Republic of Botswana

BOTSWANA'S 2050
LONG-TERM VISION
FOR LOW CARBON AND RESILIENT DEVELOPMENT

Republic of Botswana

Botswana's Long-Term Vision for Low Carbon and Resilient Development to the Paris Agreement of the United Nations Framework Convention on Climate Change

Acknowledgements

Botswana Department of Meteorological Services greatly appreciate the African Development and 2050 Pathways Platform for the provision of the technical and financial support in preparing this Long-Term Vision report. Our gratitude goes to the key stakeholders that comprise of Government Ministries and Departments, Parastatals, Academia, Non-Governmental Organizations, Private entities, and Civil Society Organizations for their highly informative and participation in the process. We thank the consultancy teams HEAT GmbH and Keran for undertaking and completing the task. The project management team is acknowledged for its guidance throughout the process.

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Foreword

The Ministry of Environment and Tourism is pleased to present this long-term vision (LTV) on low carbon and resilient development, a response to Article 4.19 of the Paris Agreement, which invites all parties to the UNFCCC to develop long-term climate strategies. As custodians of our nation's natural resources and advocates for sustainable development, we acknowledge the paramount importance of addressing climate change and constructing a future that is not only environmentally sound but also economically and socially inclusive.

Botswana's LTV embodies our collective aspiration to chart a trajectory towards a low-carbon economy that prioritizes resilience and sustainability. This vision is a culmination of Vision 2036 and aligns with both our national and international obligations, including the Paris Agreement (PA). Developed through an inclusive process involving government, civil society, academia, and the private sector, the LTV reflects Botswana's unwavering determination to attain net-zero, climate- resilient, and prosperous status by 2050. The strategies outlined herein are meticulously designed to foster innovation, enhance adaptive capacity, and ensure equitable opportunities for all segments of society.

Our vision encompasses a diversified economy and an empowered populace thriving in harmony with protected natural heritage. This transformative paradigm will witness the establishment of a sustainable energy sector propelled by renewable sources, efficient low-carbon transportation systems, green buildings, and climate-smart agriculture. Through sustainable forest management and land use practices, Botswana endeavours to maximize carbon sequestration.

The realization of this vision necessitates the development of a comprehensive National Long-term Low Emission Development Strategy, which will outline specific targets and policy measures. Initial actions include establishing a well-defined work plan and forming a National Steering Committee. Through continuous stakeholder engagement and innovative practices across sectors, Botswana is poised to emerge as a leader in sustainable development in Southern Africa. Our journey towards a green future will be equitable and inclusive, ensuring that no one is excluded.

This foreword establishes the foundation for Botswana's ambitious endeavour towards sustainable, green growth, and serves as an impetus for all stakeholders to contribute towards this shared aspiration of a prosperous, climate-resilient nation. As we embark on

this transformative journey, we recognize that success will require unwavering effort, innovative thinking, and collaborative spirit. This is a collective endeavour that demands the unwavering commitment of every individual, organization, and institution within our nation. Let this document guide and inspire us. Together, we can construct a future that upholds our responsibility to the planet, fulfils the aspirations of our people, and sets a benchmark for other nations to emulate.

Mr Boatametse Modukanele
Permanent Secretary
Ministry of Environment and Tourism

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List of abbreviations

2050 PP	2050 Pathways Platform
AfDB	African Development Bank
AFOLU	Agriculture, Forestry and Other Land Use
BAU	Business as usual
BERA	Botswana Energy Regulatory Authority
COP	Conference of the Parties
CSA	Climate Smart Agriculture
DMS	Department of Meteorological Services
ESG	Environmental Safeguards and Gender
ETF	Enhanced Transparency Framework
EV	Electric Vehicle
GCF	Green Climate Fund
GDP	Gross domestic product
GHG	Greenhouse gas
IPCC	Intergovernmental Panel on Climate Change
IPPU	Industrial Processes and Product Use
IRP	Integrated Resource Plan
LTS	Long-Term Low-Emission Development Strategy [Long-Term Strategy]
LTV	Long-Term Vision
LULUCF	Land Use, Land Use Change and Forestry
MADFS	Ministry of Agricultural Development and Food Security
MELPSD	Ministry of Employment, Labour Productivity and Skills Development
MET	Ministry of Environment and Tourism
MFED	Ministry of Finance and Economic Development
MHW	Ministry of Health and Wellness
MLMWSS	Ministry of Land Management, Water and Sanitation Services
MMGE	Ministry of Mineral Resources, Green Technology and Energy Security
MNIGA	Ministry of Nationality, Immigration and Gender Affairs
MRV	Monitoring, Reporting and Verification
MTC	Ministry of Transport and Communications
NAP	National Adaptation Plan
NCCC	National Climate Change Committee
ND-GAIN	Notre Dame Global Adaptation Initiative
NDC	Nationally Determined Contribution
PPP	Public-private partnerships
R&D	Research and Development
SADC	Southern African Development Community
SDG	Sustainable Development Goals
SMART	Specific, measurable, achievable, relevant and time-bound
SME	Small and medium enterprises
TWG	Technical Working Groups
UNFCCC	United Nations Framework Convention on Climate Change

Executive Summary

Botswana faces significant climate change impacts, including rising temperatures, severe droughts, and increasingly erratic rainfall, threatening water security, biodiversity, economic stability, and overall socio-economic development. The agricultural sector, vital for rural livelihoods, is particularly vulnerable, as seen in the devastating recent droughts of 2019 and 2024. The climate crisis also threatens Botswana's biodiversity (including the key wildlife areas associated with the Okavango Delta and the Chobe River), as well as energy production, infrastructure, and public health. The global shift to clean technology offers Botswana an opportunity to leverage its extensive solar resources, move away from high coal dependence for energy generation, diversify the economy, create green jobs, and achieve sustainable growth.

Botswana's Long-term Vision (LTV) aims to address these challenges in order to enhance climate resilience, food and energy security, poverty reduction, and economic diversification, positioning Botswana for sustainable, green growth, and setting the foundation for the elaboration of Botswana's full Long-term Low Emission Development Strategy (LTS) as a response to Article 4.19 of the Paris Agreement inviting all parties to the UNFCCC to develop long-term climate strategies.

Botswana's LTV is a comprehensive development strategy that builds on Vision 2036, and aligns with Botswana's national climate and development policies, as well as with international climate policy commitments, reflecting the national vision for net-zero emissions and climate resilient developments towards the year 2050. The LTV was created through an inclusive process involving government, civil society, academia, and the private sector through extensive stakeholder engagement, including workshops and consultations between September 2023 and October 2024.

During this consultation process, stakeholders identified key sectors and pillars as cross-cutting and overarching themes, and discussed their potential contributions to lowering greenhouse gas (GHG) emissions. This LTV document describes the challenges, opportunities, aspirations, and recommendations of these sectoral and cross-cutting pillars to address the most important actions at the intersection between climate and development and towards achieving Botswana's vision of a low-carbon, green, and resilient society by 2050. Recommendations address aspect such as: strengthening water resource management; enhancing agricultural resilience; promoting renewable energy and transitioning away from fossil fuels; developing sustainable transport systems; moving towards zero waste, resilient infrastructure development; and gender, youth and the just transition.

Botswana's LTV states that:

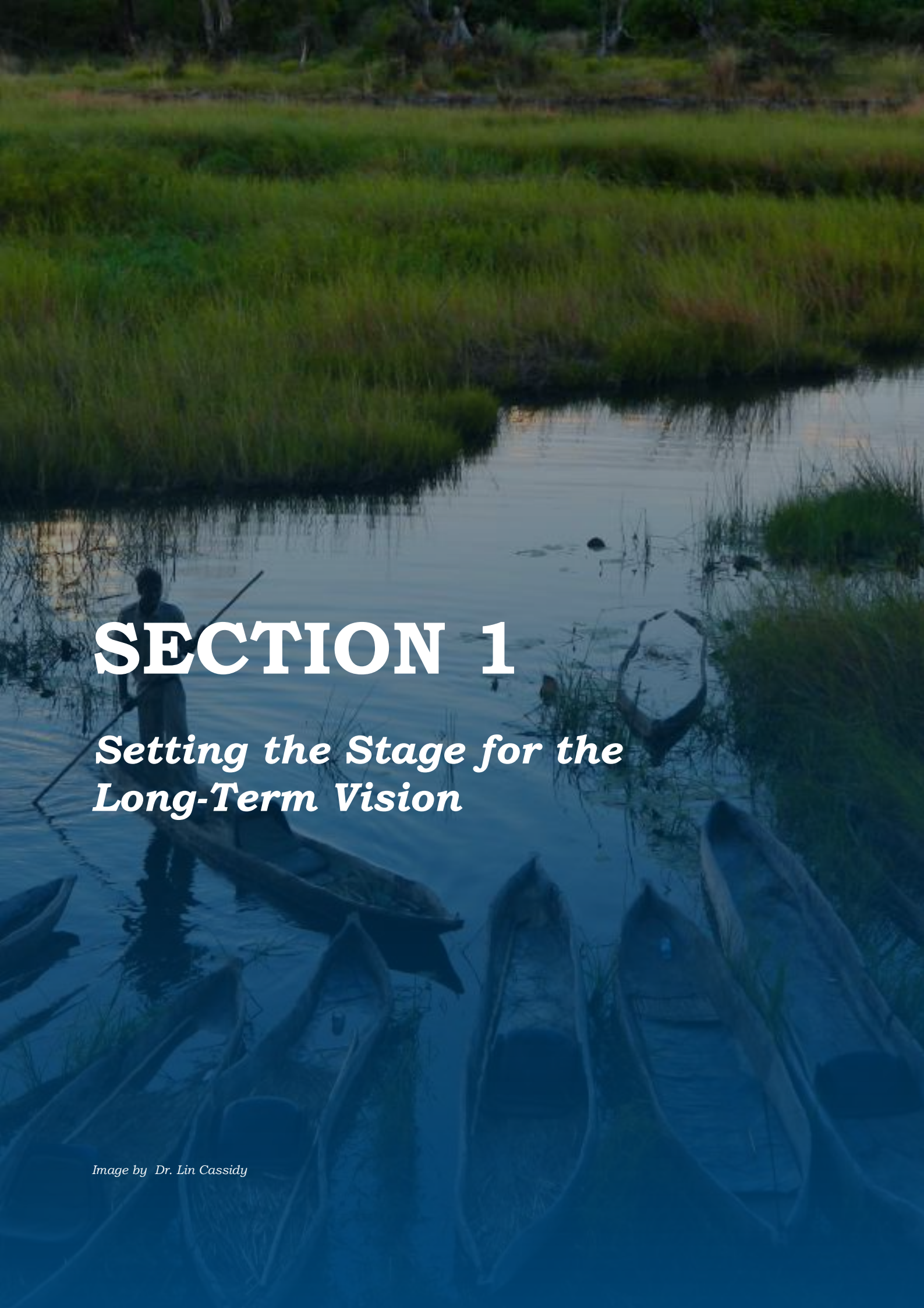
"By 2050, Botswana will be a net-zero, climate-resilient, and prosperous nation, harnessing its abundant solar resources to become a regional clean energy powerhouse. Our society will thrive with a diversified economy, empowered population, and protected natural heritage.

We envision:

	*A sustainable energy sector powered by renewable sources, particularly solar, ensuring universal access to clean, affordable electricity.*
	*An efficient, low-carbon transport system featuring electric vehicles and comprehensive public transportation networks.*
	*Green buildings and industries that prioritize energy efficiency and sustainable materials.*
	*A resilient agriculture sector adopting climate-smart practices to enhance food security and rural livelihoods.*
	*Sustainable forest management and land use practices that maximize carbon sequestration.*
	*A circular economy approach to waste management, minimizing waste generation and maximizing resource recovery.*
	*Climate-responsive urban planning that promotes sustainable cities and communities.*
	*Strong climate governance with robust legal frameworks, cross-sectoral coordination, and active stakeholder participation.*
	*Gender-responsive and inclusive climate actions that address the needs of vulnerable groups, including youth and marginalized communities.*

We will achieve this through innovative technologies, sustainable practices across all sectors, and strong partnerships between government, business, civil society, and faith-based organizations. Our transition will be just and inclusive, ensuring no one is left behind as we build a green future that enhances energy security, creates new opportunities, and positions Botswana as a leader in sustainable development in Southern Africa."

As the way forward to reaching this vision, Botswana will develop the national Long-term Low Emission Development Strategy, which will provide detailed and specific targets, policy measures, and implementation plans that will translate the Vision into actionable initiatives. The immediate next steps that Botswana will take to begin this process are outlined in the final section on the Way Forward. These include establishing a detailed LTS workplan outlining timelines, responsibilities, and specific work packages (with details on technical work to be conducted during the LTS elaboration process), and establishing a National LTS Steering Committee to lead the elaboration process, as well as sectoral and technical working groups. These next steps will include hosting provincial and local consultations with key stakeholders; and drafting and reviewing various iterations of the LTS document throughout the LTS elaboration process.



SECTION 1

Setting the Stage for the Long-Term Vision

Image by Dr. Lin Cassidy

1 Setting the Stage for the Long-Term Vision

This chapter introduces the purpose of this document and Botswana's motivation to develop a Long-Term Vision. It covers the need for setting long- term low emission and resilient development goals based on, on the one hand, Botswana's commitments to global climate agreements and, on the other hand, the country's national context and climate policy framework.

1.1 Botswana's development context and the rational for the LTV

Botswana's journey since independence has been marked by significant economic progress, primarily driven by its diamond mining sector. As an upper- middle-income country in Southern Africa, it now stands at a crucial crossroads. The nation faces a dual challenge: diversifying its economy beyond mineral extraction and addressing the escalating impacts of climate change. These challenges are intricately linked and demand a cohesive, forward-thinking approach to ensure sustainable development.[1]

The urgency of this approach is underscored by the visible effects of climate change already manifesting across Botswana. Rising temperatures, more frequent and severe droughts, and increasingly erratic rainfall patterns are not mere environmental concerns – they pose existential threats to the nation's water security, biodiversity, and economic stability.[2] The agricultural sector, while contributing modestly to GDP at about 2%, remains a critical component of rural livelihoods and food security. Approximately 70% of rural households engage in some form of agricultural activity, making them particularly vulnerable to climate impacts.[3] The 2015-2016 drought, which affected over 1 million people and led to significant livestock losses, starkly illustrated this vulnerability.

Moreover, the ripple effects of climate change extend far beyond agriculture. The Okavango Delta and Chobe River systems, cornerstones of Botswana's biodiversity and tourism industry, face threats from changing precipitation patterns and increased evaporation rates. These climate risks also have implications for energy production, infrastructure resilience, and public health, underscoring the need for a comprehensive, cross-sectoral approach to climate resilience and adaptation.

It is against this backdrop of challenges that the global clean technology revolution emerges as a beacon of opportunity. The rapidly declining costs of solar, wind, and energy storage technologies are reshaping the global energy landscape. For Botswana, with its abundant solar resources, this technological shift opens new pathways for development. By leveraging these advancements, Botswana has the potential to position itself as a regional clean energy leader, leapfrogging carbon-intensive development models that have historically characterized economic growth.

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[1] 15721-WB_Botswana Country Profile-WEB (1).pdf (worldbank.org)

[2] https://www.nature.com/articles/s41467-023-41971-7

[3] Botswana | Climate Change Adaptation (adaptation-undp.org)

This transition towards a net-zero, climate-resilient economy aligns seamlessly with Botswana's broader development objectives as outlined in Vision 2036. It offers a means to diversify the economy, create new job opportunities, ensure energy independence, and potentially establish Botswana as a net exporter of clean electricity. In essence, it presents a pathway to economic prosperity that is inherently sustainable and resilient to climate impacts.

However, the road to realizing this potential is not without obstacles. The transition requires substantial investments in new technologies and infrastructure, particularly in modernizing and expanding the electricity grid to accommodate variable renewable energy sources. Access to affordable financing remains a significant hurdle, with high upfront costs and perceived investment risks posing challenges to rapid deployment of clean technologies. Furthermore, the transition necessitates policy adaptations to create an enabling environment for local supply chains, attract international investments, and foster innovation in the clean energy sector.

It is in this complex context of challenges and opportunities that the rationale for Botswana's Long-Term Vision (LTV) for net-zero emissions and climate-resilient development becomes clear. The LTV serves as a crucial framework for navigating this intricate landscape. It provides a long-term perspective that aligns climate action with broader development goals, offering guidance for investments, policy reforms, and capacity-building efforts across all sectors of Botswana's economy and society.

By articulating this vision, Botswana sets out a roadmap that not only addresses the pressing issues of climate change but also drives sustainable economic growth, enhances energy security, and positions the country as a leader in the emerging green economy. The LTV acts as a guiding light, ensuring that Botswana's development pathway is both environmentally sustainable and economically prosperous in the face of global climate challenges and technological opportunities.

T he subsequent chapters of this document will delve deeper into the specific components of this vision. They will outline Botswana's climate profile and policy framework (Chapter 3), provide a sectoral assessment of greenhouse gas emissions (Chapter 4), and detail the key elements of Botswana's Long-Term Vision (Chapter 5). Finally, the document will lay out a roadmap for stakeholder engagement and governance in developing a full Long-Term Strategy (Chapter 6).

1.2 Global climate change and implications for Botswana

Climate change poses a significant challenge to Botswana, threatening its water resources, agriculture, and overall socio-economic development. The country's unique geographical and climatic conditions, combined with its socio-economic vulnerabilities, including high dependence on coal for energy generation, necessitate a tailored approach to climate change adaptation and mitigation. This document outlines a Long-Term Vision for Botswana aimed at building consensus among key stakeholders for a low-emission

pathway that addresses the specific needs and circumstances of Botswana, in line with Article 4.19 of the Paris Agreement.

Climate change impacts

Botswana, a country recognized for its vulnerability to climate change impacts, faces significant challenges due to its climate and geography, and will be strongly affected by climate change.[4] As of 2021, the country ranked 80th on the Notre Dame Global Adaptation Initiative Country Index (ND-GAIN)[5] with a score of 50.8. Botswana has a relatively low vulnerability score of 0.419 and a readiness score of 0.435, i.e., its overall adaptation challenges are still manageable[6]. Still, some indicators, including projected change in cereal yields, agriculture capacity[7], and dam capacity, show very high adaptation risks.

Strategic climate change response

To address its climate challenges, Botswana takes a comprehensive and coordinated approach to climate action as stated in the 2021 Botswana Climate Change Policy issued by the Ministry of Environment and Tourism (MET), highlighting the importance of an inclusive approach to development, taking sustainable pathways and stakeholder involvement. Botswana is mainstreaming this climate change policy into priority areas directly relevant to Botswana's comprehensive approach to climate action. The priority areas where strategic interventions can have significant impact include:

- **Strengthening Climate Governance:** With the importance of coordinated and integrated climate actions among multiple actors at different levels of government and society, and in order to enable critical long-term national capacity, Botswana will strengthen its climate governance with the necessary institutional arrangements, authority, and leadership for higher climate ambition. Mechanisms for strengthening strategic responses include updating existing policies (especially relating to energy, agriculture, transport and climate change) to ensure alignment with this vision, mobilising financial and human resources to support climate change, and supporting those sectors most vulnerable to climate change impacts.

- **Strengthening Water Resource Management:** Given the significant impact of climate change on water availability in Botswana, it is crucial to implement strategies that ensure efficient water use, conservation, and management. This includes adopting innovative technologies for water harvesting, promoting rainwater harvesting, and implementing water recycling systems to enhance water security.

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[4]World Bank 2021 Climate Risk Profile-Botswana. https://climateknowledgeportal.worldbank.org/sites/default/files/2021-05/15721-WB_Botswana%20Country%20Profile-WEB%20%281%29.pdf

[5] https://gain-new.crc.nd.edu/country/botswana

[6] ND-GAIN Country Index rankings | ND-GAIN Index

[7] https://gain-new.crc.nd.edu/country/botswana

- **Enhancing Agricultural Resilience:** Botswana recognizes the importance of climate-resilient agricultural practices in ensuring food security and sustainable livelihoods. This involves promoting the adoption of drought- tolerant crop varieties, implementing sustainable irrigation systems, and providing training and support to farmers in implementing climate-smart agriculture techniques.

- **Building Institutional Capacity:** Strengthening the capacity of government institutions and local communities to respond to climate change is a priority for Botswana. This includes enhancing knowledge and skills in climate change adaptation and mitigation, establishing a permanent climate change office and mandating departments within relevant ministries, establishing a ministerial-level climate action coordination unit, and improving access to climate finance for implementing climate projects at national, sub-national and community level.

- **Promoting Renewable Energy and Energy Efficiency**: Botswana is committed to reducing its carbon footprint and decreasing its reliance on fossil fuels. The country prioritizes the development and adoption of renewable energy sources such as solar and wind power, as well as implementing energy efficiency measures to reduce GHG emissions, strengthen energy security and promote sustainable energy practices. Biomass energy through the rehabilitation of bush encroachment and in the process improve rangeland productivity can be a viable transition option.

- **Urban Planning and urban climate resilience:** Botswana has developed and implemented urban planning policies that promote sustainable cities by integrating green spaces, sustainable housing, and efficient public transportation systems. The country has upgraded infrastructure to withstand extreme weather events, including constructing flood defences, resilient buildings, and climate-adaptive public spaces. Additionally, Botswana has invested in public transport networks to reduce dependency on private vehicles, promoted the use of electric vehicles (EVs) by setting up charging infrastructure and providing incentives for EV adoption, and encouraged walking and cycling by developing safe and extensive bike lanes and pedestrian pathways.

- **Fostering Community Engagement and Awareness:** Botswana recognizes the importance of engaging at community-level for implementation of climate change initiatives. This involves raising awareness about the impacts of climate change, promoting sustainable lifestyles, and integrating traditional and indigenous knowledge and practices into climate change adaptation and mitigation strategies.

- **Leveraging International Support:** Botswana actively seeks international support and collaboration to access technical expertise, financial resources, and technological advancements necessary for implementing its climate change strategies. This includes forging partnerships with international organizations, participating in global climate change conferences, and leveraging funding opportunities to accelerate climate action in the country.

1.3 African Union and SADC Climate Change Strategy

Botswana's Long-Term Vision for net-zero emissions and climate-resilient development is not formulated in isolation but is part of a broader continental and regional framework for addressing climate change. The African Union (AU) and the Southern African Development Community (SADC) have developed comprehensive strategies that provide important context and support for Botswana's national climate efforts.

At the continental level, the African Union's Agenda 2063: The Africa We Want serves as an overarching framework for Africa's socio-economic transformation. This visionary document recognizes the critical role of environmental sustainability and climate resilience in achieving the continent's development aspirations. Specifically, Aspiration 1 of Agenda 2063 envisions a prosperous Africa based on inclusive growth and sustainable development, with a particular emphasis on climate resilient economies and communities.[8]

Building on this foundation, the AU has developed the African Union Climate Change and Resilient Development Strategy and Action Plan (2022-2032). This strategy aims to enhance the adaptive capacity and resilience of African countries while promoting low-carbon development. It focuses on five key pillars:[9]

- Strengthening policy and governance
- Enhancing research, education, and awareness
- Ensuring adequate finance and resource mobilization
- Promoting climate-resilient development and low carbon growth
- Enhancing cooperation, partnerships, and solidarity

The strategy recognizes the unique challenges faced by African countries in addressing climate change, including limited financial resources and technological capacity. It emphasizes the importance of leveraging Africa's vast renewable energy potential – a goal that aligns closely with Botswana's vision of becoming a regional clean energy powerhouse.

At the regional level, the Southern African Development Community, of which Botswana is a member, has developed the SADC Climate Change Strategy and Action Plan (CCSAP). This strategy provides a framework for regional cooperation on climate change, focusing on:

- Adaptation and climate risk management
- Mitigation and low-carbon development
- Cross-cutting issues such as research, technology development and transfer, and capacity building

[8] Agenda 2063: The Africa We Want. | African Union (au.int)

[9] African Union Climate Change and Resilient Development Strategy and Action Plan (2022-2032) | African Union (au.int)

The SADC strategy recognizes the shared climatic conditions and interconnected ecosystems of the region, emphasizing the need for coordinated action. It also acknowledges the potential for regional cooperation in developing renewable energy resources, which resonates with Botswana's ambitions in the clean energy sector.[10]

T These continental and regional strategies provide a supportive framework for Botswana's Long-Term Vision. They offer platforms for knowledge sharing, capacity building, and coordinated action on shared climate challenges.

Moreover, they align the region's efforts with global climate goals and strengthen Africa's voice in international climate negotiations.

Botswana's LTV and subsequent climate strategies should align with and contribute to these broader regional initiatives. This alignment can help Botswana leverage regional resources and expertise, participate in cross-border climate projects, and contribute to a coordinated regional response to climate change.

By situating its national climate efforts within these regional frameworks, Botswana can enhance the effectiveness of its climate action, contribute to regional climate resilience, and play a leadership role in driving sustainable development in Southern Africa. The LTV thus represents not only Botswana's commitment to its own sustainable future but also its contribution to the broader African vision of a prosperous, climate-resilient continent..

1.4 International Climate Commitments

Botswana's commitments to international climate agreements are comprehensive and reflect its dedication to global environmental stewardship. As a signatory to the Paris Agreement, Botswana has pledged to contribute to the global effort to limit warming aiming for 1.5°C by 2050[11].

The country has set ambitious targets to reduce its GHG emissions by 15% by 2030, leveraging renewable energy projects, carbon sequestration and other initiatives as outlined in its Integrated Resource Plan (IRP). The IRP, approved in August 2020, serves as the national framework for energy planning, identifying priority energy projects to meet the growing energy demand. It includes the implementation of renewable energy projects with a total installed capacity of 795MW, which are crucial for meeting the energy demand at least cost while reducing the country's carbon footprint. These projects, to be implemented during the first seven years of the IRP, include a 100MW Solar Photovoltaic and a total of 35 MW grid-tied Solar Photovoltaic. Furthermore, the IRP supports the introduction of at least 50MW and 100MW wind and solar PV capacity, respectively, in the period 2024 to 2027. Botswana's commitment to reducing carbon emissions aligns with its national development goals and Vision 2036, which emphasizes sustainable

[10] Validation of the Draft Regional Climate Change Strategy and Action Plan Meeting | SADC

[11] Botswana | UNFCCC

economic development and climate change adaptation[12]. Vision 2036 focuses on four pillars: sustainable economic development; human and social development; sustainable environment; and governance, peace and security. At the same time, the document reflects the Government's current aim to continue its exploitation of fossils, even as it recognises the development of 'renewable resources to complement non-renewable resources.'

The country has also engaged in a number of other internationally led efforts:

- The country's efforts are reflected in its NDC submitted to the UNFCCC, which outlines its strategies for emission reduction and adaptation to climate change impacts13. The country's NDC sets ambitious goals to abate a significant percentage of its projected emissions.
- Botswana has actively participated in international forums such as the Conference of the Parties (COP), where it engaged in discussions on climate resilience and adaptation strategies for Africa.
- The country played a significant role in the Africa Climate Summit held in September 2023, which reinforced a unified regional approach for COP28 and highlighted the need for smart investments.
- Beyond the COP meetings, Botswana has been involved in other climate-related initiatives. For instance, it hosted the NAP Expo in 2022, which focused on implementing crucial adaptation actions[14].
- Botswana recognizes the importance of transparency in climate action and is committed to enhancing its efforts in line with the Paris Agreement's Enhanced Transparency Framework (ETF), as outlined in the Katowice Climate Package adopted at COP 24. The country is actively engaging with international partners and seeking support to improve its capacity for implementing and monitoring mitigation and adaptation measures. This includes strengthening institutional arrangements, developing robust Measurement, Reporting, and Verification systems, and enhancing the technical expertise of relevant stakeholders.
- Botswana's commitment extends beyond climate change mitigation to include the protection of biodiversity and the ozone layer. Botswana is also a signatory or party to several other multilateral environmental agreements, ranging from the UN Convention to Combat Desertification, the UN Convention on Biological Diversity, the Sustainable Development Goals, to the Minamata Convention on Mercury. The country has implemented its National Biodiversity Strategy Action Plan under the Convention on Biological Diversity and has taken significant steps to preserve its rich biodiversity through the establishment of national parks, game reserves, and wildlife management areas[15]. Botswana has demonstrated its dedication to ozone protection by actively working towards the phase-out of pollutants such as

[12] https://converis.ub.bw/converis/portal/detail/Publication/7211560?lang=en_GB

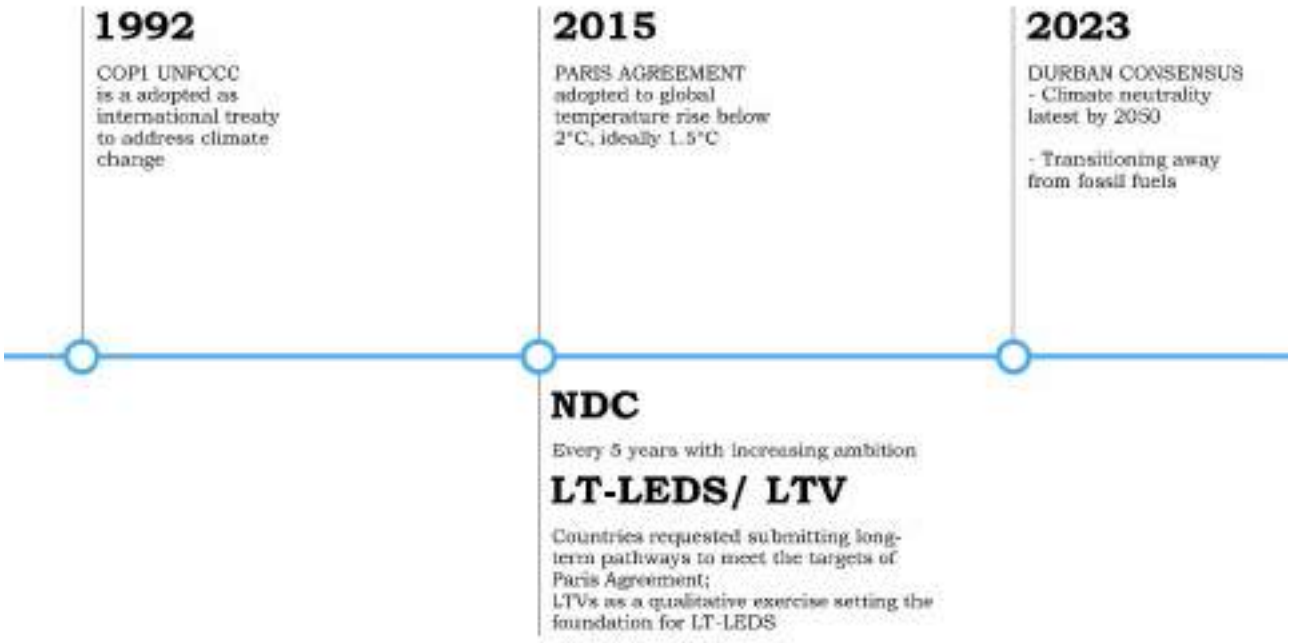
[14] Highlights and images for 1 December 2023 (iisd.org)

[15] Botswana | Climate Change Adaptation (adaptation-undp.org)

HCFC and HFCs, in line with its commitments under the Montreal Protocol and its Kigali Amendment[16].

Botswana's climate ambition is further expressed through its intention to develop a Long-Term Low Emission Development Strategy under Article 4.19 of the Paris Agreement, where this Long-term Vision will be the first preparatory step. Figure 1 illustrates the UNFCCC framework under which the LTV for Botswana is developed. This LTV and its ensuing LTS represent a strong opportunity to synergise and align development responses to the country's international and regional obligations in the short to long term, while also requiring harmonisation of national policies to accommodate a cohesive position in the face of the unprecedented threats of accelerated climate change.

Figure 1 Development of the LTV under the UNFCCC framework



1.5 The Development Process of the Vision

The formulation of Botswana's LTV has been an inclusive process, involving government entities, civil society, academia, and the private sector, ensuring a comprehensive and representative development strategy. This process has resulted in realistic targets, aligned them with international standards and national capacities, and emphasized the importance of continuous monitoring, evaluation, and adaptation of these goals.

Botswana's LTV was developed to build on Vision 2036[17], incorporating insights from various sectors to guide the nation towards a competitive and prosperous future. This vision reflects Botswana's commitment to participatory governance and sustainable

[16] Botswana's Third National Communication | United Nations Development Programme (undp.org)

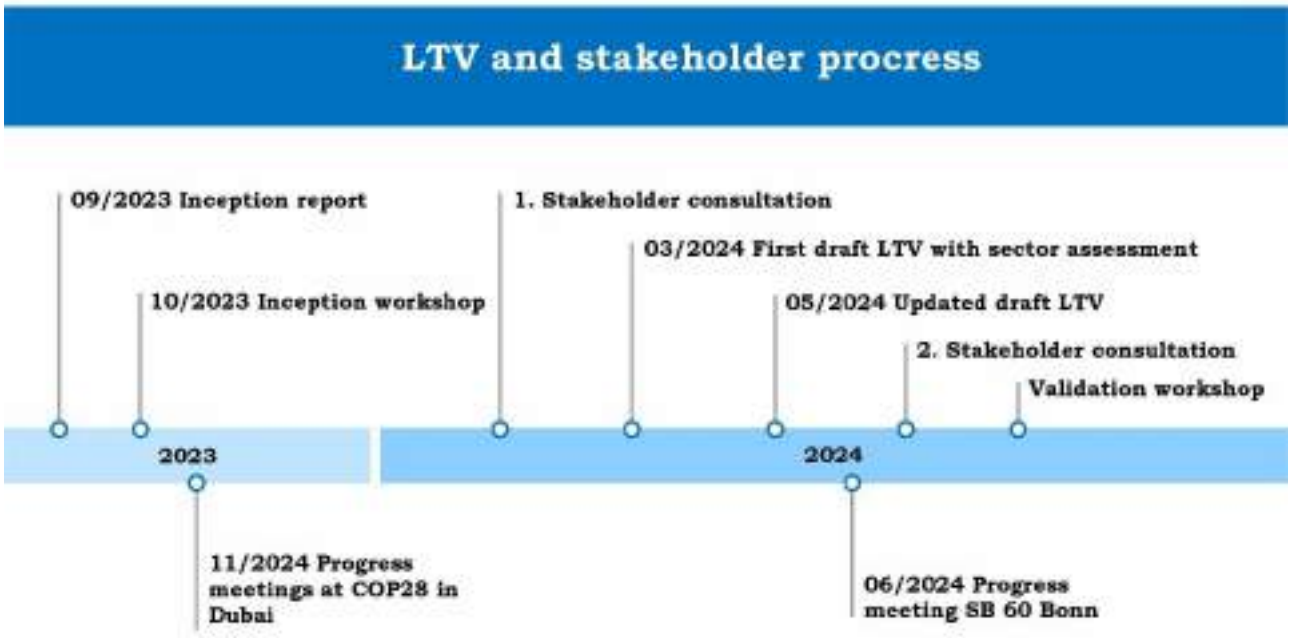
[17] 6469-Article Text-30169-1-10-20190319 (1).pdf

development, integrating policies, strategies, and programs across fragmented departments and agencies to address national challenges effectively.

The LTV is a qualitative exercise that sets the foundation for developing a full Long Term Low Emmission Development Strategy (LTS) by building an initial consensus on Botswana's long-term socio-economic and climate aspirations through active dialogue with key stakeholders and existing policies and plans. Engagement activities such as visioning workshops, one-on-one interviews, stakeholder meetings, data analysis, and online feedback surveys were undertaken throughout the LTV process[18]. The consultation process covered over 39 governmental, non-governmental civil society and private organisations with over 150 persons consulted (see Annex I).

The development process of the LTV has involved collaboration with the AfDB and 2050 Pathways Platform. Stakeholder consultations were initiated through a comprehensive stakeholder workshop held in October 2023, gathering representatives from all sectors of government, the private sector, and civil society to contribute input. This was followed by participation in COP 28 in Dubai, where the Botswana government presented the LTV elaboration progress. Continuous engagement with stakeholders for input collection and the first draft presentation took place in a second stakeholder workshop in March 2024. The feedback from this event will inform the circulation and refinement of the draft, leading to the finalization of the first draft, with national adoption anticipated for mid-2024. The LTV and stakeholder process is illustrated in Figure 2.

Figure 2 Overview of the LTV and stakeholder process in Botswana



[18] Home - 2050 Pathways Platform

A well-designed, planned, and managed LTS offers synergies with climate adaptation. For Botswana, decarbonization planning goes beyond mitigation to deliver climate resilience objectives, reducing climate-induced vulnerabilities and offering adaptation opportunities in terms of ensuring food and energy security, reducing poverty, diversifying livelihood and economic opportunities, protecting and revitalizing environmental services, etc. Considering and addressing climate vulnerabilities before making decisions on mitigation pathways is also important, hence a climate adaptation lens is required while planning for a green economic transition[19].

The Long-Term Vision for Botswana serves as a framework for incorporating climate change considerations into the nation's future socio-economic development goals. It is essential that the vision captures the interests of Botswana's key stakeholders, harmonizing the nation's development goals with a variety of policy paths for effective climate change mitigation, resilience and the protection of nature and biodiversity. This endeavour will clarify Botswana's strategic direction in formulating a comprehensive LTS.

More than just a response to the pressing global climate threat, the LTV is envisioned as a catalyst for addressing Botswana's fundamental challenges, employing climate action strategies to bolster food and energy security, broaden the job market, and improve debt management—issues that are at risk of being aggravated by climate change. The LTV is poised to foster a blueprint for green growth, aiming to lessen the carbon footprint while simultaneously creating avenues for socio-economic advancement, access to green finance, and accruing additional benefits.

[19] Botswana - Summary | Climate Change Knowledge Portal (worldbank.org)

SECTION 2

Botswana's Climate Profile, Socio-economic Context, and Policy Framework

Image by Dr. Lin Cassidy

2 Botswana's Climate Profile, Socio-economic Context, and Policy Framework

This chapter describes Botswana's climate profile and GHG emissions, socio- economic situation, vulnerability to climate change, and climate governance. It provides an overview of sectoral GHG emissions and of existing policies and challenges.

2.1 Botswana's Climate Profile

Botswana is a nation located in Southern Africa, encompassing an area of 581,730 square kilometres, ranking it as the 48th largest nation in the world by area. The country is situated within the arid to semi-arid climatic zone and showcases a variety of ecosystems, climate zones, and geographical features.[20]

Botswana is a landlocked country, with low rainfall and very little surface water. It has a population of approximately 2.3 million, most of whom are concentrated in the south-east where more fertile soils exist. Mining and tourism are the country's most relevant economic sectors. In recent years, wildlife-based tourism has overtaken livestock production as the second most important economic sector. The country is classified as upper middle-income, but its Gross domestic product (GDP) masks one of the highest rates of inequality globally. Many households still live in severe poverty and, in the rural areas particularly, rely on subsistence agriculture.[21]

2.2 Socio-economic Context

Botswana's governance framework, marked by a high degree of centralization, is increasingly tasked with addressing the multifaceted challenges posed by climate change, alongside its traditional roles in planning and decision-making. This structure, where national directives are predominantly executed at the district level and local governance is focused on customary affairs, necessitates a more integrated approach to climate action and socio-economic development.

As an upper-middle-income country with a dynamic population of approximately 2,359,609 as of 2022[22], Botswana is witnessing rapid urbanization and demographic shifts. The Tswana and Kalanga ethnic groups constitute the majority, living in a landscape where 31% are under the age of 15[23]. The urban population surge from

[20] https://www.info-botswana.com/info/botswanas-geography

[21] https://www.fao.org/3/x9751e/x9751e05.htm

[22] https://en.wikipedia.org/wiki/Demographics_of_Botswana; Statistics Botswana (2022) Population and Housing Census – Preliminary Results V2. Government Printers, Gaborone.

[23] https://en.wikipedia.org/wiki/Demographics_of_Botswana; Statistics Botswana (2022) Population and Housing Census – Preliminary Results V2. Government Printers, Gaborone.

54% in 2001 to 72% in 2022 highlights the urgent need for climate-resilient urban planning [24] , including sustainable housing, innovative near-zero emission transportation, and robust infrastructure to mitigate and adapt to climate impacts.

Botswana's recent economic expansion, exemplified by a 5.8% GDP growth in 2022[25], has been significantly driven by diamond mining and processing. However, the nation faces considerable socio-economic challenges, such as a high unemployment rate of 25.4%[26] and pronounced inequality. These challenges are intensified by the potential impacts of climate change, underlining the urgency for Botswana to shift towards a low-carbon and resilient economy. This shift is especially crucial as Botswana possesses extensive coal reserves; their utilization must be balanced with a commitment to reduce greenhouse gas emissions and foster sustainable energy practices[27].

The agricultural sector's contribution to GDP may be modest at 1.7%, yet it plays a crucial role in providing employment, especially within the informal sector, and is essential for many citizens' livelihoods. It's clear that sustainable agricultural practices must be adopted to guarantee food security in the face of climate variability. The service sector, which is a significant GDP contributor at 65.6%, is also compelled to adapt, integrating climate resilience and sustainable methodologies into its operations.

The challenges of unemployment and inequality are not standalone issues but are intricately linked to Botswana's climate action and economic policies. The Gini coefficient of 53.3[28], combined with the country's rank as the ninth highest level of inequality globally[29], demonstrates a need for inclusive economic growth strategies that address both social disparities and climate resilience.

Moving forward, Botswana's approach to climate action will leverage its economic assets to catalyse green growth, mitigating vulnerabilities and empowering all community segments, notably the youth—who face high unemployment rates—and marginalized groups. Through a holistic strategy that addresses the interdependencies of economic development, social equity, and environmental sustainability, Botswana can confront current climate challenges while building a durable foundation for sustainable development and well-being in anticipation of future climatic uncertainties.

2.3 Trade Dynamics

Botswana's trade dynamics are influenced by its major industries. The country's main exports include diamonds, which significantly contribute to its export base notable exports

[24] https://www.macrotrends.net/countries/BWA/botswana/urban-population

https://www.statsbots.org.bw/national-accounts

[26] https://www.afdb.org/en/countries/southern-africa/botswana/botswana-economic-outlook

[27] https://www.lloydsbanktrade.com/en/market-potential/botswana/economical-context

28 https://www.worldbank.org/en/country/botswana/overview

[29] https://www.afdb.org/en/countries/southern-africa/botswana/botswana-economic-outlook

are insulated wire, copper ore, bovine products, and coal briquettes; tourism is increasing as a source of foreign exchange, particularly ecotourism. Botswana's major trading partners for exports include the United Arab Emirates, Belgium, India, and South Africa.[30]

Botswana's top imports are refined petroleum, delivery trucks, electricity, and tanks and armoured vehicles. The country mainly imports from South Africa, Belgium, the United Arab Emirates, Namibia, and India. These products are crucial for various sectors of the economy, including energy needs, industrial development, and modernization. Botswana runs a trade deficit, which means it imports more than it exports. This trade deficit is a significant aspect of Botswana's economic landscape and has implications for its economic policies and climate change strategies. Botswana is also highly dependent on food imports, particularly of processed foods, which increases its vulnerability where its supplier countries (mainly South Africa and Zimbabwe) are also at risk from climate change. The country has been working to diversify its economy and expand trade relations with other countries to improve its trade balance and reduce vulnerability to external shocks[31]

2.4 Access to Energy

A large portion of Botswana's population lacks access to stable and affordable energy. Botswana has a significant proportion of its population not connected to the electrical grid, with the access rate varying between urban and rural areas between 77%[32] and 37%.[33] The country's energy sector relies heavily on imported oil and some coal, making it susceptible to global market price fluctuations. Challenges include outdated transmission and distribution infrastructure, limited investment in renewable energy, and reliance on imported electricity predominantly generated from coal power plants. About 33% of Botswana's electricity consumption is imported electricity which is produced with about 80% from coal[34]. The government has initiated policies like the Botswana National Energy Policy and the Rural Electrification Programme to improve energy access, but substantial progress is still needed.

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[30] https://oec.world/en/profile/country/bwa

[31] https://www.trade.gov/country-commercial-guides/botswana-market-overview

[32] https://www.se4all-africa.org/seforall-in-africa/country-data/botswana/#:~:text=Botswana%20electricity%20access%20has%20reached%2077%25%20of%20the%20population%20in%20urban%20areas%2C%20while%20in%20rural%20areas%20is%20still%20limited%20to%2037%25%2C%20although%20increasing

[33] https://kth.diva-portal.org/smash/get/diva2:1776501/FULLTEXT01.pdf and https://www.emerald.com/insight/content/doi/10.1108/JHASS-10-2023-0128/full/html#:~:text=For%20Botswana%2C%20electrification%20in%20urban%20areas%20reached%2077%25%3B%20whilst%20rural%20areas%20are%20still%20lagging%2C%20with%2037%25

[34] Statistics Botswana (2021) Electricity Generation and Distribution – Stats Brief 1st Quarter 2021. Government Printer, Gaborone. https://www.statsbots.org.bw/sites/default/files/publications/Electricity%20Generation%20%20Distribution%20Q1%202021.pdf

The Botswana Energy Regulatory Authority (BERA) is also involved in managing and regulating the energy sector, but it is still a young authority (having been formed in 2016) that is not yet fully operating. Therefore, while efforts are being made to improve energy access in Botswana, a significant portion of the population still lacks access to reliable and affordable energy.

2.5 Botswana's Vulnerability and Rationale for Climate Action

Botswana's distinct geographical features and climatic conditions contribute to its vulnerability to climate change. The semi-arid climate, with its short rainy season and high evaporation rates, makes the country highly susceptible to droughts.[35]

The variability of rainfall affects bot natural ecosystems and agricultural productivity, which is primarily rain-fed and thus sensitive to changes in precipitation patterns.[36] The Kalahari Desert's dominance over the landscape means that water scarcity is a significant issue, and the country's dependence on natural resources for economic activities like agriculture and tourism makes it sensitive to climate variability. Furthermore, the high levels of poverty, particularly in rural areas, and the low adaptive capacity of these communities exacerbate the country's vulnerability to climate change impacts.[37] Changes in climate can lead to crop failure, unproductive rangelands, and increased pressure on already scarce water resources, affecting livelihoods and leading to further socio-economic challenges.

[35]https://climateknowledgeportal.worldbank.org/sites/default/files/2021-05/15721-WB_Botswana%20Country%20Profile-WEB%20%281%29.pdf

[36] https://reliefweb.int/report/botswana/botswana-climate-risk-country-profile

[37] https://reliefweb.int/report/botswana/botswana-climate-risk-country-profile

Table 1 Botswana's climate vulnerability to extreme weather events

Ranking vulnerable countries index	Extreme weather events
Vulnerability Ranking: Botswana is the 95th most vulnerable country[38] Coping Capacity Ranking: Botswana ranks as the 87th most ready country in terms of coping capacity	Botswana has experienced several extreme weather events, which are likely to have been exacerbated by climate change. Some of these events include, • **Droughts:** Botswana experienced severe droughts in the early 2000s, particularly during the 2001-2002 and 2005-2006 rainy seasons. The country faced another severe drought in 2015-2016, which affected over 30,000 people and led to significant livestock losses. • **Floods:** In 2000, heavy rainfall caused flooding in the north-eastern parts of Botswana, affecting around 13,000 people and causing damage to infrastructure. • **Heatwaves:** Botswana has experienced an increase in the frequency and intensity of heatwaves over the past few decades. In 2015-2016, the country faced a prolonged heatwave, with temperatures reaching up to 43.7°C (110.7°F) in some areas. • **Wildfires:** The increased frequency of droughts and heatwaves has led to more frequent and intense wildfires in Botswana. In 2008, wildfires affected over 3.6 million hectares of land, causing significant damage to ecosystems and wildlife.

Botswana has long faced water security issues and will continue to do so. Climate change predictions for Botswana suggest hotter and drier conditions in this already dry environment. Droughts are expected to become more frequent and more extreme. Expectations are the rainfall is likely to become even more erratic, with fewer but more intense rainfall events with high spatial variation. These conditions will create challenges for rain-fed agriculture.

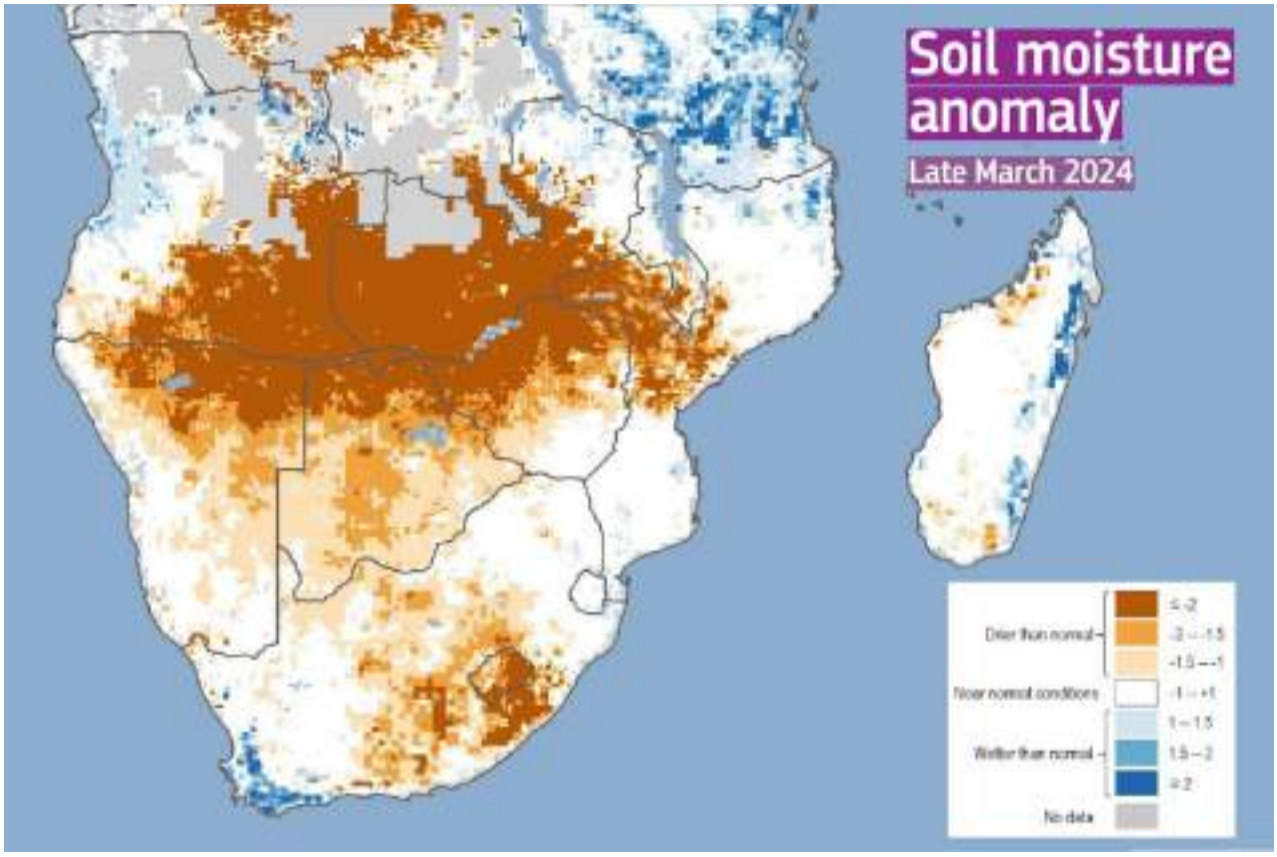
The reliance on livestock in the agricultural sector, which is heavily influenced by climate, is also a source of vulnerability. Heat and water stress limit the availability of grazing for livestock and wildlife, and the shortage of surface water leads to localised degradation around water points. Vast open rangelands and wildlife management areas are also prone to uncontrolled wildfires.

With about 28,000 cattle farmers, Botswana's is one of the largest cattle producers in Africa. Cattle population fluctuates (in response to drought) between ~ 1.25 and 3 million

[38]https://gain-new.crc.nd.edu/country/botswana

cattle today. The number of cattle decreased to about 2.6 million during previous droughts, which spread widely across the region, as illustrated in the 2024 Southern African soil drought conditions in Figure 3.

Figure 3 Soil moisture anomaly of 2024 Southern Africa drought[39]



The tourism sector relies strongly on wildlife and on the only sources of surface water in the country – the Okavango Delta and Chobe River wetlands systems. Wildlife populations are threatened by hotter and drier conditions, but tourists may also choose to avoid such harsh conditions, particularly if the ecological integrity of the wetlands is compromised.

2.6 Policy and Institutional Frameworks

Botswana has taken key steps to address climate change through policy development and institutional frameworks. Table 2 shows the major milestones in the country's development of its climate framework.

[39] SAIO (europa.eu)

Table 2 Key elements of the Botswana climate framework and its progression

Milestones	Year	Progression of climate action
Vision 2036[40]	2015	• Establishing broad sustainable development goals towards a low carbon footprint, with a society that is aware of and resilient to the consequences of climate change • Maximizing renewable energy sources to improve energy security, diversify clean energy sources, and achieve net energy exporter status. • Implementing integrated ground and surface water resource management strategies, including groundwater recharge. • Promoting environmentally friendly mining practices for non-renewable resources. • Ensuring safe and clean villages and towns with affordable housing. • Incorporating climate change vulnerability assessments, adaptation, and mitigation into development planning.
NDC[41]	2016	• Emissions reduction target of 15% below business-as-usual levels by 2030 • Requirement of USD 18.4 billion investment for transport and energy • Developing National Adaptation Plan (NAP) and Action Plan
Climate Change Strategy[42] **and Climate Action Plan**	2018	• Concretizing Vision 2036 and NDC commitments, linking to the National Development Plan 11 and 12, SDGs, • In depth strategy and measures (action plan) for multiple sectors • Setting vision: The national climate change strategy supports Botswana's vision of being a society that is sustainable, climate-resilient, and whose development follows a low carbon development pathway, in pursuit of prosperity for all
Third National Communication[43]	2019	• Update information on emissions • Information on key policy instruments and objectives including removal of coal-powered electricity subsidies, net-metering for renewable projects, tax on petroleum for transport, role of the government as guarantor for renewable projects, tax exemption for energy-efficient housing

[40] https://www.npc.gov.bw/about-botswana-vision-2036

[41] https://unfccc.int/sites/default/files/NDC/2022-06/BOTSWANA.pdf

[42]https://drmims.sadc.int/sites/default/files/document/2020-03/2018_Botswana%20Climate%20Change%20Strategy.pdf

[43] https://www.undp.org/botswana/projects/botswanas-third-national-communication

Milestones	Year	Progression of climate action
		• Development of National Action Plan for water adaptation strategies, ecosystem-based agriculture approaches with destocking
National Adaptation Framework[44]	2019	• Priorities for mainstreaming climate adaptation and building resilience across sectors including environment, water, agriculture, and health • Ecosystem-based and community-centred approaches
Climate Change Policy	2022	• Setting guiding principles for key climate policy areas • Mitigation plans to include carbon budgets, sustainable energy initiatives, transport emission reductions, waste management improvements, and procurement processes aimed at reducing carbon footprints. • Integrated adaptation measures for development processes and promotion of climate-smart agriculture, sustainable water management, human health protection, resilient human settlements, forest management, effective land use, disaster risk reduction, and biodiversity conservation. • Stakeholder Involvement to enhance roles of private sector, communities, NGOs, and faith-based organizations in climate action through incentives, education, and capacity building. • Institutional arrangements to establish a National Climate Change Coordinating Structure, National Climate Change Committee, and District Climate Change Committees to oversee implementation and ensure cross-sectoral coordination. • Resource and technology mobilisation to promote emission reduction and • Monitoring and evaluation: Continuous evaluation of climate response measures and development plans, with reviews every 10 years informed by monitoring, evaluation, and international developments.

These policies contribute to climate action by setting direction, guiding adaptation and mitigation strategies, promoting stakeholder consultation, demonstrating commitment to global climate efforts, and establishing coordinating bodies like the National Committee on Climate Change.

In the following, **the main institutional elements** of the climate framework are described.

[44] https://climateknowledgeportal.worldbank.org/country/botswana

The Ministry of Environment and Tourism (MET) is responsible for coordinating climate change efforts, with the Department of Meteorological Services (DMS) serving as the focal point for climate change issues. The DMS's mandate to coordinate and mainstream climate change policies across various government departments is a critical step towards ensuring a cohesive and comprehensive approach to tackling climate change.

The establishment of the National Committee on Climate Change (NCCC) in 1998 is another noteworthy achievement, as it enhances coordination on climate change matters. The NCCC's role in overseeing environmental agreements and fostering international partnerships, with the support of the DMS, is crucial for effective policy adoption and implementation at various levels of government. At the same time, the NCCC operates at implementation level, and would benefit from a shift to inter- ministerial level to coordinate policy and decision-making.

Although the Ministry of Finance and Economic Planning does not explicitly coordinate climate governance, it has the opportunity to play an important role in mainstreaming climate change response initiatives across all sectors by establishing climate change as a core focus of the national development plans.

The Ministry of Mineral Resources, Green Technology and Energy Security (MMGE) has also made significant contributions to Botswana's climate change mitigation efforts through the establishment of the Botswana Energy Regulatory Authority (BERA) in 2016. BERA's mandate to manage and regulate the energy sector is a key step towards reducing greenhouse gas emissions and transitioning to a low-carbon economy. Through the revised National Energy Policy of 2021, Botswana aims to increase energy efficiencies and expand the use of renewable energy.

As described above, Botswana's climate governance set up is illustrated in Figure 4.

Figure 4 Climate governance framework of Botswana

While Botswana has made significant strides in establishing a robust institutional framework for climate change governance, there are still areas where the country could further align with international good practices. For instance, Botswana could consider enacting a comprehensive climate change law, establishing an independent expert advisory body, enhancing inter-ministerial coordination through a high-level cabinet committee, and strengthening the engagement of non-state actors in the climate policy process.

Moreover, Botswana could benefit from further mainstreaming climate change considerations into sectoral policies, enhancing monitoring, evaluation, and reporting systems, establishing a dedicated climate finance mechanism, and investing in building the capacity of key institutions involved in climate governance.

2.7 Botswana's Nationally Determined Contribution (NDC)

Botswana demonstrated its commitment to the global fight against climate change by ratifying the Paris Agreement and submitting its first Nationally Determined Contribution to the UNFCCC in November 2016. The initial NDC aimed to reduce the country's projected GHG emissions by up to 15% by 2030, compared to a 2010 baseline, focusing on the energy, waste, and agriculture sectors. This NDC also stated that USD 18.4 billion would be required for energy and transport development to meet the reduction target. Although no specific conditional or non-conditional targets have been set, 2021 estimates suggested that Botswana would need at least USD 3.1 billion, of which USD 1.6 could be attracted from the private sector, with the balance in concessional form. The first NDC excluded methane emissions from enteric fermentation, which accounted for approximately 11.1%

of Botswana's total GHG emissions in 2015. Adaptation options focused largely on the agricultural sector, through the development of drought-tolerant crop and livestock varieties, and the use of fertilizers.[45]

In 2021/2 Botswana prepared a first draft of its updated NDC, reaffirming its commitment to reducing GHG emissions and adapting to the impacts of climate change. Building upon the initial NDC, the updated version, which is still being finalised for submission, outlines specific targets and measures for key sectors, including energy, transport, waste, agriculture, forestry, and other land use (AFOLU). The specific sectoral targets of the updated NDC are illustrated in Table 3 .

Table 3 Updated NDC sectoral targets

Sector	Specific Targets
Energy	• Increase the share of renewable energy in the electricity mix to 15% by 2030, up from the current share of around 2%. • Promote energy efficiency measures to reduce energy consumption by 10% by 2030 compared to the business-as-usual scenario. • Reduce the use of fossil fuels, particularly coal, and aim to phase out coal-fired power plants by 2050.
Transport	• Promote the adoption of electric vehicles (EVs) and aim to have 10% of the vehicle fleet be electric by 2030. • Encourage the use of non-motorized transport options, such as cycling and walking, to reduce emissions from public transport and the transport sector. • Improve the efficiency of the transport sector through measures such as fuel efficiency standards and the promotion of low-carbon fuels.
AFOLU	• Reduce emissions from enteric fermentation in livestock by 10% by 2030 through improved animal husbandry practices and the promotion of low-emission feeds. • Enhance sustainable land management practices, such as agroforestry and conservation agriculture, to reduce emissions from land use change and increase carbon sequestration. • Increase the forest cover and reduce deforestation rates to enhance the carbon sink capacity of forests.
Waste	• Improve waste management practices, such as increasing the rate of waste recycling and composting, to reduce emissions from the waste

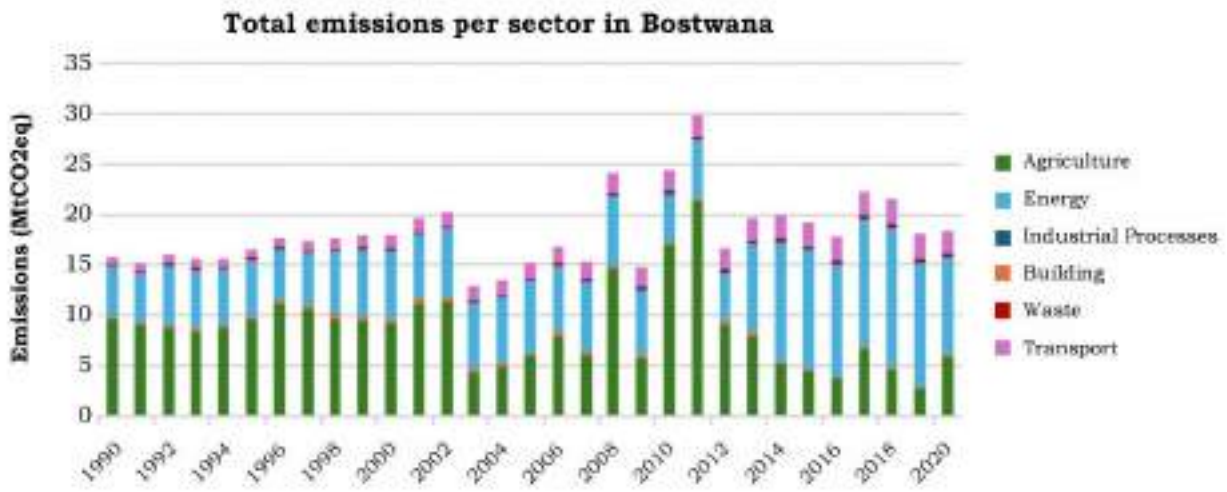
45 https://unfccc.int/sites/default/files/resource/BOTSWANA%20THIRD%20NATIONAL%20COMUNICATION%20FINAL%20.pdf

Sector	Specific Targets
	sector by 20% by 2030 compared to the business-as-usual scenario • Promote the capture and utilization of landfill gas for energy generation to reduce methane emissions from waste disposal sites.

The updated NDC also identifies adaptation priorities and emphasizes the importance of financial support, technology transfer, and capacity building for effective implementation. By preparing the updated NDC, Botswana is setting the stage for enhanced climate action and ambition in the coming years, demonstrating its dedication to contributing to the global effort to mitigate climate change while pursuing sustainable development and building resilience to the impacts of a changing climate.

As illustrated in Figure 5, the agricultural and, increasingly, the energy sectors account for most of the emissions in the country[46]. The agricultural sector was the most representative sector in terms of emissions until 2012, since then it has been replaced by the energy sector. This is further evidenced through the historic and projected population and economic growth in Botswana.[47]

Figure 5. Emissions development by sector for the period 1990-2020



Botswana's Greenhouse Gas Inventory of 2014 and 2015 were the basis for the projection of GHG emissions in the baseline scenario used in the country's 2022 NDC. The baseline projection until 2030, based on 'business as usual' scenarios, emissions are projected to rise to 22 Mt CO2-eq (using First Assessment Report GWP data) by 2030. The highest share of rising emissions is related to the energy sector, i.e., electricity production and

[46] Climate Watch Historical GHG Emissions. 2022. Washington, DC: World Resources Institute. Available online at: https://www.climatewatchdata.org/ghg-emissions

[47] https://www.researchgate.net/figure/Projected-energy-demand-in-Botswana-in-PJ-from-2024-to-2050-Adapted-from-the-Integrated_fig2_377912997

transport. These are from the burning of fossil fuels for electricity production, and the high per capita number of private motor vehicles (many of which are second-hand imports of pre-catalytic converter era).

Botswana has committed to reduce its GHG emission by 15% in 2030 relative to the 'business as usual' scenario. The baseline scenario includes AFOLU, which is projected to constitute a net sink in Botswana. Mitigation actions include the AFOLU sector, where increased retention of GHGs is counted towards the achievement of the target (largely through a single GCF-funded rangeland restoration project focusing on soil carbon storage). Based on the above outlined BAU scenario, the -15% equal to a reduction of 3,2 MtCO2eq. in 2030. With this reduction the overall emissions in 2030 would still be with about 22 MtCO2eq significantly higher than todays about 15 MtCO2eq emissions. 22 MtCO2eq emissions would be around 7.3 tCO2eq per capita assuming a population of 3 million[48]. This would be still higher than the current EU average with about 6.4 tCO2eq/per person.

Given their significance in Botswana's emission profile, the two main sectors in terms of mitigation potential are energy and AFOLU. The current electricity production is still met through coal power plants (132 MW Morupule A and 600 MW Morupule B) and 160 MW from diesel peaking plants (90 MW Orapa Power Plant and 70MW Matshelagabedi) and additional power sourced from neighbouring countries, especially coal power from South Africa and a smaller part of hydropower from Mozambique.

Forest area in Botswana was last reported in 2016. About 15.3 M ha of Botswana is considered forested, although this is largely open canopy woodland. This is 26.3% of the country's total area. Average deforestation rate is 118 300 ha per year (~0.8%).

[48]Statista: https://www.statista.com/statistics/407762/total-population-of-botswana/

SECTION 3

Sectoral Greenhouse Gas Emissions Assessment

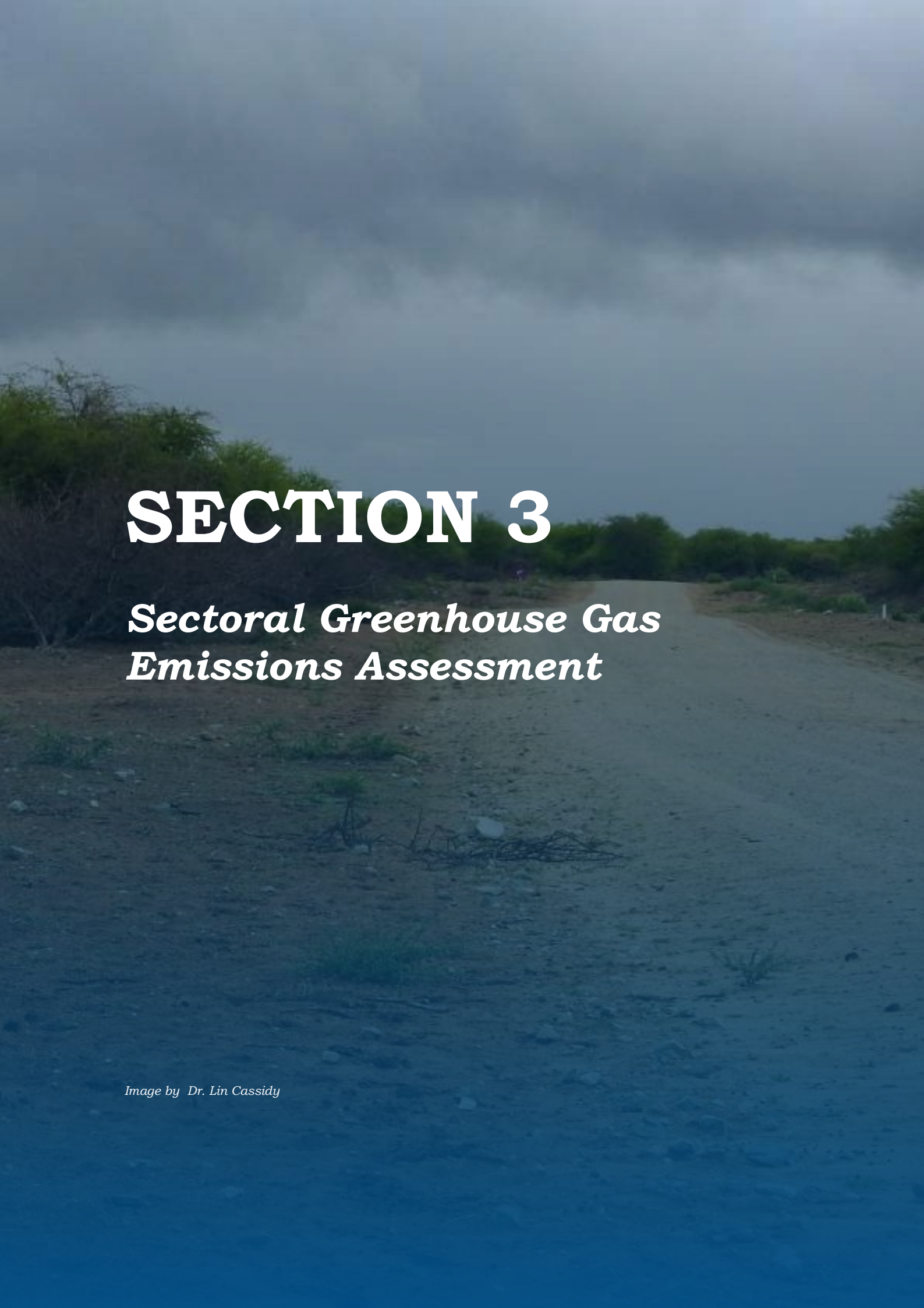


Image by Dr. Lin Cassidy

3 Sectoral Greenhouse Gas Emissions Assessment

Botswana's GHG emissions profile is characterized by significant contributions from key economic sectors, including energy, buildings, transport, industry, agriculture, forestry, and land use change, as well as waste. This chapter provides an overview of the current state of GHG emissions in each sector, highlighting the main sources, trends, and potential mitigation strategies. By understanding the sectoral dynamics of GHG emissions, Botswana can develop targeted policies and actions to transition towards a low-carbon and climate-resilient future while ensuring sustainable development and improved quality of life for its citizens.

3.1 Energy

Sectoral Assessment

ENERGY

Botswana's energy consumption and demand have been increasing significantly in recent years. The total installed electricity generation capacity in Botswana is around 890 MW primarily through coal fired stations. The continued reliance on coal makes electricity generation the leading source of emissions, contributing to 39% of emissions in the country, while the energy sector at large accounts for 72% of total GHG emissions. As of

2020, Botswana's GHG emissions are projected to rise to 49 MtCO2e per year, or 81% above 2010 levels, by 2030, under a business-as-usual scenario[49].

In 2020, Botswana generated only 0.26% of its electricity from solar technologies, with an installed capacity of 6 MW50. While solar technologies continue to decrease in price, and many countries in the region are making strides installing solar PVs, Botswana's regulations limit sales by independent power producers to Botswana Power Corporation as sole purchaser.

I mplementing plans like the National Renewable Energy Strategy could help reduce total emissions by 15% from the business-as-usual scenario by 2030[51].

The energy sector is also vulnerable to climate impacts, facing challenges like reduced efficiency in thermal coal plants due to higher temperatures, and variable precipitation affecting hydropower generation. Botswana is currently planning to address the growing energy demand primarily through increased imports of oil and gas products, in addition to utilizing its indigenous coal resources. This fossil-fuel reliant path leads to large increases in emissions and increased environmental damage. At the same time, the country has begun developing solar PV plants to supplement supply to some towns and remote settlements.

The government also envisions replacing natural gas utilization with electricity in the domestic sector, necessitating action on demand-side management through energy-efficient technology and infrastructure, and consumer behaviour change.

[49] https://1p5ndc-pathways.climateanalytics.org/countries/botswana/current-situation/

[51] https://africa-energy-portal.org/aep/country/botswana

3.2 Transport

Sectoral Assessment

TRANSPORT

Botswana's transport sector is a significant contributor to the country's GHG emissions, accounting for ~19.2 percent of total emissions in 2015.[52] The growth in GHG emissions from the transport sector is linked to Botswana's economic development and an increase in vehicle numbers, predominantly cars. Liquid fuels, mainly petrol and diesel, are the primary sources of fuel usage in this sector, contributing to its high emissions profile. The transport sector is vital to Botswana's economy, contributing significantly to employment and GDP. However, the high reliance on private transport modes is leading to an increase in emissions. Urban transport inefficiencies further exacerbate the situation, leading to economic losses.

[52] Botswana's First Biennial Report to the UNFCCC (2019)
https://unfccc.int/sites/default/files/resource/BOTSWANA%20FIRST%20BIENNIAL%20REPORT_FINAL.pdf

Given the projected growth in GHG emissions, effective mitigation strategies in the transport sector can yield both economic and environmental benefits.

These include shifting towards EVs and enhancing public transport systems.

The Ministry of Transport is developing policies to support these mitigation intentions, aiming for a significant percentage of EVs in the country's vehicle fleet by 2030 as part of Botswana's climate action commitments. Such policies may include solutions suggested by civil society organisations such as the Botswana Climate Change Network and which range from promoting non-motorized transport and carpooling to maximizing online telecommunications to substitute travel. Such initiatives are crucial for transitioning Botswana towards a more sustainable and low-carbon transport system.

3.3 Buildings

Sectoral Assessment

BUILDINGS

The 'Buildings' sector accounts for 11% of emissions; however, most of these are from domestic energy use and not from infrastructural development. This includes the use of liquefied petroleum gas and kerosene for cooking and water heating on top of the electricity demanded by grid-connected residential and commercial buildings. Around 46% of households still rely of traditional biomass (mainly firewood) for basic end uses, which

impacts negatively on the environment, degrading land and contributing to deforestation, as well as health, particularly respiratory diseases.

Botswana's current strategies aim for a future where efficient and low-carbon building solutions are embraced, ensuring a sustainable built environment while minimizing environmental impacts.

Key strategies include promoting the adoption of green building practices, improving energy efficiency in buildings, and investing in sustainable materials such as low carbon cement, and infrastructure. This includes mainstreaming the use of existing and economically viable alternatives such as use of LED lighting, efficient cooking stoves, and more. One of the key identified targets is to increase access to electricity through solar PV technologies.

Additionally, shifting from current building methods that focus primarily on cost reduction, to sustainable and green building practices and integrating smart building technologies can optimize efficiency and reduce emissions. For example, building orientation and incorporation of shade can greatly reduce energy needed for cooling.

By promoting and investing in sustainable building practices, Botswana can reduce overall energy consumption and greenhouse gas emissions associated with the building sector. A holistic approach, combining sustainable building practices and efficient building systems, is crucial in addressing the emissions projected from the building sector. Collaboration with international partners, leveraging climate finance, and implementing supportive policies and regulations are crucial for the successful implementation of low emission goals in the building sector. The Botswana Green Building Council plays a pivotal role in driving the green building movement in Botswana, promoting, facilitating, and enabling the green building transformation agenda in collaboration with the Botswana Bureau of Standards and regional initiatives. The development of green buildings in Botswana, such as the Motswere building, signifies the growing awareness and commitment to sustainable architecture and eco-friendly practices, and is one of the avenues the government of Botswana can use to promote emissions reductions.

3.4 Industry

Sectoral Assessment

INDUSTRY

The Industry and Industrial Processes and Product Use (IPPU) sector in Botswana, as outlined in the "Botswana First Biennial Update Report" (2019), reveals a modest but significant contributor to the nation's GHG emissions.

In 2015, the IPPU sector was responsible for 1221.69 Gg CO2eq, approximately 9.7% of Botswana's total national direct GHG emissions (excluding Land Use, Land-Use Change, and Forestry, LULUCF). This places the IPPU sector as the third largest source of GHG emissions in the country. The primary gases emitted from this sector include CO2 and HFCs, with the sector accounting for roughly 12.8% of total CO2 emissions and 100% of HFC emissions nationally.

Botswana's industrial landscape is not highly industrialized, which limits the number of industries contributing significantly to the GHG inventory. The main industrial processes contributing to the national GHG inventory include the soda ash production plant and cement production. The mining sector is likely to remain a dominant part of the IPPU

sector, but the major mining companies are taking a lead toward carbon neutrality in their operations.

3.5 Agriculture, Forestry and Land Use Change

Sectoral Assessment

AGRICULTURE, FORESTRY AND LAND USE CHANGE

The agriculture sector in Botswana is a relatively small component of the country's economy, contributing around 1.76 percent to the GDP as of 2022.

In terms of GHG emissions, the AFOLU sector reported emissions of 2,786 Gg CO2 eq, with net emissions from AFOLU being –948 Gg CO2 eq in 2015.

The emissions from the agriculture sector are a significant concern, with major contributors being enteric fermentation in livestock, which is a substantial part of the agricultural GDP, especially cattle production in both the subsistence and the commercial and export sectors. The AFOLU sector is impacted by climate change, which affects food availability, quality, and access, and can lead to economic losses, especially due to extreme weather events like floods and droughts[53]. At the same time, because of its importance in traditional livelihoods, livestock production provides a high level of employment or

[53] https://unfccc.int/sites/default/files/resource/tasr2020_BWA.pdf

livelihood, and impacts in this sector would affect many households. To mitigate these impacts, Botswana has implemented government-supported rangeland restoration programs, which include both small local projects clearing bush encroachment, and the large 6-year, GCF-supported programme to improve rangeland conditions and livelihoods, as well as other mitigation actions projected to contribute to emission reductions of 15 percent.

3.6 Waste

Sectoral Assessment

WASTE

The waste sector is the smallest emitter of GHGs at national level, although emissions have been rising. GHG emissions from the waste sector in Botswana represented 3% of the country's emissions in 2000, but have risen to 5% and 5.4% in 2013 and 2015.

The gases emitted in this sector are methane (CH4) and nitrous oxide (N2O). Methane represents approximately 20.8% and nitrous oxide 12.8% of total emissions recorded at national level.

The sources of GHG emissions in the waste sector are the disposal of solid waste, incineration and open burning, and the treatment and/or discharge of wastewater. Emissions linked to the disposal of solid waste account for 85%, compared with 15% for liquid waste, with proportions of 97% for methane CH4 and 3% for N2O.

Botswana's waste sector is governed by the Waste Management Act of 1998, and guided by the Waste Management Strategy of the same year. The country s' waste management system is primarily focused on waste collection and disposal, with limited emphasis on waste reduction, recycling and resource recovery. Only the larger towns have municipal waste services, and in smaller towns and villages, waste disposal is largely unmanaged. Consequently, open dumping and burning of waste are common practices, leading to environmental pollution, health risks and emissions of GHG, particularly methane.

Waste management therefore remains a major challenge, arising from the constant increase in population, growing urbanization and increased consumption of goods. This complex context requires an integrated and sustainable approach to minimize the negative impact on the environment, human health and natural resources. Urban areas, because of their population density and commercial activities, contribute significantly to waste production.

3.7 Urban Development

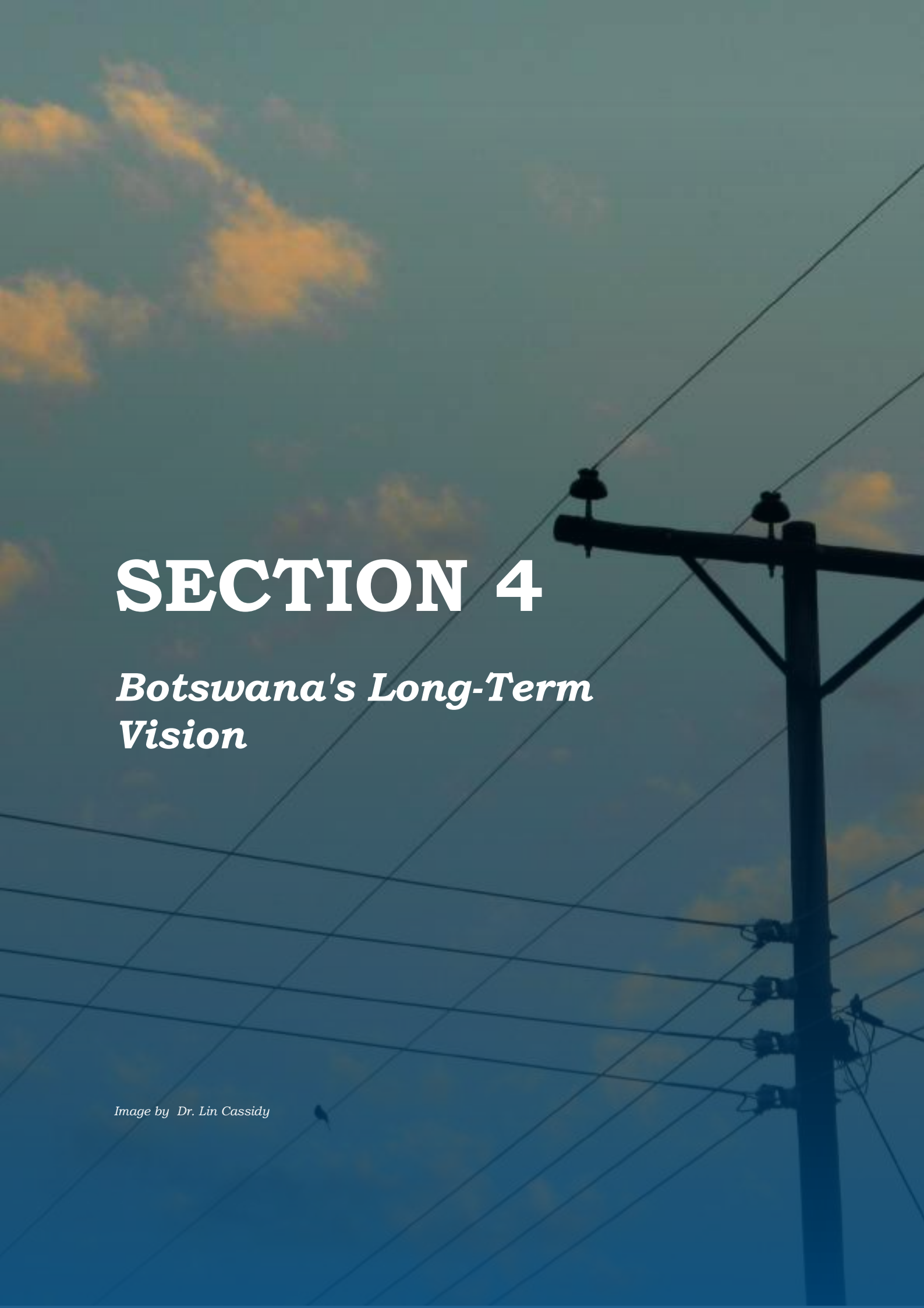
Sectoral Assessment

URBAN DEVELOPMENT

Botswana's urban population, currently at approximately 1.9 million, represents around 72% of the total population. With one of the fastest urbanization rates in Sub-Saharan Africa, this number is expected to grow.

Although urban development is not an economic sector analogous to the other sectors discussed in this chapter, many of the challenges related to reducing emissions coalesce in large cities and must be addressed in an integrated fashion by urban managers. The interactions among sectors like housing, waste, transport, water supply, and industry may offer opportunities for increased efficiency or economies of scale in seeking solutions. Moreover, climate change is likely to accelerate urbanization, as earning a living from agriculture becomes more difficult. This will exacerbate the problems that cities now face and make it both more difficult and more important to identify efficient strategies to both solve the problems and reduce GHG emissions.

Urban growth will also lead to increased vehicle usage and waste generation, further adding to emissions. Effective urban planning can develop strategies to mitigate these impacts through measures like improved public transport and efficient urban waste systems, although the costs of implementing these measures are very high. Challenges such as water scarcity and pollution must also be addressed in urban development plans, if they are to factor in the need to reduce GHG emissions as well as improving conditions in the cities.



SECTION 4

Botswana's Long-Term Vision

Image by Dr. Lin Cassidy

4 Botswana's Long-Term Vision

"By 2050, Botswana will be a net-zero, climate-resilient, and prosperous nation, harnessing its abundant solar resources to become a regional clean energy powerhouse. Our society will thrive with a diversified economy, empowered population, and protected natural heritage.

We envision:

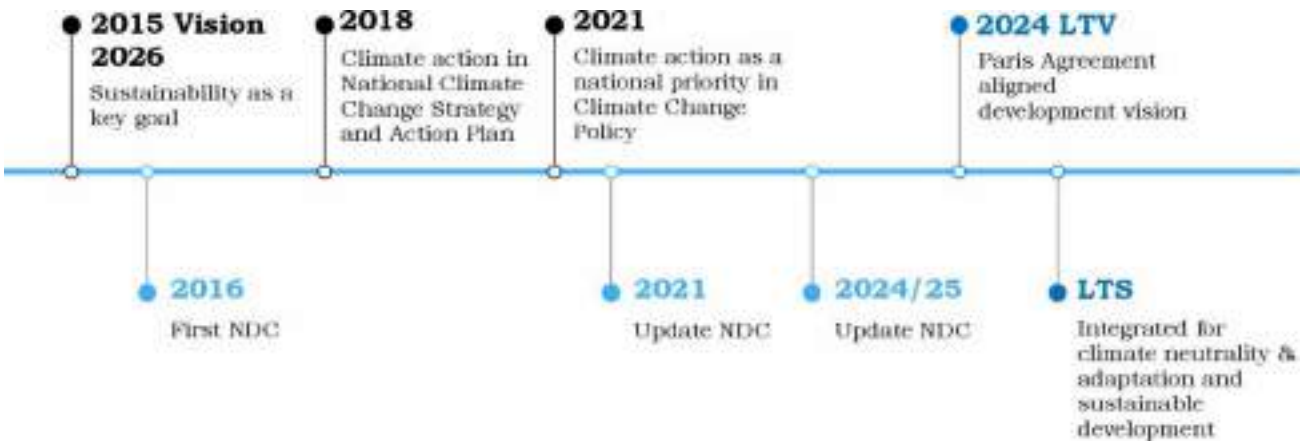
	*A sustainable energy sector powered by renewable sources, particularly solar, ensuring universal access to clean, affordable electricity.*
	*An efficient, low-carbon transport system featuring electric vehicles and comprehensive public transportation networks.*
	*Green buildings and industries that prioritize energy efficiency and sustainable materials.*
	*A resilient agriculture sector adopting climate-smart practices to enhance food security and rural livelihoods.*
	*Sustainable forest management and land use practices that maximize carbon sequestration.*
	*A circular economy approach to waste management, minimizing waste generation and maximizing resource recovery.*
	*Climate-responsive urban planning that promotes sustainable cities and communities.*
	*Strong climate governance with robust legal frameworks, cross-sectoral coordination, and active stakeholder participation.*
	*Gender-responsive and inclusive climate actions that address the needs of vulnerable groups, including youth and marginalized communities.*

We will achieve this through innovative technologies, sustainable practices across all sectors, and strong partnerships between government, business, civil society, and faith-based organizations. Our transition will be just and inclusive, ensuring no one is left behind as we build a green future that enhances energy security, creates new opportunities, and positions Botswana as a leader in sustainable development in Southern Africa."

Botswana stands at the threshold of a transformative era, poised to embark on an ambitious journey towards a sustainable, climate-resilient future. The Long-term Vision directs Botswana towards fostering a healthy, empowered population thriving in harmony with nature, with an overarching target to achieve net zero GHG emissions by 2050.

Building upon the foundations laid by Vision 2036 and the Climate Change Strategy of 2018, the LTV aligns Botswana's aspirations with global commitments enshrined in the Paris Agreement and Sustainable Development Goals. This vision represents a progressive and consequential development of Botswana's climate framework, as illustrated in Figure 6.

Figure 6 Progression of climate framework towards LTV and LTS



At the heart of this vision lies a holistic approach to sustainable development, climate resilience, and a just transition to a climate-neutral economy. This comprehensive strategy addresses both traditional GHG-emitting sectors and cross-cutting pillars of development, including water resource management, resilient infrastructure, gender equality, youth empowerment, capacity building, policy transformation, and climate governance.

Botswana has made significant progress in establishing a comprehensive climate governance framework, including the National Climate Change Policy (2018), the leadership of the MET, and the integration of climate considerations into national development plans

However, challenges remain in terms of institutional capacity, technical expertise, policy coherence, coordination, and the effective mainstreaming of climate change into sectoral policies and plans.

The global clean technology revolution presents Botswana with unprecedented opportunities. As solar, wind, and energy storage technologies become increasingly affordable and often having lifetime or even upfront savings against incumbent fossil fuel solutions, Botswana's abundant solar resources position it to potentially become a regional clean energy powerhouse. By embracing these advancements, Botswana can leapfrog

carbon-intensive development models, positioning itself as a leader in clean energy adoption across Southern Africa. This shift promises not only to meet domestic energy needs but also to establish Botswana as a net exporter of clean electricity, enhancing energy independence and economic stability. However, Botswana needs to develop this progressively, given that as of 2020, Botswana generated only 0.26% of its electricity from solar technologies, with an installed capacity of 6 MW according to the Third National Communication (TNC).

The transition to a low and net-zero emission pathway will be driven by strategic measures, including a shift from coal to renewables, improved energy efficiency, sustainable land use practices, and enhanced climate education.

Central to this transformation is the principle of a just transition, ensuring that the journey towards a climate-neutral economy is equitable and inclusive. The importance of this inclusive approach is highlighted by Botswana's high unemployment rate of 25.4% and significant inequality, with a Gini coefficient of 53.3 (TNC).

To achieve its climate neutrality goals and ensure a successful transition to a net-zero future, Botswana will focus on:

- Strengthening its climate legal framework
- Building capacity at all levels, including training and certifying government technical officers in climate change adaptation and mitigation
- Enhancing transparency and accountability
- Promoting inclusive and participatory governance
- Revising and updating the national climate change policy and action plan to align with the LTV, LTS, and net zero objectives
- Establishing a dedicated national climate change agency to coordinate and oversee climate policy implementation
- Strengthening inter-agency coordination and collaboration on climate action
- Investing in climate change research, education, and public awareness programs
- Aligning national development plans, the LTV and LTS
- Enhancing the capacity of local governments and institutions to implement climate policies
- Mobilizing domestic and international resources for capacity building and policy implementation
- Explore nature-based solutions and those informed by indigenous knowledge

This path forward is not without challenges. Access to affordable financing remains a significant hurdle in realizing this ambitious vision. High upfront costs, perceived investment risks, and limited domestic financial resources pose obstacles to the rapid

deployment of clean technologies. In its 2023 Botswana Climate Finance Readiness report, the AfDB recommends Botswana to formulate and enforce climate related regulations which facilitate climate finance flows, transparency and accountability.[54] These climate related regulations and laws and their respective targets and implementation regulations include, for example an overarching climate policy which covers through an integrated approach an environmental impact assessment act, a water act, a waste management act, a biodiversity act, renewable energy feed-in tariffs and auctioning mechanisms and mandatory building codes.

Overcoming these barriers with an attractive policy, finance and technology enabling conditions will be crucial in achieving the goals set forth in Botswana's Long-term Vision. By addressing these challenges and leveraging its opportunities, Botswana aims to create a more resilient, sustainable, and prosperous society that leaves no one behind in its pursuit of climate neutrality. In the following we detail critical sectoral approaches and cross-sectoral pillars for establishing a robust LTV and LTS.

[54] https://www.afdb.org/sites/default/files/documents/publications/botswana_cfr_2023.pdf

4.1 Strengthening Water Resource Management

VISION FOR WATER RESOURCE MANAGEMENT

By 2050, Botswana will achieve sustainable and equitable management of its water resources, ensuring universal access to safe and affordable water, promoting water use efficiency across all sectors, and maintaining the integrity of aquatic ecosystem in the face of climate change.

Botswana faces significant challenges in managing its limited water resources due to increasing demand, climate variability, and inadequate infrastructure. Access to safe drinking water and sanitation remains a challenge, particularly in rural areas. To address these issues, Botswana will expand the implementation of its Integrated Water Resources Management Plan, and include interventions that focus on developing and managing sustainable groundwater extraction, investing in water infrastructure, promoting water conservation and reuse, and strengthening institutional capacity for water resource monitoring and governance.

Table 4 Water resource management and targets

Targets
• Increase water use efficiency across all sectors including agriculture and wildlife • Implement integrated water resource management plans in all major river basins, prioritizing on nature-based solutions • Achieve universal access to safe and affordable drinking water
Policies and Recommendations
• Develop and enforce regulations for sustainable groundwater extraction and management • Invest in water infrastructure, including storage, distribution, irrigation, and treatment facilities • Promote rainwater harvesting, water conservation and reuse through public awareness campaigns and incentives • Strengthen institutional capacity for water resource monitoring, assessment, and governance • Ensure alignment with cross-cutting climate change priorities of other Ministries, and coordinate with the Ministry of Education and Skills Development to embed key issues into educative curricula
Lead Ministry: Ministry of Land Management, Water and Sanitation Services

4.2 Agriculture: Enhancing Agricultural Resilience

VISION FOR THE AGRICULTURAL SECTOR

By 2050, Botswana will have a climate-resilient, productive, and sustainable agricultural sector that ensures food security, promotes sustainable land management, and supports the livelihoods of farmers and rural communities while contributing to the country's net zero goals.

Agriculture in Botswana is primarily characterized by livestock production and rainfed crops, making it highly vulnerable to climate change impacts such as droughts, heat stress, and rainfall variability. Land degradation and limited adoption of climate-smart agricultural practices pose additional challenges. To build a resilient agricultural sector, Botswana will promote research on and extension services for drought-resistant crops and sustainable farming practices, improve access to credit and insurance for smallholder

farmers, develop early warning systems, and encourage diversification of agricultural production.

Table 5 Agriculture targets, policies and recommendations

Targets
• Increase the adoption of climate-smart agricultural practices and nature-based solutions • Reduce post-harvest losses through improved storage and processing infrastructure • Restore degraded agricultural land through agroforestry and conservation measures
Policies and Recommendations
• Promote research and extension services on drought-resistant crops, sustainable farming practices, and low-carbon agriculture • Improve access to credit and insurance for smallholder farmers to enhance their adaptive capacity and support the transition to climate-resilient practices • Develop early warning systems and contingency plans for agricultural droughts and pests. Encourage diversification of agricultural production and income sources to reduce vulnerability and support the adoption of sustainable practices • Ensure alignment with cross-cutting climate change priorities of other Ministries, and coordinate with the Ministry of Education and Skills Development to embed key issues into educative curricula
Lead Ministry: Ministry of Agricultural Development and Food Security

4.3 Energy: Promoting Renewable Energy and Transitioning Away from Fossil Fuels

VISION FOR THE ENERGY SECTOR

By 2050, Botswana will have transitioned to a net-zero, sustainable, and inclusive energy system that provides affordable, reliable, and clean energy for all, while significantly reducing greenhouse gas emissions and fostering socio-economic development in line with the country's net zero ambitions.

Botswana's energy sector heavily relies on fossil fuels, particularly coal, for electricity generation. Access to electricity remains limited, especially in rural areas, and there is significant potential for renewable energy development, such as solar and wind power. To achieve a sustainable energy transition and contribute to the country's climate neutrality goals, Botswana will develop a supportive policy and regulatory framework for renewable energy, invest in renewable energy infrastructure, promote energy efficiency, and phase out fossil fuel subsidies.

More specifically the Energy Transition Targets, Policies and Recommendations will cover the following:

Table 6 Energy targets, policies and recommendations

Targets
• Achieve universal access to clean, affordable, and reliable energy • Increase the share of renewable energy in the national energy mix • Reduce GHG emissions from the energy sector to zero
Policies and Recommendations
• Develop a supportive policy and regulatory framework for renewable energy development, including feed-in tariffs, tax incentives, and streamlined issuing of permits • Strengthen the capacity of the BERA to ensure it becomes fully operational and can effectively regulate the energy sector • Invest in renewable energy infrastructure, including solar, wind, and biomass power generation, and support the development of a skilled workforce in the renewable energy sector • Optimize the development of solar resources to allow Botswana to export clean electricity to neighbouring countries • Promote energy efficiency in buildings, industries, and appliances through standards, labelling, and incentives. • Phase out fossil fuel subsidies • Redirect funds towards clean energy initiatives and supporting a just transition for affected workers and communities • Develop and upgrade energy infrastructure to withstand extreme weather events, including reinforced transmission lines and flood-resistant substations • Diversify energy sources and promote decentralized power generation to reduce vulnerability to climate-related disruptions • Ensure a 'whole life-cycle' approach to solar PV development is taken and supported through tight linkages to circular economy undertakings • Ensure alignment with cross-cutting climate change priorities of other Ministries, and coordinate with the Ministry of Education and Skills Development to embed key issues into educative curricula
Lead Ministry: Ministry of Mineral Resources, Green Technology and Energy Security

4.4 Transport: Towards a Sustainable Transport System

VISION FOR SUSTAINABLE TRANSPORT

By 2050, Botswana will have a sustainable, efficient, and inclusive transport system that provides accessible, safe and net-zero emissions mobility options for all, supporting economic growth, social well-being, and environmental protection, and contributing to the country's net zero goals.

Botswana's transport sector is characterized by a high dependence on fossil fuels, limited public transport infrastructure, and a growing number of private vehicles, leading to increased GHG emissions and air pollution, as well as high levels of traffic congestion in urban centres. To develop a sustainable transport system that supports the country's climate neutrality objectives, Botswana will invest in public transport infrastructure, promote non-motorized transport, introduce incentives for the adoption of electric and low-emission vehicles, and implement integrated land-use and transport planning.

Table 7 Transport targets, policies and recommendations

Targets
• Increase the share of public transport in urban passenger traffic • Transit to zero-emission vehicles and transport in new vehicle sales • Electrification and modal shift of freight and freight & mining transport operations • Reduce transport-related greenhouse gas emissions
Policies and Recommendations
• Invest in public transport infrastructure, including electric bus, rapid transit and light rail systems, charging infrastructure and improve the accessibility and affordability of public transport services • Promote non-motorized transport through the development of safe and connected pedestrian and cycling infrastructure, and encourage the adoption of active mobility in urban areas • Introduce incentives for the adoption of electric and low-emission vehicles, such as tax breaks, subsidies, and preferential parking, and support the development of charging infrastructure (both for personal and freight transportation) • Implement integrated land-use and transport planning to reduce travel demand, optimize urban density, and promote transit-oriented development • Ensure alignment with cross-cutting climate change priorities of other Ministries, and coordinate with the Ministry of Education and Skills Development to embed key issues into educative curricula • Establish research program into the viability of alternative energy sources for the transport sector.
Lead Ministry: Ministry of Transport and Communications

4.5 Waste: Moving towards Zero Waste

VISION FOR MOVING TOWARD ZERO WASTE

By 2050, Botswana will have a sustainable, circular, and inclusive waste management system that minimizes waste generation, maximizes resource recovery, and contributes to a cleaner, healthier environment for all, while creating green jobs and promoting sustainable consumption and production patterns in support of the country's net zero objective.

Botswana's waste management system primarily focuses on waste collection and disposal, with limited emphasis on waste reduction, recycling, and resource recovery. Open dumping and burning of waste are common practices, leading to environmental pollution and greenhouse gas emissions. To establish a sustainable and circular waste management system that contributes to the country's climate neutrality goals, Botswana will develop a

comprehensive national waste management strategy, invest in waste collection, segregation, and recycling infrastructure, promote waste-to-energy technologies, and encourage public participation in waste reduction, reuse, and recycling.

Table 8 Waste targets, policies and recommendations

Targets
• Maximise recycling for municipal solid waste • Reduce the amount of waste sent to large municipal landfills • Transit to municipal wastewater treatment with methane capture • Implement extended producer responsibility schemes for all key waste streams
Policies and Recommendations
• Strengthen waste management legislation aligned with international climate agreements, while respecting international disposal standards including collection, sorting, recycling, transport, storage and disposal. • Involve all stakeholders, including government, businesses, civil society organizations, consumers and users, in the transition to the circular economy • Strengthen financing mechanisms for the waste sector through public funds, subsidies, taxes, public-private partnerships and foreign direct investment • Develop the infrastructure and equipment necessary for responsible waste management, taking into account demographic developments and urbanization in the country. • Ensure alignment with cross-cutting climate change priorities of other Ministries, and coordinate with the Ministry of Education and Skills Development to embed key issues into educative curricula.
Lead Ministry: Ministry of Environment and Tourism

4.6 Resilient Infrastructure Development

VISION FOR RESILIENT INFRASTRUCTURE DEVELOPMENT

By 2050, Botswana will have resilient, sustainable, and inclusive infrastructure that withstands the impacts of climate change, supports socio-economic development, enhances the quality of life for all its citizen and contributes to the country's net-zero transition to a climate neutral economy.

Botswana's infrastructure is vulnerable to climate change impacts, such as extreme weather events, flooding, and drought. There is a need to mainstream climate resilience and low-carbon considerations into infrastructure planning, design, and construction to ensure the long-term sustainability of investments and support the country's climate neutrality objectives. To build resilient infrastructure, Botswana will develop and enforce building codes and standards that incorporate climate resilience and energy efficiency, promote nature-based solutions and ecosystem-based adaptation, invest in research and development of climate-resilient and low-carbon materials and technologies, and establish a dedicated fund for climate-resilient infrastructure development and maintenance.

Table 9 Resilient infrastructure development targets, policies and recommendations

Targets
• Invest in public transport infrastructure, including electric bus, rapid transit and light rail systems, charging infrastructure and improve the accessibility and affordability of public transport services • Increase the share of green infrastructure in urban areas • Develop infrastructure in urban areas is developed according to green design standards • Upgrade and climate-proof all critical infrastructure in vulnerable sectors
Policies and Recommendations
• Develop and enforce building codes and standards that incorporate climate resilience, energy efficiency, and low-carbon design principles • Ensure green building codes address all aspects of building design, from structure to fittings and materials, and that further analysis on sustainable and efficient buildings is planned for the LTS elaboration process. • Promote nature-based solutions and ecosystem-based adaptation in infrastructure design, and encourage the integration of green infrastructure in urban planning and development • Invest in research and development of climate-resilient and low-carbon materials and technologies, and support the adoption of innovative solutions in infrastructure projects • Establish a dedicated fund for climate-resilient infrastructure development and maintenance, and explore innovative financing mechanisms to support the transition to resilient infrastructure • Assess and climate-proof infrastructure for information, communications and technology. • Strengthen information, communications and technology structures to support climate resilience • Ensure alignment with cross-cutting climate change priorities of other Ministries, and coordinate with the Ministry of Education and Skills Development to embed key issues into educative curricula
Lead Ministry: Ministry of Infrastructure and Housing, in coordination with the Ministry of Transport and Communications

4.7 Gender, Youth and Just Transition

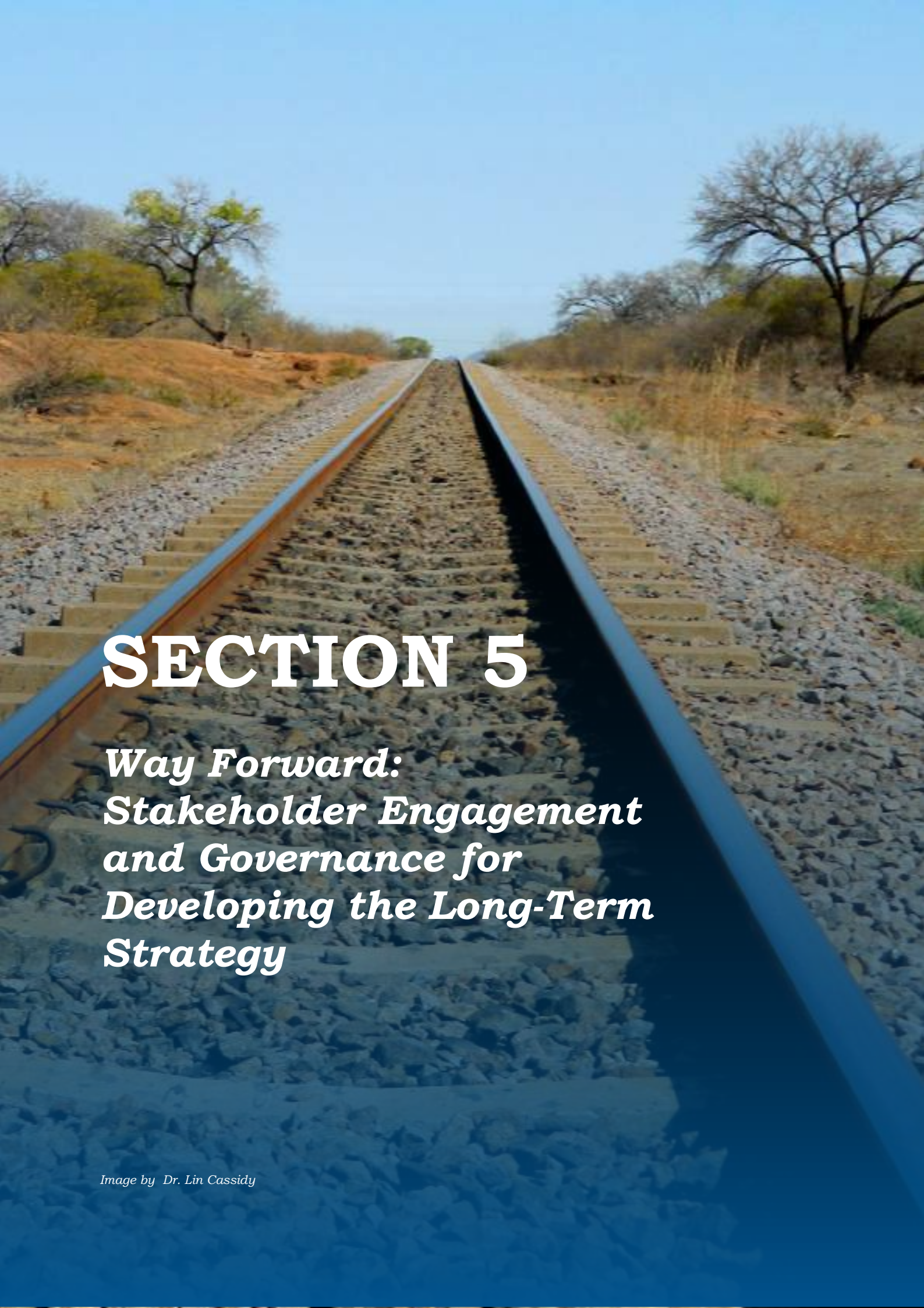
VISION FOR GENDER YOUTH AND JUST TRANSITION

Inclusive society where women, youth, and vulnerable groups are empowered, resilient, and actively engaged in shaping a sustainable and prosperous future for all, while ensuring a fair and inclusive transition to a climate-neutral.

Botswana faces significant gender inequalities and youth unemployment, which can be exacerbated by climate change impacts. Women and youth are often disproportionately affected by climate-related risks and have limited access to resources and decision-making processes. To ensure a just and equitable transition, Botswana will mainstream gender and social inclusion in all climate policies, plans, and programs, provide targeted skill development and capacity-building programs for women and youth in green jobs, establish social protection measures and safety nets, and promote inclusive and participatory decision-making processes.

Table 10 Gender, youth and just transition development targets, policies and recommendations

Targets
• Achieve gender parity in decision-making positions across all sectors • Reduce the youth unemployment rate • Youth representation in development decision-making processes • Ensure that a significant proportion of the benefit of climate action accrue to vulnerable and marginalized groups
Policies and Recommendations
• Mainstream gender and social inclusion in all climate policies, plans, and programs, and ensure that the needs and perspectives of women, youth, and vulnerable groups are adequately addressed • By 2050, Botswana will be a just, equitable • Provide targeted skill development and capacity-building programs for women and youth in green jobs and sustainable industries across all sectors, such as upcycling for arts and tourism crafts, running solar charging stations, fodder production to reduce livestock enteric fermentation, among others • Support the active participation of women and youth in the low-carbon transition • Establish social protection measures and safety nets for workers and communities affected by the transition to a climate-neutral economy, and ensure a fair and equitable distribution of costs and benefits • Promote inclusive and participatory decision-making processes in climate action and sustainable development, and strengthen the capacity of civil society organizations and community groups to engage effectively • Support the inclusion of the community level through engagement on traditional and indigenous knowledge • Ensure the LTS is aligned with the national Tripartite Action Plan, specifically regarding green jobs for the youth, social inclusion and just transition. • Work with NGOs, schools and other educational platforms to raise awareness of climate change issues • Mainstream climate change topics into primary, secondary and tertiary curricula, in alignment and incorporating key sectors' priorities.
Lead Ministry: Ministry of Nationality, Immigration and Gender Affairs; *together with* Ministry of Youth Empowerment, Sports and Cultural Development, and Ministry of Education and Skills Development



SECTION 5

Way Forward: Stakeholder Engagement and Governance for Developing the Long-Term Strategy

Image by Dr. Lin Cassidy

5 Way Forward: Stakeholder Engagement and Governance for Developing the Long-Term Strategy

The transition to a low and eventually zero carbon, Paris Agreement aligned development demands a strategic, inclusive, and well-orchestrated approach. This chapter outlines the roadmap for developing Botswana's Long-Term Low-Emission Development Strategy, a crucial document that will translate the country's vision into actionable plans.

The LTS will build upon the foundation laid by the Long-Term Vision, moving from broad aspirations to concrete strategies. While the LTV paints the big picture of Botswana's sustainable future, the LTS will provide the detailed and specific targets, policy measures, and implementation plans that will bring this vision to life. The LTS and its development process shall address key questions linking climate action and development priorities. An example of such questions is given in Annex II.

5.1 Establishing a LTS Workplan

To ensure a comprehensive and coordinated approach, establishing a robust workplan is essential. The LTS workplan, as outlined in detail in Annex III, is designed to provide a clear and structured pathway for developing Botswana's climate strategy over a 16-month period.

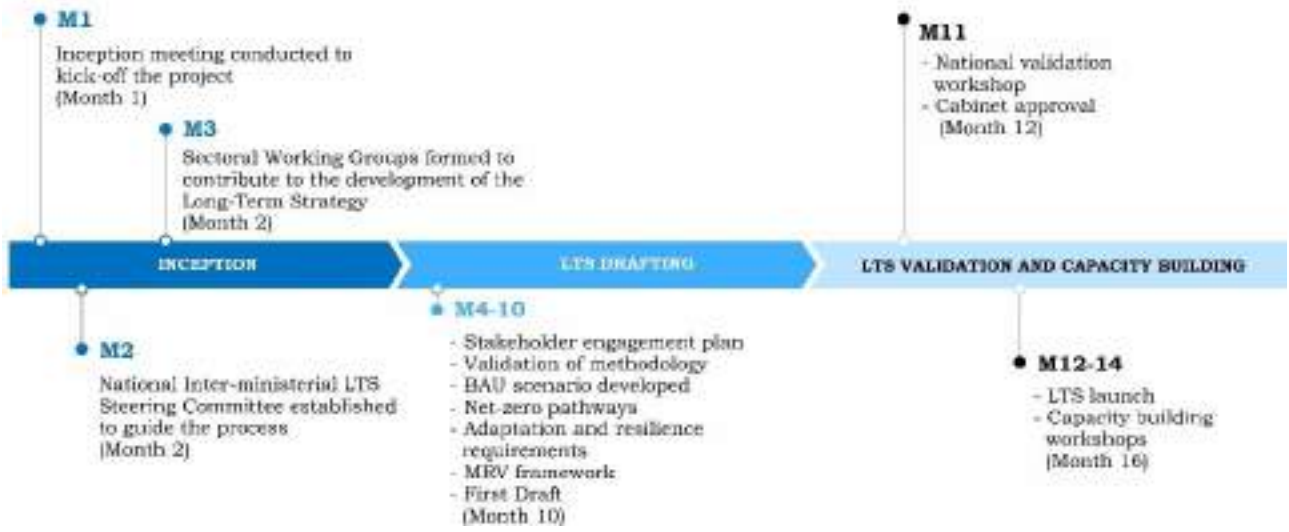
First, the **Scoping and Preparation** period over 2 months will update activities and timelines, revise plans and schedules, update the stakeholder mapping, establish the National Inter-ministerial LTS Steering Committee, and formulate Sectoral Working Groups. The **Consultations**, spanning over the entire 16 months, will involve regular consultations with line ministries, provincial authorities, and experts; there will be a stakeholder engagement process to agree on sectoral targets, validating methodologies and tools for quantitative assessment, as well as on scenarios and results. The task will also comprise validating the draft LTS of the country, and organizing workshops to inform and test analytical work. During the 8 months of **Analytical/Quantitative Assessments**, the work will focus on updating the research material registry, conducting scenario modelling and macro-economic assessments, developing a Business-As-Usual scenario, identifying low-carbon pathways for all sectors, conducting institutional capacity assessments, assessing adaptation and resilience requirements, conducting gender sectoral analyses, and updating sector-wise long-term goals.

Drafting the LTS, which is proposed to complete after 10 months, will involve developing LTS drafts with sectoral targets, milestones, and measures; drafting sectoral plans with feedback from the Technical Working Groups (TWG), identifying financial resources and incentives; and defining a monitoring and reporting framework. In the 2-month **Validation** phase, the draft LTS will be presented to line ministries and authorities and validated through a national workshop, then finalized based on stakeholder feedback, and submitted for high-level approval, together with sectoral concept notes and proposals for funding. Finally, the **Dissemination and Capacity Building** and completion phase, lasting

4 months, will include organizing an official launch event, developing and implementing a communications and outreach plan, and conducting awareness raising and capacity-building activities to ensure stakeholders are well-equipped to implement the LTS in their respective fields.

Figure 7 illustrates the timeline with the key milestones for the LTS implementation.

Figure 7 LTS milestone timeline



5.2 Establishing a National Inter-ministerial LTS Steering Committee

Central to the LTS development process is the establishment of a National Inter-ministerial LTS Steering Committee. This high-level body will be crucial for ensuring that the LTS aligns with Botswana's national policies and international commitments, thus facilitating a cohesive approach to addressing climate change. Botswana has recently revitalised its National Climate Change Committee, and this body could be formally assigned the mandate for the LTS development.

The Steering Committee will be led by the MET through the Department of Meteorological Services. This leadership will ensure coordinated efforts and strategic oversight, guiding the implementation of the LTS to meet national and international climate goals.

The Steering Committee will comprise representatives from key government ministries, civil society organizations, the private sector, and academic institutions, reflecting the diverse stakeholders involved in Botswana's development. The Steering Committee will comprise representatives from key sectors, including:

- **Government Ministries:** Representatives from various government departments such as the MET, the MFED, MADFS, MHW,MMGE, MLMWSS, and MME. These representatives will ensure that climate actions are integrated across different policy areas and that sector-specific challenges are addressed.

- **Civil Society Organizations:** Key organizations, including environmental and community-based groups, or women organizations, will participate to ensure that the perspectives and needs of local communities and vulnerable populations are considered.

- **Private Sector:** Business leaders from industries such as mining, energy, and agriculture will be involved to promote the adoption of sustainable practices and green technologies.

- **Academic and Research Institutions:** Experts from universities and research centres will contribute scientific and technical knowledge to inform evidence-based decision-making.

The primary functions of the Steering Committee include:

Policy Alignment and Coordination. The Committee will ensure that the LTS is aligned with Botswana's existing national policies and international commitments under frameworks such as the Paris Agreement. This will involve harmonizing climate strategies with national development goals and sectoral plans.

Stakeholder Engagement and Collaboration: The Committee will facilitate broad stakeholder engagement, bringing together diverse groups to collaborate on climate action. This inclusive approach will leverage the strengths and resources of all stakeholders, fostering a sense of shared responsibility and ownership.

Monitoring, Reporting, and Evaluation: A key function of the Committee will be to oversee the MRV system for the LTS implementation. This will ensure transparency, accountability, and continuous improvement of climate actions based on performance data and feedback.

Resource Mobilization and Capacity Building: The Committee will work on mobilizing resources, including finance and technical assistance, to support the implementation of the LTS. Additionally, it will focus on building the capacity of institutions and stakeholders to effectively participate in and contribute to climate actions.

5.3 Setting up Sectoral Working Groups

Technical Working Groups, aligned with priority areas identified in the LTV, will conduct the detailed work necessary for LTS development. These groups will focus on sectors including agriculture, energy, transport, waste management, and cross-cutting issues such as gender equality and capacity building.

Table 11 Tasks of Technical Working Groups

Task	Description
In-depth Sectoral Analyses	Conduct analyses of the challenges, opportunities, and potential pathways for transitioning to a low-carbon and climate-resilient future in each of the prioritized sectors and pillars identified in the LTV, including agriculture, energy, transport, waste, water resource management, resilient infrastructure, gender and youth, capacity building, and climate governance.
Development of Sector-Specific Strategies and Investment Plans	Develop strategies, targets, and actions and financing and investment plans for each sector, aligned with the country's net zero objectives and sustainable development goals, for inclusion in the LTS.
Stakeholder Engagement and Consensus-Building	Engage with relevant stakeholders within each sector, including government agencies, private sector entities, civil society organizations, and local communities, to gather input, build consensus, and ensure broad-based support for the proposed strategies and actions.
Integration and Harmonization of Strategies	Integrate and harmonize the sector-specific strategies and actions to create a cohesive and comprehensive LTS document that addresses cross-cutting issues and leverages synergies between sectors.
Regular Cross-sectoral Calibration between Working Groups	Establish, starting at the beginning of the overall LTS process, a regular exchange forum for sector working groups to meet and agree on assumptions and baselines. Working groups should meet at the beginning of any analysis or technical work to ensure alignment and consistency and avoid any contradictory statements.
Identification of Implementation Mechanisms	Identify the necessary institutional arrangements, policy instruments, and financing mechanisms required to effectively implement the LTS, including capacity building needs, technology transfer, and partnerships.

These tasks will be overseen by the National LTS Steering Committee, which will provide strategic guidance and ensure overall coordination. The Steering Committee may choose to establish dedicated Sectoral Working Groups, comprised of experts and stakeholders from relevant government agencies, academia, the private sector, and civil society, to undertake these tasks. Alternatively, the Steering Committee may decide to outsource

some of these tasks to external consultants or technical experts, depending on the available capacity and resources.

It is essential that the consultations for each sector and across sectors remains transparent, participatory, and inclusive, with regular opportunities for stakeholder engagement and input. The National LTS Steering Committee will be responsible for ensuring that the outcomes of these tasks are effectively integrated into the final LTS document, and that the strategy is aligned with Botswana's long-term vision, international climate commitments, and national policies and strategies.

5.4 Hosting Provincial and Local Consultations

A series of consultations will be organized by the LTS Steering Committee with representatives of district and local levels to ensure that the LTS reflects the diverse needs, challenges, and opportunities across Botswana. The number of consultations will depend on key local areas identified by the Steering Committee. Each consultation session will typically last 1-2 days, including workshops, discussion panels, and feedback sessions and will be carried out over a period of 6-12 months.

These consultations will target a wide range of stakeholders, including local government officials, community leaders, farmers, youth groups, women's organizations, and marginalized communities. The main objectives of these consultations will be to:

Goals of decentralized consultations
Raise awareness about the LTS development process and its importance for Botswana's sustainable development
Gather input and feedback on the proposed strategies, targets, and actions in the LTS
Identify local priorities, knowledge, and innovations that can be incorporated into the LTS

5.5 Incorporating Feedback and Finalizing the LTS

The feedback and input gathered through the stakeholder consultations will be systematically documented, analysed, and incorporated into successive drafts of the LTS. The TWG and the National LTS Steering Committee will work collaboratively to ensure that the final LTS document is comprehensive, coherent, and reflective of the diverse perspectives and aspirations of Botswana's stakeholders.

The final draft of the LTS will undergo a national validation workshop, bringing together representatives from all stakeholder groups to review and endorse the document. Following the validation workshop, the National LTS Steering Committee will submit the final LTS to the Cabinet for approval and subsequent submission to the UNFCCC.

5.6 Monitoring, Evaluation, and Revision of the LTS

The LTS will be a living document, subject to regular monitoring, evaluation, and revision to ensure its continued relevance and effectiveness in guiding Botswana's transition to a low-carbon and climate-resilient future. A robust monitoring and evaluation framework will be established to track progress in the implementation of the LTS, identify challenges and opportunities, and inform any necessary revisions to the strategy.

The National LTS Steering Committee will be responsible for overseeing the monitoring and evaluation process, with input from the Sectoral Working Groups and other relevant stakeholders. The LTS will undergo a comprehensive review and update every five years, in line with Botswana's NDC cycle and the global stocktake under the Paris Agreement.

5.7 Immediate Next Steps for LTS Elaboration

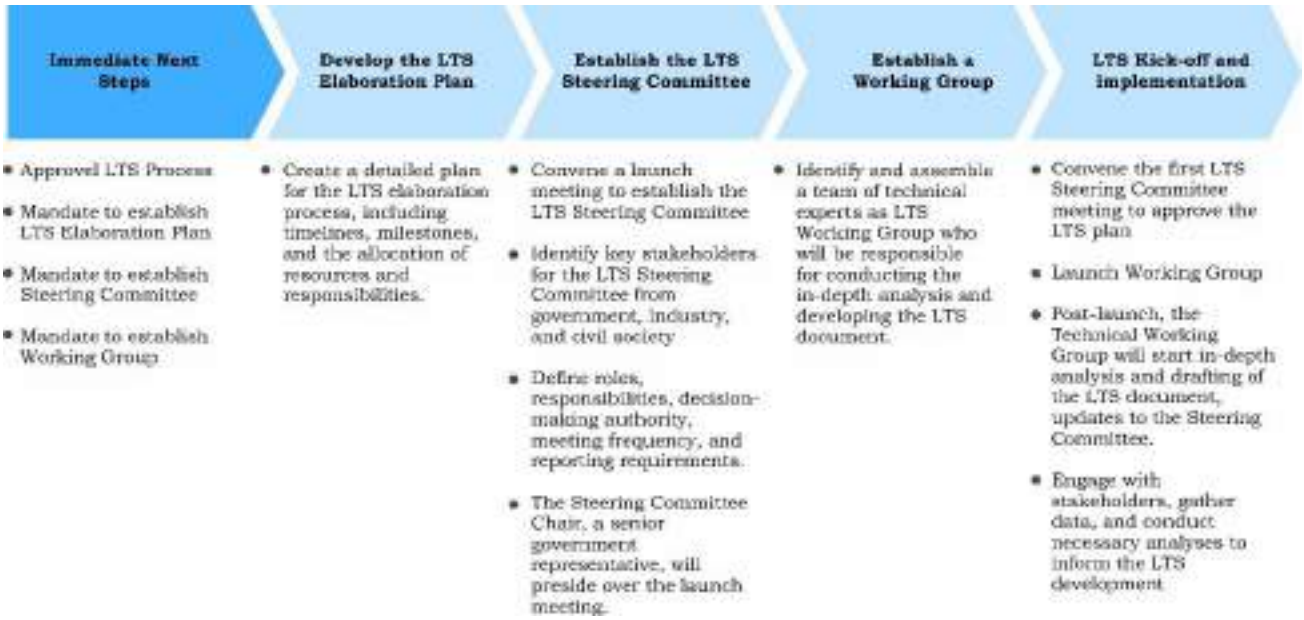
To initiate Botswana's journey towards a sustainable and climate-resilient future, immediate actions must be taken to develop a Long-Term Strategy.

First, formal approval of the LTS process is essential to align and commit key stakeholders. This involves obtaining a mandate to establish an elaboration plan, which outlines the detailed process, timelines, and necessary resources.

Additionally, forming a Steering Committee with representatives from government, industry, and civil society is crucial to provide oversight and ensure diverse perspectives.

Finally, a TWG must be assembled to carry out in-depth analyses and develop the LTS document. These steps will set a solid foundation for a structured and inclusive approach to achieving climate neutrality and resilience. The immediate actions and the following steps outlined in this chapter are illustrated in Figure 8.

Figure 8 Steps for LTS Elaboration



5.8 Moving forward

The establishment of Botswana's Long-Term Low-Emission Development Strategy involves a comprehensive and inclusive approach that ensures strategic planning, broad stakeholder engagement, and rigorous analysis. The structured workplan and the establishment of a National Inter-ministerial LTS Steering Committee (or formalisation of the NCCC in this role) are crucial steps in aligning the strategy with national and international commitments. By involving diverse sectors and conducting thorough consultations and analyses, Botswana aims to create a robust, actionable, and sustainable strategy. Continuous monitoring, evaluation, and revisions will ensure that the LTS remains relevant and effective in guiding the country towards a low-carbon and climate-resilient future, fulfilling the aspirations outlined in Botswana's Long-Term Vision and contributing to global climate goals.

SECTION 6

Annexes

Image by Dr. Lin Cassidy

6 Annexes

ANNEX I: List of stakeholder organisations engaged in the LTV process

2050 Pathways Platform	FAO
African Development Bank	Green Botswana Trust
African Group of Negotiators Experts Support	Ministry of Local Government and Rural Development
Botswana Association of Local Authorities	National Agricultural Research and Development Institute
Botswana Climate Change Network	Roman Catholic Church
Botswana Green Building Council	SASSCAL
Botswana Housing Corporation	Solar Industry Association of Botswana
Botswana Institute for Technology, Research and Innovation	Sustain267
Botswana Power Corporation	Tshole Trust
Botswana University of Agriculture and Natural Resources	UNDP Botswana
Debswana	University of Botswana
Department of Agricultural Research, Statistics and Policy Development	Various private sector representatives
Department of Animal Production	We, The World
Department of Building Works	
Department of Crop Production	
Department of Energy	
Department of Foreign Affairs	
Department of Forestry and Range Resources	
Department of Gender Affairs	
Department of Labour	
Department of Meteorological Services	
Department of Public Health	
Department of Road Services	
Department of Surveys and Mapping	
Department of Town and Country Planning	
Department of Waste Management and Pollution Control	
Department of Water and Sanitation	
Department of Wildlife and National Parks	

ANNEX II: Climate action and development questions to be addressed during the LTS process

IPCC Sector	LTV Pillar of Action	Development Priorities	Key Questions
Energy	Renewable Energy and Energy Transition	• Diversify energy sources with emphasis on renewable energy • Enhance energy efficiency	• How can Botswana transition from heavy reliance on fossil fuels to renewable energy sources? • What strategies can be implemented to improve energy efficiency across sectors?
Buildings (subset of Energy)	Sustainable Infrastructure and Urban Development	• Develop sustainable human settlements	• How can Botswana design and plan settlements to be environmentally friendly and economically vibrant?
Transport (subset of Energy)	Sustainable Transport Systems	• Transition to electric mobility • Develop efficient and sustainable public transport systems • Create infrastructure to support sustainable transport	• How can Botswana effectively transition its transport sector to electric mobility? • How can the country develop infrastructure to support both electric vehicles and non-motorized transport options? • What policies and incentives can be introduced to accelerate the adoption of sustainable transport systems?

IPCC Sector	LTV Pillar of Action	Development Priorities	Key Questions
Industry (subset of Energy)		• Promote energy efficiency in industrial processes • Encourage adoption of clean technologies in manufacturing • Develop a diversified and sustainable industrial sector • Foster innovation and research in industrial sustainability	• How can Botswana improve energy efficiency in its industrial sector? • What strategies can be implemented to encourage industries to adopt cleaner production technologies? • How can the country promote industrial diversification while ensuring environmental sustainability? • What policies and incentives can be introduced to support research and innovation in sustainable industrial practices? • How can Botswana balance industrial growth with its commitments to reduce greenhouse gas emissions?
Agriculture, Forestry and Other Land Use (AFOLU)	Agricultural Resilience	• Develop a sustainable, technology-driven, and commercially viable agricultural sector • Maintain healthy ecosystems	• How can Botswana optimize land use while preserving biodiversity?
Waste	Waste Management and Circular Economy	• Develop a clean country with solid waste viewed as a resource	• How can Botswana implement effective waste management systems and promote recycling? • What strategies can be used to integrate waste economic value into natural resource planning?

IPCC Sector	LTV Pillar of Action	Development Priorities	Key Questions
Cross-cutting	Resilient infrastructure development, Water Resource Management, Gender Equality, Youth Empowerment, and Just Transition	• Water security • Climate resilience and disaster risk reduction • Gender equality • Youth empowerment	• How can Botswana ensure water security in the face of climate change? • What measures can be taken to enhance climate resilience across all sectors? • How can gender equality and youth empowerment be integrated into all development initiatives?

ANNEX III: LTS draft workplan (up to 16 months)

Work Package	Activities	Deliverables (D)	Milestones (M)
1. Scoping and Preparation (Complete after 2 months)	1.1 Update activities and timelines based on current needs 1.2 Conduct inception meeting with MET 1.3 Revise plan and schedule 1.4 Update stakeholder mapping 1.5 Establish National Inter-ministerial LTS Steering Committee 1.6 Formulate Sectoral Working Groups	D1: Inception Report D2: Stakeholder mapping and engagement plan D3: Governance Structure	M1: Inception meeting conducted M2: Steering Committee established M3: Sectoral Working Groups formed
2. Consultations (ongoing 16 months, cross-cutting)	2.1 Regular consultations with line ministries, provinces, and experts 2.2 Stakeholder engagement for sectoral targets 2.3 Validate methodology and tools for quantitative assessment 2.4 Consultations on scenarios and results 2.5 Validation of draft LTS 2.6 Workshops to inform and test analytical work	D4: Consultation reports	M4: Stakeholder engagement plan implemented M5: Methodology and tools validated
3. Analytical/Quantitative Assessments (Complete after 8 months)	3.1 Update research material registry 3.2 Conduct scenario modelling and macro-economic assessment 3.3 Develop BAU scenario 3.4 Update sector-wise long-term goals and identify pathways to net-emissions for all sectors 3.5 Conduct institutional capacity assessments 3.6 Assess adaptation and resilience requirements 3.7 Conduct gender, youth, and just transition sectoral analyses	D5: Capacity-need assessment report D6: Gender sectoral analysis report	M6: BAU scenario developed M7: Pathways to net-zero emissions identified M8: Adaptation and resilience requirements mapped

Work Package	Activities	Deliverables (D)	Milestones (M)
4. Drafting LTS (Draft completion after 10 months)	4.1 Develop LTS drafts including sectoral targets, milestones, and measures 4.2 Draft sectoral plans 4.3 Incorporate TWG feedback 4.4 Identify financial resources and incentives 4.5 Define monitoring and reporting framework	D7: Draft LTS document	M9: First draft of LTS completed M10: Monitoring framework defined
5. Validation (Completion after 12 months)	5.1 Present to line ministries and provinces 5.2 Finalize LTS based on stakeholder feedback 5.3 Conduct national validation workshop 5.4 Obtain high-level approval 5.5 Develop sectoral concept notes and proposals for funding	D8: Final LTS document	M11: National validation workshop conducted M12: LTS approved by Cabinet
6. Dissemination and Capacity Building (Completion after 16 months)	6.1 Organize launch event 6.2 Develop and implement communications and outreach plan 6.3 Conduct capacity-building activities	D9: Communications plan D10: Capacity building materials	M13: LTS launched M14: Capacity building workshops conducted

Republic of Botswana