while promoting sustainable resource management. In addition, these industries can leverage the sustainable use of resources while promoting cultural heritage.
- **Wildlife ranching**: Expanding wildlife ranching and game farming can diversify the economy beyond traditional sectors. This will allow for sustainable utilisation of wildlife resources while promoting habitat conservation and generating revenue through activities such as trophy hunting, game viewing, legal game meat supply and the breeding of rare species.
- **Sustainable tourism development**: Botswana's pristine landscapes, diverse wildlife, and iconic destinations such as the Okavango Delta attract tourists seeking authentic nature experiences. Capitalising on sustainable ecotourism practices can boost tourism revenue, create jobs, and support local communities. Further developing high-value, low-impact tourism offerings that emphasise conservation and community involvement can enhance the sector's economic contributions.
- **Community-Based Natural Resource Management (CBNRM)**: Strengthening CBNRM initiatives allows local communities to actively participate in wildlife management and benefit from sustainable resource use. This approach empowers communities to generate revenue through eco-friendly activities such as guided safaris, craft production, and cultural experiences. Well-structured CBNRM can enhance rural livelihoods, reduce poaching, and promote wildlife conservation.
- **Eco-friendly infrastructure and services**: Investments in sustainable infrastructure, renewable energy, and eco-friendly services can enhance the attractiveness of Botswana as a responsible tourism destination. Green technologies and practices can reduce the sector's ecological footprint and enhance its competitiveness.

Conclusion

The wildlife economy of Botswana is complex and multifaceted, defined by a careful balance between economic growth, ecological conservation, and sustainable development. Botswana has successfully harnessed its natural resources to fuel various sectors that contribute to its economic vitality. While the prospects are promising, challenges and considerations demand careful attention to ensure a harmonious and resilient wildlife economy.

Tourism, a cornerstone of Botswana's economic landscape, has showcased remarkable adaptability and resilience, navigating through challenges such as COVID-19. The sector's growth trajectory, as demonstrated by an increase in its contribution to GDP, highlights the importance of a diversified offering that aligns with changing tourist preferences. Efforts to balance concentrated tourism in the northern regions with equitable development across the country will be crucial in fostering sustainable growth and minimising disparities.

Trophy and game meat hunting, intertwined with community livelihoods and broader wildlife sector expansion, has shown its potential as a revenue generator for conservation and anti-poaching initiatives. However, it requires effective management to prevent over-utilisation and to ensure the well-being of species and habitats. Similarly, wildlife ranching, though holding promise for economic diversification, must overcome challenges related to limited participation and high costs, necessitating collaborative efforts and policy finesse.

The fisheries sector, buoyed by abundant water bodies, presents significant economic potential while supporting local livelihoods and gender empowerment. Nurturing this sector and maintaining sustainable practices will be imperative to safeguard aquatic ecosystems and the well-being of fishing-reliant communities. Non-timber forest products, with their historical significance, contribute to rural economies and food security, but require comprehensive policies to mitigate overexploitation risks, develop national-level value chains and to promote responsible management.

Amidst these promising facets, the wildlife economy of Botswana faces formidable threats. Habitat loss, poaching, climate change, and invasive species collectively challenge the stability and health of ecosystems. The country's commitment to combatting poaching indicates the seriousness with which it regards these challenges. Yet, continuous vigilance, innovation, and cooperation are needed to address these threats comprehensively. Furthermore, Botswana grapples with economic inequality and unemployment, underscoring the importance of diverse economic opportunities beyond the mining sector. Sustainable growth strategies that foster employment and distribute wealth more equitably are paramount to achieving long-term stability and social well-being. Initiatives such as the Community-Based Natural Resource Management (CBNRM) framework have begun to empower local communities and contribute to sustainable development, although their potential impact must be further explored and optimised.

Botswana's wildlife economy is at a key turning point, with a mix of growing sectors showing strong potential. The country's rich biodiversity, coupled with its commitment to sustainable practices and economic diversification, offers a promising foundation. **By strategically aligning policies, fostering collaboration between the public and private sectors, and prioritising ecological conservation alongside economic advancement, Botswana can navigate its path toward a robust, resilient, and equitable wildlife economy** that not only benefits its citizens but also serves as a model for responsible and sustainable development on the African continent and beyond.

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