Final Strategy

A National Climate Change Strategy for Botswana

12 December 2018

EXECUTIVE SUMMARY

The Republic of Botswana has embarked on a path towards a climate-compatible future for the nation and its citizens. A crucial manifestation of Botswana's commitment to both climate change adaptation and mitigation is the country's 2016 draft national climate change response policy. That statement of intent and vision of what Botswana aims to achieve on climate change is now complemented by this National Climate Change Strategy and Action Plan (NCCSAP). This document will help operationalise the tenets of the draft policy and provide necessary guidance on how the policy objectives will be achieved.

Botswana has passed several milestones in its response to climate change. It is a party to the United Nations Framework Convention on Climate Change (UNFCCC), the multilateral treaty that enshrines the global community's commitment to tackle climate change. Within the UNFCCC framework, Botswana is also a signatory to the almost expiring Kyoto protocol, and the currently-in-force Paris Agreement (UNFCCC, n.d.). As part of its obligations to the UNFCCC, Botswana has submitted two National Communications (UNFCCC, n.d.), and its national determined contributions or NDC (UNFCCC, 2015). Botswana has also produced two national GHG inventories. It is presently developing its Third National Communication (TNC).

Within Botswana, climate change has steadily been receiving greater attention in governance. The eleventh National Development Plan (NDP), for the period 2017-2023, flagged climate change as a challenge faced during NDP 10, and explicitly recognized the imperative of addressing climate change. Under the NDP's core priority area of "Sustainable Use of Natural Resources," the NDP highlighted the role that climate change mitigation and adaptation can play in employment creation and economic growth and emphasized the need to mainstream climate change into development planning. The NDP also called for gender-responsive adaptation and mitigation processes and smart agriculture (Republic of Botswana , 2016).

The Ministry of Environment, Natural Resources Conservation, and Tourism (MENT) set up a climate change coordinating unit in 2010 to help manage several national and international initiatives on climate change. The Department of Meteorological Services (DMS) was designated as the focal point for climate change response in the country and to help meet obligations under the UNFCCC.

Over and above these policy, legal, and institutional developments, Botswana's setting up of a National Committee on Climate Change (NCCC) is noteworthy as a key step in its climate change response. The NCCC is intended to be an advisory body to assist the DMS in implementing climate change related processes, particularly at a technical level. This type of national level body dedicated to climate change is an important recognition of the need to devote attention to the issue, and to bring a multi-disciplinary approach to the problem (Omari, 2010).

It is within this broader context that this current document, the national climate change strategy and action plan, has emerged. Hence, this strategy has been prepared in recognition of the range of climate change response already underway in Botswana, so that it is additive and to ensure that positive efforts already proposed or initiated are fully actualized, implemented, and that they go the necessary distance.

Despite the important steps taken to date, there is a pressing need for this climate change strategy and action plan in Botswana. Impacts of climate change such as temperature rise, greater climate variability, and more extreme weather events are already being felt in Botswana and will continue to increase over the course of the next several decades. Botswana thus needs to raise its level of action to build the country's resilience and cope with expected impacts. At the same time, Botswana's changing economic profile, evolving industries, and land use patterns are likely to increase its contribution to global greenhouse gas (GHG) emissions over time. It therefore needs to manage its emissions more effectively, especially to ensure it meets its international commitment of reducing its absolute emissions by 15% by the year 2030, relative to a 2010 baseline (which was 8307 Gigagrams of Carbon Dioxide equivalent or CO_2e).

This strategy is designed to provide impetus for Botswana taking long strides on adaptation and mitigation, whilst meeting its socio-economic development goals, realizing Vision 2036, and achieving the UN Sustainable Development Goals (SDGs). It also supports alignment between Botswana's response to climate change and its other international obligations under multilateral treaties and conventions. It is also intended to equip Botswana to subsequently develop concrete project and programme concepts stemming from this strategy, positioning it for climate change funding support to these much-needed strategic interventions.

The sectors covered by the strategy are consistent with Botswana's draft national climate change response policy, with the inclusion of a few additional sectors that are recognized as integral to meaningful climate change adaptation and mitigation. The strategies herein have been formulated to ensure they address the full breadth of the draft policy's prescriptions without leaving gaps. Additionally, the strategies in this document reflect guidance received during stakeholder consultations and expert review that informed both the range and content of strategic interventions.

The strategy's intended timeframe is from 2018 through 2030, with a two-year strategy development and approval process from 2019-2020. Given this temporal scope, for each major sector in Botswana, this strategy points to priority strategies that are then unpacked into four sequential target actions – one each for the years 2020, 2023, 2026, and 2030. Eleven sectors are identified for priority adaptation response, and seven for priority mitigation response (in section 3):

ADAPTATION

Agriculture and food security
  a. Livestock and animal husbandry
  b. Arable agriculture
Water
Human health
Human settlements
Forest management
Land use and land use change
Disaster risk management
Biodiversity and ecosystems
Infrastructure development
Industry and manufacturing
Tourism

MITIGATION

Sustainable energy
Transportation
Waste management
Agriculture, forestry, and land use
Extractives and mining
Carbon budgets and abatement pathways
Market-based mechanisms

The strategy also recognizes six cross-cutting themes that are integral to strategic climate change response in Botswana (section 5) and identifies critical strategic interventions necessary to bridge these themes with climate change response.

CROSS-CUTTING THEMES

Gender
Education, training, and capacity building
Equality and equity
Innovation, research, and development
Communication and knowledge management
Climate services
Resource Mobilisation

A summary snapshot of all strategies is available in Appendix 1 and 2, for an at-a-glance view of the interventions espoused by this strategy.

In the body of this document (sections 5 and 6) every strategy recommended is accompanied by a clear articulation of the principal entity responsible for implementation (the relevant line Ministry) and collaborating entities that the Ministry will work closely with to ensure effective translation of the strategy on the ground. The National Climate Change Implementation Unit housed under the Ministry of Environment, Natural Resources Conservation, and Tourism (within the Department of Meteorological Services) will play a key role in driving and co-ordinating climate change processes and supporting the relevant ministries in their undertakings. These collaborating entities include the appropriate thematic working group of Ministries, the National Strategy Office, other relevant government departments, private sector organizations, civil society members, academic institutions, and community-based groups. It is essential to involve a diversity of actors in the implementation of the strategy and action plan, because the greater the input and participation of those most affected by climate change and those best placed to operationalise solutions, the greater the chances of this strategy's success. In light of this, the strategy's governance and institutional arrangements (section 6) create a multi-dimensional and multi-sectoral institutional architecture for climate change response in Botswana. These governance arrangements are the channel through which the strategy and action plan are to be translated into tangible activity.

This strategy belongs not only to the government of Botswana but to all Botswana. Even as government will be the custodian of the strategy and will be accountable for accelerating and measuring progress made on the strategic interventions contained therein (section 8), it is a broad spectrum of citizens, groups, companies, and institutions in Botswana who will collectively ensure that the strategies included in this document become deeply embedded within sectors and within future planning, governance, and implementation in Botswana. This will enable synergies in efforts to achieve Vision 2036 as well as the Vision of this strategy: "a society that is sustainable, climate-resilient, and whose development follows a low carbon development pathway, in pursuit of prosperity for all."

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LIST OF ABBREVIATIONS

AFOLU	Agriculture, Forestry, and Land Use
AME	Africa and Middle East
BERA	Botswana Energy Regulatory Authority
BTO	Botswana Tourism Organisation
CAR	Centre for Applied Research
COP21	21st session of the Conference of the Parties
CORB	Cubango-Okavango River Basin
CORSIA	Carbon Offsetting and Reduction Scheme for International Aviation
CLIDAP	Climate Data Processing and Production System
CRIDF	Climate Resilient Infrastructure Development Facility
ºC	Degrees Celsius
DEA	Department of Environmental Affairs
DFRC	Development Finance Resource Centre
DWA	Department of Water Affairs
DMS	Department of Meteorological Services
DRM	Disaster Risk Management
DRR	Disaster Risk Reduction
EBA	Ecosystem Based Approach
EIA	Environmental Impact Assessment
EMP	Environmental Management Plan
GACSA	Global Alliance for Climate Smart Agriculture
Gg	Gigagrams
GHG	Greenhouse Gas
GIS	Geographic Information System
GNI	Gross National Income
HIV	Human Immunodeficiency Virus
IAE	International Energy Agency
ICAO's	International Civil Aviation Organization's
IDIS	Information Dissemination and Early Warning System
INDC	Intended Nationally Determined Contributions
IPTN	Integrated Public Transport Network
IWRM	Integrated Water Resources Management
LULUCF	Land Use, Land Use Change, and Forestry
M&E	Monitoring and Evaluation
MENT	Ministry of Environment, Natural Resources Conservation, and Tourism
MM	Millimetre
MONIS	Monitoring System
MRV	Measurement, Reporting, and Verification
NAP	National Action Plan
NCCSAP	(Botswana) National Climate Change Strategy and Action Plan
NBSAP	National Biodiversity Strategy and Action Plan
NCCC	National Committee on Climate Change
NDP	National Development Plan
NGO	Non-Governmental Organisation
NMES	National Monitoring and Evaluation System
NMT	Non-motorized Transport
R&D	Research and Development
RCM	Regional Climate Models
SA	South Africa
SADC	Southern Africa Development Community

SEA	Strategic Environmental Assessment
SEEA	System of Environmental and Economic Accounting
REDD	Reducing Emissions from Deforestation and Forest Degradation
REWS	Regional Early Warning System
SBSTA	Subsidiary Body for Scientific and Technical Advice
SDG	Sustainable Development Goals
SNC	Second National Communication
ToC	Table of Contents
TRG	Technical Reference Group
TWG	Technical Working Group
UNDP	United Nations Development Programme
UNFCCC	United Nations Framework Convention on Climate Change
WAVES	Wealth Accounting and Valuation of Ecosystems Services

LIST OF KEY TERMS[1]

Adaptive Capacity
The ability of systems, institutions, humans and other organisms to adjust to potential damage, to take advantage of opportunities, or to respond to consequences.

Anthropogenic
Resulting from or produced by human beings.

Climate
Climate in a narrow sense is usually defined as the average weather, or more rigorously, as the statistical description in terms of the mean and variability of relevant quantities over a period of time ranging from months to thousands or millions of years. The relevant quantities are most often surface variables such as temperature, precipitation and wind. Climate in a wider sense is the state, including a statistical description, of the climate system.

Climate Change
Climate change refers to a change in the state of the climate that can be identified (e.g., by using statistical tests) by changes in the mean and/or the variability of its properties and that persists for an extended period, typically decades or longer. Climate change may be due to natural internal processes or external forcings such as modulations of the solar cycles, volcanic eruptions and persistent anthropogenic changes in the composition of the atmosphere or in land use. Note that the Framework Convention on Climate Change (UNFCCC), in its Article 1, defines climate change as: 'a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods'. The UNFCCC thus makes a distinction between climate change attributable to human activities altering the atmospheric composition and climate variability attributable to natural causes. See also Detection and Attribution

Climate Change Adaptation
The process of adjustment to actual or expected climate and its effects. In human systems, adaptation seeks to moderate or avoid harm or exploit beneficial opportunities. In some natural systems, human intervention may facilitate adjustment to expected climate and its effects.

Climate Resilient Pathways
Iterative processes for managing change within complex systems in order to reduce disruptions and enhance opportunities associated with climate change.

Climate Risk
The potential for consequences where something of value is at stake and where the outcome is uncertain, recognizing the diversity of values. Risk is often represented as probability or likelihood of occurrence of hazardous events or trends multiplied by the impacts if these events or trends occur…The term risk is often used to refer to the potential, when the outcome is uncertain, for adverse consequences on lives, livelihoods, health, ecosystems and species, economic, social and cultural assets, services (including environmental services) and infrastructure.

[1] Adapted from the IPCC AR5 Definitions Glossary.

Climate Vulnerability
The propensity or predisposition to be adversely affected. Vulnerability encompasses a variety of concepts and elements including sensitivity or susceptibility to harm and lack of capacity to cope and adapt.

Emissions
The release of greenhouse gases and/or their precursors into the atmosphere over a specified area and period of time.

Exposure
The presence of people, livelihoods, species or ecosystems, environmental functions, services, and resources, infrastructure, or economic, social, or cultural assets in places and settings that could be adversely affected

Hazard
The potential occurrence of a natural or human-induced physical event or trend or physical impact that may cause loss of life, injury, or other health impacts, as well as damage and loss to property, infrastructure, livelihoods, service provision, ecosystems and environmental resources. In this report, the term hazard usually refers to climate-related physical events or trends or their physical impacts**.**

Impacts
Effects on natural and human systems. In this report, the term impacts is used primarily to refer to the effects on natural and human systems of extreme weather and climate events and of climate change. Impacts generally refer to effects on lives, livelihoods, health, ecosystems, economies, societies, cultures, services and infrastructure due to the interaction of climate changes or hazardous climate events occurring within a specific time period and the vulnerability of an exposed society or system. Impacts are also referred to as consequences and outcomes. The impacts of climate change on geophysical systems, including floods, droughts and sea level rise, are a subset of impacts called physical impacts.

Mitigation
A human intervention to reduce the sources or enhance the sinks of greenhouse gases (GHGs). This report also assesses human interventions to reduce the sources of other substances which may contribute directly or indirectly to limiting climate change, including, for example, the reduction of particulate matter emissions that can directly alter the radiation balance (e.g., black carbon) or measures that control emissions of carbon monoxide, nitrogen oxides, Volatile Organic Compounds and other pollutants that can alter the concentration of tropospheric ozone which has an indirect effect on the climate.

Resilience
The capacity of social, economic and environmental systems to cope with a hazardous event or trend or disturbance, responding or reorganizing in ways that maintain their essential function, identity and structure, while also maintaining the capacity for adaptation, learning and transformation.

Risk
The potential for consequences where something of value is at stake and where the outcome is uncertain, recognizing the diversity of values. Risk is often represented as probability or likelihood of occurrence of hazardous events or trends multiplied by the impacts if these events or trends occur. In this report, the term risk is often used to refer to the potential, when the outcome is uncertain, for adverse consequences on lives, livelihoods, health, ecosystems and species, economic, social and cultural assets, services (including environmental services) and infrastructure.

Sensitivity

The inherent qualities of an entity or system that make it susceptible to changes in climate. It refers to the degree to which an entity or system is likely to respond when exposed to a climate-induced stress. Therefore, if an entity or system is modified as a result of changes in climate (for instance, if it undergoes any alteration due to temperature change, changes in rainfall and humidity, changes when it encounters water or heat or elevated atmospheric carbon levels etc.), it is considered sensitive to climate change.

Sink

Any process, activity or mechanism that removes a greenhouse gas (GHG), an aerosol or a precursor of a GHG or aerosol from the atmosphere**.**

Vulnerability

The propensity or predisposition to be adversely affected. Vulnerability encompasses a variety of concepts and elements including sensitivity or susceptibility to harm and lack of capacity to cope and adapt.

1 Problem Statement

Botswana, like most countries, has started experiencing the impacts of climate change. As global emissions rise, the impacts of climate change, and more so climate variability, are expected to worsen across the planet, including in Botswana. Similar to many African nations, Botswana already grapples with challenges stemming from limited financial resources, constrained technical and governance capacity, and slow-moving human development (it is ranked 108th of 189 countries in the United Nations' Human Development Index, 2016) (United Nations Development Programme, 2018). Climate change overlays and exacerbates such problems, further impeding socio-economic growth and developmental progress, and posing a significant threat to human livelihoods, security and welfare.

In recognition of the gravity of climate change, Botswana became a party to the 1994 United Nations Framework Convention on Climate Change (UNFCCC). It also signalled its intent to be a leader in fighting climate change, by becoming a party to the 2015 Paris Agreement under the UNFCCC in 2016 and committing to an absolute target of 15% greenhouse gas (GHG) emissions reduction by 2030, relative to a 2010 baseline (Government of Botswana, 2015).

Botswana's intent to combat the damaging impacts of climate change and to reduce its own contribution to the global crisis is now being given effect nationally through the adoption of a national climate change response policy, and this guidance instrument – the national climate change response strategy – which provides a pathway of concrete actions the country will undertake over the decade from 2020 to 2030, in lock-step with the implementation period of the twelfth National Development Plan (NDP 12).

1.1 THE NEED FOR CLIMATE CHANGE RESPONSE

Climate change is expected to result in some systemic shifts in Botswana, with far-reaching impacts. The economy-wide nature of such impacts has implications for Botswana's socio-economic growth, with the possibility that the country's objective of prosperity for all as articulated in its Vision 2036 and its achievement of the global Sustainable Development Goals (SDGs) will be jeopardised. In order to ensure that the development gains Botswana has made in recent decades are preserved and not undone by climatic shocks and stresses, the country is adopting this strategy to guide it towards a concerted, multi-pronged approach to safeguard itself against climate change.

1.1.1 THE NEED TO COPE WITH CLIMATE CHANGE IMPACTS

Climate change literature for Botswana indicates that the country is already feeling the impacts and will continue to experience growing challenges related to climate change.

Temperatures have on average risen across Botswana in recent decades, just as they have over Southern Africa as a whole. Southern Africa has been warming significantly on average over the second half of the last century, at nearly twice the global average rate of warming; between 1961 and 2014, temperatures over the region increased at an estimated rate of 0.4°C per decade (Vincent, 2017). Over the next few decades, climate models predict that Botswana will become hotter, with an expected average temperature increase of 2°C to 2.5°C by 2050 as well as an increase in and more severe heat-wave days, a higher fire-index, and increased drought frequency and duration. The rate of warming is likely to be 0.27°C per decade (Ministry of Environment, Wildlife and Tourism, 2012).

Botswana has highly variable rainfall patterns, displaying inter-annual, intra-annual, and inter-decadal variability. Historically, the northern and eastern regions of the country receive marginally greater rainfall volumes, relative to central and south-western Botswana (Ministry of Environment, Wildlife and Tourism, 2012). Rainfall data between 1975 and 2005 suggest a trend of decreased rainfall and fewer rainy days over this time period (Vincent, 2017). In terms of future impacts, studies of southern Africa

as a whole consistently demonstrate that there will be an overall decrease of rainfall over the region, including northern Botswana (Vincent, 2017). However, there is high spatial variance in what models suggest for northern Botswana and other parts of the country. Botswana's second national communication to the United Nations Framework Convention on Climate Change (UNFCCC) notes that while climate change portends a decrease in total annual rainfall in the north and east of the country, total rainfall volumes are actually expected to increase in the south of Botswana. There will be a slight increase in the number of rainy days in the country (Ministry of Environment, Wildlife and Tourism, 2012).

High solar radiation, low humidity, and high temperatures in Botswana result in high historic evaporation rates (Ministry of Environment, Wildlife and Tourism, 2012). As temperatures have risen, evaporation rates have likely seen a steady rise in recent decades. In terms of the future outlook, increased evaporation is expected to be a major threat to Botswana's water resources, reducing annual yields in the country's river basins (*Ibid*).

Botswana has long grappled with droughts. Recurrent droughts (due to low rainfall) are common, especially in eastern, some parts of northern and central Botswana (which has desert-like climate). Droughts arising from dry and arid soil conditions (high evaporation-driven water losses) are prevalent in south-western Botswana (Government of Botswana, 2015). All over southern Africa, there is some evidence to indicate that droughts have become more intense and widespread in recent decades (Vincent, 2017). While droughts are far more common than unexpected flash floods, Botswana also experiences flooding events, especially in the eastern parts of the country (Ministry of Environment, Wildlife and Tourism, 2012). The annual Okavango Delta flooding towards the north-west of the country forms part of the natural ecosystem process in the Cubango-Okavango River basin. Although the floods in the Delta is of a different nature and duration than what is usually considered when reference is made to flash floods, climate impacts on the system significantly affect the subsistence farming that is dependent on the flood regime for agricultural production and livestock survival. In addition, the Delta flood regime plays a critical part in the tourism economy in the region, making up a significant part of Botswana's GDP. Projections of Botswana's climate future, according to several models, suggest that climate change will make droughts longer, more frequent and more intense in Botswana (*ibid*). At the same time, flooding may become a greater challenge, especially in the east, due to heavy rainfall events (*Ibid*).

1.1.2 THE NEED TO REDUCE CONTRIBUTIONS TO THE PROBLEM

On the climate change mitigation side, the need for Botswana to demonstrate climate change response is less pressing, given its relatively marginal contribution to global GHGs.

Botswana's share of global GHG emissions represents just 0.03% of the total. It is not even amongst the world's top 120 GHG emitting countries (ranking 125th based on 2013 emissions) (World Resources Institute , n.d.). In terms of per capita emissions in 2013, it has a greater share, and ranks 72nd. However, its per capita emissions (2013) of 6.07 metric tons of carbon dioxide equivalent per capital is still lower than the global average (2013) of 6.27 metric tons (World Resources Institute , n.d.).

In light of this, it could be argued that Botswana's need to tackle climate change mitigation does not stem from its contributions to the problem. Regardless, for several reasons it is prudent for Botswana to prioritize mitigation where possible. One, with continued growth in the country's extractives industry and greater industrial and manufacturing activity, as well as projected growth in motorized transportation, it is possible that Botswana's emissions profile could change, and its contributions could grow. Two, as the world as a whole moves towards low-carbon pathways, Botswana would be well placed to think ahead and position herself as a low-carbon economy, demonstrating a low carbon-intensity of its GDP, and to become more competitive in a carbon-constrained future. Three, well thought out and effective mitigation programs and projects in Botswana could attract climate finance, and such projects could simultaneously further the country's development goals.

1.2 THE NEED FOR A NATIONAL CLIMATE CHANGE STRATEGY AND ACTION PLAN

Botswana needs this national climate change response strategy for a range of key reasons.

- First, it is to fulfil international obligations and commitments made within the multilateral climate change treaty system of the UNFCCC: Botswana's Nationally Determined Contributions (NDC) report states clearly that it is developing a climate change policy and institutional framework that will be "supported by a strategy and action plan (Government of Botswana, 2015)."

- Second, having set a national emissions reduction target of 15% absolute GHG reduction by 2030 (over a 2010 baseline), the country needs a policy, strategic, and eventually a strong legislative framework to ensure it adopts interventions that help it achieve its target.

- Third, it is to reflect the broader commitment made by all members of the Southern African Development Community (SADC) and the African Union (AU) to take meaningful action on climate change.

- Fourth, it is to ensure that Botswana is well positioned to seek and secure critical international (multilateral and bilateral) climate change funding support for interventions that demonstrate national ownership. Developing and adopting a national climate change strategy is a crucial step towards identifying a suite of high-priority investment-ready projects and programmes that have a beneficial climate change impact in line with the country's own development agenda, and that are bankable.

- Finally, but most importantly, it is to equip all citizens and residents of Botswana, across the public, private, and civil society sectors, with a clear roadmap of action on climate change, ensuring that all stakeholders have a channel through which they can engage on climate change response for the country.

1.2.1 ALIGNMENT WITH BOTSWANA'S DRAFT NATIONAL CLIMATE CHANGE RESPONSE POLICY

This strategy has emerged out of a long and involved national process that has allowed Botswana to identify, engage with, and embrace particular approaches to climate change response. In 2016, Botswana developed a draft national climate change response policy containing specific policy objectives for multiple sectors. After lengthy deliberations, this policy is expected to receive official endorsement and be adopted by late 2018.

The current strategy builds on and reflects the thinking and national input that is already embedded in the policy, and is an instrument intended to provide the next level of granularity on the existing foundation of the policy. In other words, it is a mechanism that identifies specific means to give effect to each particular prescription of the draft policy's. The strategy is also closely aligned with the 2018 National Spatial Development Plans which suggests climate change activities in a variety of areas such as agriculture, forestry, and energy, which are covered in this strategy document (Government of Botswana, 2018).

The strategy consequently follows the lead of the draft policy in adopting a sectoral approach, with the additional provision of strategies for cross-cutting themes that are closely linked to effective climate change response. It should also be noted that this strategy, as with any national climate change response, may entail a need to adapt and reformulate many existing national strategies and/or policies in order to reach its goals. Climate change is a complex and multi layered issue and any response will require alignments across the highest level of policy, strategy, governance and implementation. A

transformative climate strategy needs to usher in change. This will require policy updates and revisions in different sectors. With guidance from the NSO and sectoral commitment to climate change, positive changes can be brought about in Botswana.

The targets in each strategy follow a specific timeline (2020, 2023, 2026 and 2030), this timeline was adopted for three reasons:

1. To be in-line with the UNFCCC nationally determined commitments reporting processes;
2. To further be in-line with UNFCCC reporting mechanisms, thus allowing new and relevant climate change research to be included into new activities undertaken at a new target date;
3. Lastly to be in line with Botswana's national development plan process which currently runs 2017 – 2023 and once updated, will run from 2023 – 2030.

2 Vision and Objectives

2.1 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.**

Its vision is to provide the requisite guidance for Botswana to achieve a low carbon footprint, plus awareness of and resilience to the consequences of climate change.

The national climate change strategy and accompanying action plan inform planning and decision-making on climate change mitigation and adaptation and enable Botswana to thrive in the face of climate change and to fulfil its global commitments on climate action and the Sustainable Development Goals.

2.1.1 LINK TO BOTSWANA'S VISION 2036

The strategy's vision (articulated above) is closely linked to the central theme of Botswana's national Vision 2036, which targets prosperity for all and which integrates climate change resilience in its four central pillars: Sustainable Economic Development; Human and Social Development; Sustainable Environment; and Governance, Peace, and Security (Vision 2036 Presidential Task Team, 2016).

On the specific theme of climate change, Vision 2036 notes:

> *"Botswana will have a low carbon footprint, with a society that is aware of and resilient to the consequences of climate change. Our planning and decision-making will take cognisance of vulnerabilities and provide for implementation of appropriate mitigation and adaptation measures. We will also strengthen efforts towards disaster risk management and early warning, as well as public education and awareness, and be a global player committed to global climate change efforts.* (Vision 2036 Presidential Task Team, 2016)*"*

Thus, the strategy reinforces the vision of prosperity for all, with the acknowledgment that the most robust and sustainable form of prosperity will come from a low-carbon growth trajectory, will not be dependent on carbon-intensive economic models, and will make Botswana resilient in the face of any climate change future the world evolves into.

2.2 STRATEGIC OBJECTIVES

This national climate change strategy is located within a much broader governance landscape that reflects Botswana's national character and aspirations. For climate change response to be embedded or mainstreamed within all spheres in Botswana, it is essential that the pursuit of climate change resilience should not be disjunct from the pursuit of Botswana's socio-economic goals. It should, in fact, be complementary to and should support and enhance the country's many developmental commitments.

Without integrating climate change resilience into sectoral development efforts and economic investments to support Botswana's growth and targets, there is a risk that the development gains will be nullified, and economic assets will suffer depreciation or obsolescence in the face of climate change. Aligning climate change considerations with development planning and implementation – and

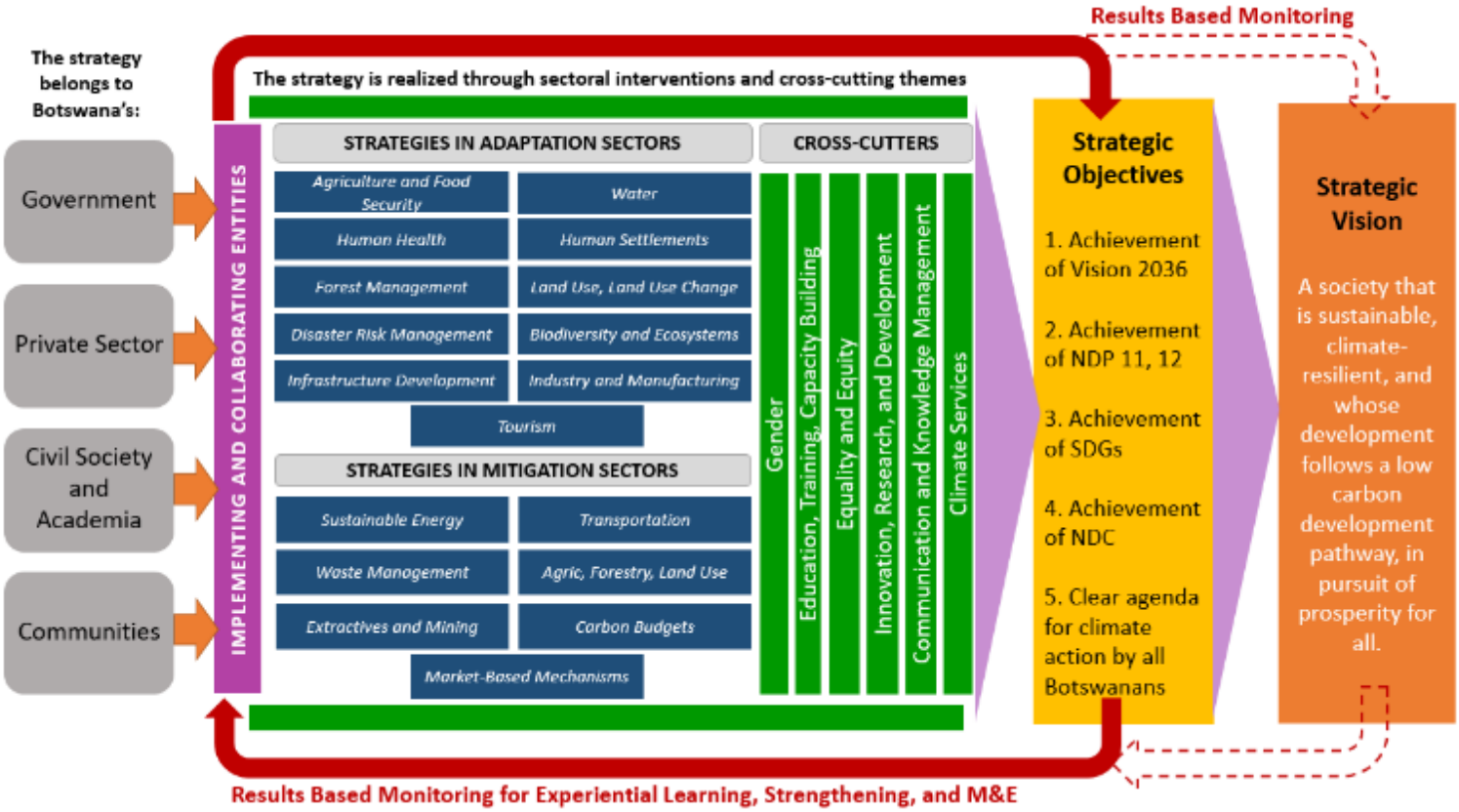
mainstreaming this integration through the sectoral strategies articulated herein – can help ensure that Botswana will be well positioned to pursue its development goals despite climate change impacts.

This strategy is therefore grounded in an understanding of the relationship between climate change resilience and socio-economic development. Consequently, the strategy's objectives listed below are affirmations to ensure climate change response in Botswana dovetails with the country's development aspirations:

- **Strategic objective 1**: To ensure climate change adaptation and mitigation action supports the achievement of Botswana's Vision 2030 of prosperity for all.
- **Strategic objective 2**: To ensure climate change adaptation and mitigation action supports the achievement of current and future Botswana's National Development Plans (NDPs).
- **Strategic objective 3**: To ensure climate change adaptation and mitigation action supports the achievement of the global Sustainable Development Goals (SDGs) in Botswana.
- **Strategic objective 4**: To ensure climate change adaptation and mitigation action supports the achievement of Botswana's NDC, including the GHG emissions reduction target of 15% by 2030 (from 2010 levels of 37Mt (Climate Watch, 2018).
- **Strategic objective 5**: To ensure Botswana has a clear strategic agenda on climate change adaptation and mitigation actions, allowing for a spectrum of actors to be involved in implementation.

2.3 THEORY OF CHANGE

The selection, framing, and description of strategic interventions in this strategy are informed by the following theory of change:



3 Climate Change Adaptation

Botswana is tackling climate change adaptation through adopting a multi-faceted governance approach towards adaptation, which needs to be a main focus due to the specific climate threats faced by Botswana. Resilience to climate change is also of Botswana's NDP11 Vision 2036 and, as noted in Botswana's NDC (Government of Botswana, 2015), it is developing a National Adaptation Plan (NAP) that will be "informed by existing climate change information, socio-economic and development indicators, local experiences, as well as existing policies, plans and institutional frameworks." The NAP is of vital importance because each sector does not yet have their own sectoral plans.

In the lead-up to Botswana's NAP, which will provide a higher degree of focus on detailed adaptation projects and programmes, this strategy creates the enabling environment to strengthen and accelerate the development of adaptive capacity in major sectors.

3.1 AGRICULTURE AND FOOD SECURITY

3.1.1 KEY CLIMATE CHANGE THREATS AND VULNERABILITIES IN THE SECTOR

Botswana is on average a semi-arid, middle-income African country with livestock, agriculture, and to a lesser degree crop production, forming a key part of the economy. Agriculture contributes to 26% of employment nationally (World Bank, 2017). Livestock production constitutes eighty percent of the agriculture sector's contribution to GDP, with roughly 2.1 million heads of cattle in the country (FAS, 2017). The livestock sector is a key economic activity and supports 40% of rural communities in Botswana (Republic of Botswana, 2018). Crop production is mostly rainfed and occurs in areas of higher rainfall, with Sorghum and Maize being primary crops. Most agricultural activities are undertaken by small scale farmers or at subsistence levels, using traditional methods (United Nations Development Program, 2012). Human Wildlife Conflicts, especially along wildlife corridors and around the Okavango Delta pose challenges that increase as water resource availability reduces to support agriculture needs and wildlife alike.

Land degradation as a result of climate change, poorly managed tilling, and livestock grazing practices reduces the ability of production systems to recover and gradually decrease soil nutrient loads. Food security is still an issue for many Batswana; the country imports 90 percent of its food and a 2016 study found 76% of households and in rural areas and 56% of households in urban areas are moderately or severely food insecure (Moseley, 2016).

Although small-scale irrigation and fish farming has become prevalent along some of the perennial rivers, this sector in Botswana's agricultural economy remains largely undeveloped.

Throughout Botswana, agriculture is not a major job provision sector, however agricultural employment has the potential to grow.

Agriculture is impacted by climate change, rising temperatures affect crop growth and crop cultivation areas, affect livestock health, and the prevalence and spread of crop and animal diseases (due to changes in reproductive cycles and growth conditions of disease agents). Climate change also increases rainfall variability and increases drought cycles. Since crops require water to grow and impacts animal survival rates during the dry season, these changes also affect agriculture. The majority of farmers are smallholders who have poor adaptive capacity to deal with such stresses and such, hence a great need for adaptation strategies in this sector (Republic of Botswana, 2018). Drought and low crop levels greatly effect livestock as rangeland grasses are their primary source of nutrition, hence changes in rangeland productivity are a great threat to livestock herds nationally, thus impacting both livelihood and food security (Republic of Botswana, 2018).Similarly, high temperatures affect evaporation and evapotranspiration levels, which have an impact on soil moisture, in turn affecting how much moisture is available to plants from the soil. Thus, climate change has impacts on the agriculture sector, and this has a ripple effect on food availability and security (Ministry of Environment, Wildlife and Tourism, 2012). Botswana has already commenced with Climate Smart Agriculture (CSA) programmes, to counter these challenges.

The following strategies are aligned with existing CSA efforts in Botswana and the climate change priorities set out in the National Spatial Development Plan of 2018.

To reflect the distinct roles of livestock and arable agriculture in Botswana, the strategies below have been organized under corresponding sub-sections. It should be noted, however, that most strategies that relate to climate smart agriculture (CSA) do cover both livestock and crop production.

3.1.2 STRATEGIES FOR THE AGRICULTURE AND FOOD SECURITY SECTOR

i. Livestock sub-sector

Strategic Intervention S1.1:
Identify key livestock-focused areas of intervention within existing Climate Smart Agriculture (CSA) programmes, and scale-up such programmes with a specific focus on livestock management.

Policy Goal to Be Realised:
"Exploration and development of innovative agricultural initiatives that can enhance income generation such as Agro-tourism, thereby significantly contributing to improvement of individual and community needs."

2020 Target:
Key CSA programmes involving livestock identified where climate smart considerations should be added. Creation of new livestock specific CSA programmes.

2023 Target:
New programme specifically around livestock management and herd resilience has been created and rolled out.

2026 Target:
Programmes ongoing.

2030 Target:
Programmes ongoing.

Responsible Entity:
Ministry of Agricultural Development and Food Security

Key Collaborating Entities:
Ministry of Environment, Natural Resources Conservation and Tourism (MENT)
Ministry of Local Government and Rural Development
Botswana Development Corporation (BDC)
Farmers Associations
The National Strategy Office

Primary SDG Implicated	Primary NDP Goal Implicated	Primary Vision 2036 Pillar Implicated	Section (or Activity) of NDC Implicated
	NDP 11 – Sustainable use of natural resources.	Pillar One – Sustainable Economic Development	N/A.

Strategic Intervention S1.2:
Implement a strengthened livestock climate change disease surveillance and response system to manage outbreaks, thereby maintaining resilience in the livestock sector and protecting value of Botswana's cattle with a specific focus on climate related threats and impacts.

Policy Goal to Be Realised:
"Enhancement of resilience in the livestock sector through acceleration of sustainability measures such as rangeland efficiency and management practices."

2020 Target:
Strengthen the Botswana Cattle Producers Association (BCPA) as well as other livestock associations and wherever possible, individual farmers to create and utilise a livestock disease surveillance and response system. Undertake a baseline study into location and number of herds nationally. Research into best model of surveillance specific to Botswana.

2023 Target:
National implementation of surveillance system and data gathering underway. Response systems formalised and made available in accessible formats nationally (including through civil society organisations). Figures to be gathered ad published yearly.

2026 Target:
Response systems formalised and made available in accessible formats nationally (including through civil society organisations). Figures to be gathered ad published yearly.

2030 Target:
Response system tested and adaptive. Enough data amassed that system becomes both pre-emptive and re-active.

Responsible Entity:
Ministry of Agricultural Development and Food Security

Key Collaborating Entities:
Ministry of Environment, Natural Resources Conservation and Tourism (MENT)
Ministry of Local Government and Rural Development
Tertiary Education, Research, Science and Technology
Farmers Associations
The National Strategy Office

Primary SDG Implicated	Primary NDP Goal Implicated	Primary Vision 2036 Pillar Implicated	Section (or Activity) of NDC Implicated
	NDP 11 – Sustainable use of natural resources.	Pillar One – Sustainable Economic Development	N/A.

ii. ***Arable agriculture (crop cultivation) sub-sector***

Strategic Intervention S1.3:
Expand the reach of Botswana's existing Climate Smart Agriculture (CSA) programmes, with a specific focus on increasing resilience in production systems and subsequently production (outcome), the midst of climate change and subsequently improved livelihoods (impact), e.g. job creation and market access.

Policy Goal to Be Realised:
"Food security and sustainability must be achieved in the context of integrated development planning and land use reforms that can reduce natural resources degradation, human-wildlife conflicts, and significantly contribute to job creation and poverty eradication."

2020 Target:
Key CSA programmes to have been identified and replicated in new areas. Ministry to adopt a Smart-Monitoring approach that allows to regularly track changes using a standard methodology based on key variables that capture short-term adaptive processes and changes in states comparing farmers that are (and are not) adopting CSA options in their farms.

2023 Target:
Key CSA programmes to be rolled out nationally.

2026 Target:
Key CSA programmes to be rolled out nationally.

2030 Target:
CSA programmes to be nationally accessible even by small-scale farmers with activity along the entire value chain with a focus on both domestic and international markets.

Responsible Entity:
Ministry of Agricultural Development and Food Security

Key Collaborating Entities:
Ministry of Environment, Natural Resources Conservation and Tourism (MENT)
Ministry of Local Government and Rural Development
Farmers Associations
Cluster farmers
Private Sector
Research organisations e.g. BITRI, BUAN
The National Strategy Office

Primary SDG Implicated	Primary NDP Goal Implicated	Primary Vision 2036 Pillar Implicated	Section (or Activity) of NDC Implicated
	NDP 11 – Sustainable use of natural resources.	Pillar One – Sustainable Economic Development	NDC Adaptation measures (Agriculture)

Strategic Intervention S1.4:
Provide low-cost credit (concessionary loans), rebates, and other financial incentives to farmers and farming clusters for the purchase and use of solar-power water pumps and biogas digesters.

Policy Goal to Be Realised:
"Adoption of strategies that will enhance the application of water and nutrient conservation technologies and create an enabling environment for investments in use of renewable energy for agricultural activities."

2020 Target:
Creation and implementation of key incentives. Creation of criteria for access to incentives and templates to support farming communities to apply for the loans and integration into the system.

2023 Target:
Implementation of financial incentives and capacity building for officials to support the application process. Implementation support and advisory services. Monitoring and evaluation undertaken (in line with NMES system).

2026 Target:
Financial offerings and support mechanisms adjusted to suit both growth in uptake and growth in size of financial offering, as well as implementation processes and success rates. M&E ongoing.

2030 Target:
Focus on adoption of new digester and pump technology. M&E ongoing as per NMES.

Responsible Entity: Ministry of Agricultural Development and Food Security

Key Collaborating Entities:
Ministry of Environment, Natural Resources Conservation and Tourism (MENT)
Ministry of Finance and Economic Development
Ministry of Investment, Trade and Industry
Farmers Associations
The National Strategy Office

Primary SDG Implicated	Primary NDP Goal Implicated	Primary Vision 2036 Pillar Implicated	Section (or Activity) of NDC Implicated
	NDP 11's goal – Developing diversified sources of economic growth.	Pillar One: Sustainable Economic Development.	N/A

Strategic Intervention S1.5:
Invest in expanded and advanced agricultural early warning systems across all farming regions in Botswana, in a harmonized manned with SADC early warning systems. This would include the strengthening of watercourse flow gauge network and integration of weather alerts with integration with ICT and radio-based technologies (e.g. mobile phone alerts) for dissemination of early warnings and climate information services.

Policy Goal to Be Realised:
"Promotion of access to existing and new information and use of early warning systems for agricultural planning and management purposes."

2020 Target:
Commence research into agricultural seasonal forecast as well as early warning systems that are available and/or already in use in Botswana. Secure terminology/language to be used for early warning, to ensure that the message interpretation is effective.

2023 Target:
National marketing/awareness campaign rolled out. Successful systems identified and replicated, and key producers of technologies within Botswana identified. Invest in increasing existing providers capacity. Marketing ready for roll out phase.

2026 Target:
Increase in type of services available and services tailored to more specifically meet the needs of Batswana. Secure terminology/language to be used for early warning, to ensure that the message interpretation is effective for farmers.

2030 Target:
Promotion of further service providers. Inclusion of non-farm related aspects into communication systems e.g. vaccination drives and other state related communications.

Responsible Entity: Ministry of Agricultural Development and Food Security

Key Collaborating Entities:
Ministry of Environment, Natural Resources Conservation and Tourism (MENT)
MAgri
Ministry of Local Government and Rural Development
Tertiary Education, Research, Science and Technology
Ministry of Transport and Communications (MTC)
Farmers Associations
The National Strategy Office

Primary SDG Implicated	Primary NDP Goal Implicated	Primary Vision 2036 Pillar Implicated	Section (or Activity) of NDC Implicated
	NDP 11 – Sustainable use of natural resources.	Pillar One – Sustainable Economic Development	N/A.

3.2 WATER

3.2.1 KEY CLIMATE CHANGE THREATS AND VULNERABILITIES IN SECTOR

Botswana's main water sources are surface water from rivers, pans and dams and underground aquifers of a fossil nature. There are eight major dams and all rivers are shared with other countries (United Nations Development Program, 2012). Rainfall is low and erratic, and droughts are a regular occurrence making recharge rates to groundwater low, certain aquifers gain no recharge and the water being drawn from them are thousands of years old. Many rural villages are entirely dependent on borehole water supply, studies suggest that over 80% of Batswana get their water from underground sources (AU/ NEPAD Network for Water Centres of Excellence, 2014)

High surface and air temperatures lead to greater evaporation and evapotranspiration, increasing aridity and drought. Warmer air holds more moisture, and reaches saturation at higher levels of moisture, with the result that more heavy rainfall events are expected with climate change. This could lead to severe flooding. The 2018 'Preparation of vulnerability assessment and adaptation to the effect of climate change for Botswana Third National Communication-Water' states that by 2050 water inflow into dams could be reduced by between 3.5% to 16 % and that, furthermore, dam yields are likely to be reduced by between 10% and 14% by mid-century due to evaporation (due to increased temperatures) drought and population growth (United Nations Development Program, 2018). Communities supplied by either or both surface and ground waters will feel the impacts of climate change, especially from the year 2020 when alternative water sources will need be needed to augment the already strained supply (Ministry

of Environment, Wildlife and Tourism, 2012). Water scarcity directly causes major health risks through inadequate water supply and decreased abilities to safely practice sanitation and hygiene, there are also social risks in the form of heightened social unrest due to lack of access to basic resources (United Nations Development Programme, 2012). The vital and multi-faceted role of water in all aspect of life and environment make it a key area of focus for this strategy.

3.2.2 STRATEGIES FOR THE WATER SECTOR

Strategic Intervention S2.1:
Tap into technical and financial support for integrated water resource management projects more specifically, climate resilience projects in Africa's transboundary basins by taking project ideas to project preparation and financing entities.[2]

Policy Goal to Be Realised:
"Utilization of shared water courses for the benefit of Botswana."

2020 Target:
Identification of viable project ideas and financing identities and alignment with existing programmes especially those of a cross boundary nature that are ongoing in the three river basins which Botswana straddles. Identification of examples of successful projects for replication. Project aligned across role players and proposals started.

2023 Target:
Projects submitted to a variety of funds. First funds received, and a portion of projects started.

2026 Target:
Rolling submissions to funds where appropriate. Further capacity building at a governmental level of financing entities. Majority of projects online and existing projects expanded where fitting.

2030 Target:
Majority of projects online and existing projects expanded where fitting.

Responsible Entity:
Ministry of Land Management, Water and Sanitation Services

Key Collaborating Entities:
Ministry of Mineral Resources, Green Technology and Energy Security
Ministry of Infrastructure and Housing Development
Ministry of Environment, Natural Resources Conservation and Tourism (MENT)
The National Strategy Office

Primary SDG Implicated	Primary NDP Goal Implicated	Primary Vision 2036 Pillar Implicated	Section (or Activity) of NDC Implicated
	NDP 11 – Sustainable use of natural resources.	Pillar Three – Sustainable Environment.	N/A.

Strategic Intervention S2.2:
Circulate and seek input to guidelines pertaining to the preparation of annual sectoral (Ministerial) budgets to include a climate resilience water conservation, water harvesting and water efficiency line item.

Policy Goal to Be Realised:
"Integrating climate change response measures in the water planning processes across all economic sectors."

2020 Target:
Circulate and seek input towards amending guidelines and notify all ministries of new requirements. Propose budgets to include climate resilience water conservation and water efficiency line item.

2023 Target:
Retain climate resilience water conservation, water harvesting, and water efficiency as a line item and create responses to non-compliance.

2026 Target:
Retain climate resilience water conservation and water efficiency as a line item.

2030 Target:
Retain climate resilience water conservation and water efficiency as a line item.

Responsible Entity:
Ministry of Land Management, Water and Sanitation Services

Key Collaborating Entities:
All Ministries.

Primary SDG Implicated	Primary NDP Goal Implicated	Primary Vision 2036 Pillar Implicated	Section (or Activity) of NDC Implicated
	NDP 11 – Sustainable use of natural resources.	Pillar Three – Sustainable Environment.	N/A.

[2] CRIDF focuses exclusively on projects in transboundary river basins in southern Africa, including in Botswana.

Strategic Intervention S2.3:
Utilize the NDP[3] as a channel for accelerating and prioritizing climate resilience in the water sector by making 'water security for all' one of the central strategic pillars.

Policy Goal to Be Realised:
"Integrating climate change response measures in the water planning processes across all economic sectors."

2020 Target:
Formal plan to include 'Water security for all' as a strategic pillar in 2023 NDP formalised.

2023 Target:
New NDP to include 'Water security for all' as a strategic pillar.

2026 Target:
NDP includes 'Water security for all' as a strategic pillar.

2030 Target:
NDP includes 'Water security for all' as a strategic pillar.

Responsible Entity:
Ministry of Land Management, Water and Sanitation Services

Key Collaborating Entities:
Office of the President
Ministry of Environment, Natural Resources Conservation and Tourism (MENT)
The National Strategy Office

Primary SDG Implicated	Primary NDP Goal Implicated	Primary Vision 2036 Pillar Implicated	Section (or Activity) of NDC Implicated
	NDP 11 – Sustainable use of natural resources.	Pillar Three – Sustainable Environment.	N/A.

[3] NDP 12 will be developed for the years 2024 - 2030

Strategic Intervention S2.4:
Develop a national groundwater identification, characterisation, protection and management strategy with an action plan, to delineate groundwater protection zones in major aquifers; to measure and determine management of increased recharge, and to preserve water quality.

Policy Goal to Be Realised:
"Consideration of defining potential water aquifers and adopting appropriate measures of protection for water security and sustainability."

2020 Target:
Development of a national groundwater protection and management strategy and action plan through a multi stakeholder engagement process undertaken by the Department of Water Affairs.

2023 Target:
Undertake actions laid out by the Action Plan.

2026 Target:
Strategy and Action Plan adopted and in use.

2030 Target:
Strategy and Action Plan adopted and in use.

Responsible Entity:
Ministry of Land Management, Water and Sanitation Services

Key Collaborating Entities:
Ministry of Mineral Resources, Green Technology and Energy Security
Ministry of Infrastructure and Housing Development
Tertiary Education, Research, Science and Technology
Ministry of Environment, Natural Resources Conservation and Tourism (MENT)
The National Strategy Office

Primary SDG Implicated	Primary NDP Goal Implicated	Primary Vision 2036 Pillar Implicated	Section (or Activity) of NDC Implicated
	NDP 11 – Sustainable use of natural resources.	Pillar Three – Sustainable Environment.	N/A

Strategic Intervention S2.5:
Provide low-cost credit (concessionary loans) and discounts on utility bills for commercial and industrial enterprises that invest in water harvesting, grey water recycling and re-use systems.

Policy Goal to Be Realised:
"Promotion of rainwater harvesting, water re-use, and recycling for domestic, agricultural, industrial, and commercial purposes."

2020 Target:
Research and Identify viable forms of credit and discounts. Identify criteria for allocation of funds and/or discounts. Create suitable fiscal pathways for allocation and monitoring of credit/discounts. Create marketing/awareness campaign around new credit and discount models to be utilised nationally.

2023 Target:
Roll out of credit and discounts. Ongoing monitoring of fair usage and system efficacy

2026 Target:
Credit and discounts ongoing. Ongoing monitoring of fair usage and system efficacy.

2030 Target:
Credit and discounts ongoing. Ongoing monitoring of fair usage and system efficacy.

Responsible Entity: Ministry of Land Management, Water and Sanitation Services

Key Collaborating Entities:
Ministry of Mineral Resources, Green Technology and Energy Security
Ministry of Investment, Trade and Industry
Ministry of Finance and Economic Development
Botswana Development Corporation
Botswana Housing Corporation (BHC)
The National Strategy Office
Ministry of Environment, Natural Resources Conservation and Tourism (MENT)

Primary SDG Implicated	Primary NDP Goal Implicated	Primary Vision 2036 Pillar Implicated	Section (or Activity) of NDC Implicated
	NDP 11 – Sustainable use of natural resources.	Pillar Three – Sustainable Environment.	N/A.

Strategic Intervention S2.6:
Develop a programme to scale up the most viable and proven alternatives in Botswana for livestock watering systems (including water hauling, water storage, pump systems, solar pumps etc.).

Policy Goal to Be Realised:
"Promotion of integrated watering systems for livestock, particularly in rural areas."

2020 Target:
Undertake research into most viable alternative livestock watering systems. Identify key programme delivery partners (including Civil Society Organisations). Creation of programme with key delivery and outcome indicators outlined. Start programme roll out, create and utilise marketing/awareness material. Monitoring and Evaluation Systems defined in line with NMES.

2023 Target:
Programme rolled out nationally. First evaluations undertaken, and programme adjusted if need be to be more efficient and fitting.

2026 Target:
Full adoption of programme nationally. Second evaluations undertaken. Scan and inclusion of any new watering systems (if appropriate).

2030 Target:
Programme operational nationally. Scan and inclusion of any new watering systems (if appropriate).

Responsible Entity: Ministry of Land Management, Water and Sanitation Services

Key Collaborating Entities:
Ministry of Mineral Resources, Green Technology and Energy Security
Tertiary Education, Research, Science and Technology
Ministry of Agricultural Development and Food Security
The National Strategy Office
Ministry of Environment, Natural Resources Conservation and Tourism (MENT)

Primary SDG Implicated	Primary NDP Goal Implicated	Primary Vision 2036 Pillar Implicated	Section (or Activity) of NDC Implicated
	NDP 11 – Sustainable use of natural resources.	Pillar Three – Sustainable Environment.	N/A.

Strategic Intervention S2.7:
Expand the use of the Botswana Water Accounts – Botswana's System of Environmental and Economic Accounting (SEEA) based on the UN's method and the World Bank's WAVES system – to all Ministries for the calculation of water value and accounting.

Policy Goal to Be Realised:
"Employing accounting and valuation tools to support water management decision systems."

2020 Target:
Department of Water Affairs to engage with other ministries in training around SEEA methods. Ministries to incorporate SEEA into their accounting and budgeting systems

2023 Target:
All ministries to have adopted SEEA. Alignment exercise to ensure all ministries are calculating in the same manner and cross ministry tabulations can be made.

2026 Target:
All ministries to have adopted SEEA.

2030 Target:
All ministries to have adopted SEEA.

Responsible Entity:
Ministry of Land Management, Water and Sanitation Services

Key Collaborating Entities:
All Ministries.

Primary SDG Implicated	Primary NDP Goal Implicated	Primary Vision 2036 Pillar Implicated	Section (or Activity) of NDC Implicated
	NDP 11 – Sustainable use of natural resources.	Pillar Three – Sustainable Environment.	N/A.

3.3 HUMAN HEALTH

3.3.1 KEY CLIMATE CHANGE THREATS AND VULNERABILITIES IN SECTOR

Climate change and its effects pose great health concerns globally, the Lancet journal stated that climate change is the 'biggest global health threat of the 21st century', this is due to its effects on weather systems and rainfall (flooding) as well as its effects on agriculture and food security. Many Batswana are food insecure and climate change, through lowering agricultural output, makes food insecurity worse through causing higher rates of malnutrition (Bickton, 2016). Rising temperatures affect the reproductive cycles, physiological maturity, and geographical range of disease pathogens and vectors. In Botswana's case, this means new populations being exposed to malaria and diarrhoeal disease due to more, and more prevalent pathogens. Furthermore, extreme weather events exacerbated through climate change such as floods and droughts can affect human health directly through physical injury, and indirectly through loss of resources (Ministry of Environment, Wildlife and Tourism, 2012). Botswana is a signatory to the 2008 Libreville Declaration on Health and Environment in Africa, which states that 'Africa is increasingly being affected by natural disasters caused by climate change and that the emergence of new environmental risks (climate change, industrial expansion, and new technologies) presents new threats to public health'. The following strategies are in line with the commitments made in the 2008 declaration (The World Health Organisation, 2008)

3.3.2 STRATEGIES FOR THE HUMAN HEALTH SECTOR

Strategic Intervention S3.1
Update Botswana's Public Health Act of 2013 as well as other relevant and major health legislation to include provisions that address the public health impacts of climate change.

Policy Goal to Be Realised:
"Climate related research on the impacts of extreme weather events such as increased temperatures, droughts and floods, on human health so as to ensure that informed decisions and necessary health sector reforms are made."

2020 Target:
Identify expert institutions and individuals who can best advise the Ministry of Health and Wellness on the public health impacts of climate change. Identify relevant legislation to update and update act and legislation accordingly.

2023 Target:
Public Health Act and relevant legislation updated.

2026 Target:
Public Health Act and relevant legislation updated.

2030 Target:
Public Health Act and relevant legislation updated.

Responsible Entity:
Ministry of Health and Wellness.

Key Collaborating Entities:
COHRED, the Council on Health Research for Development
The National Strategy Office

Primary SDG Implicated	Primary NDP Goal Implicated	Primary Vision 2036 Pillar Implicated	Section (or Activity) of NDC Implicated
	NDP 11 – Social development and human capital development.	Pillar Two - Human and Social Development.	N/A.

Strategic Intervention S3.2:
Integrate climate change related surveillance and tracking into the operationalization of Botswana's 2011 National Health Policy, including the policy's clear goal on collection of health information and research, development of a web-based observatory, and setting up of a National Health Research Council.

Policy Goal to Be Realised:
"Climate related research on the impacts of extreme weather events such as increased temperatures, droughts and floods, on human health so as to ensure that informed decisions and necessary health sector reforms are made."

2020 Target: The Department of Health Policy, Development, Monitoring and Evaluation (HPDME) to begin multi - stakeholder engagement around the setting up of a National Health Research Council. Identify key institutions and individuals to be involved in the council. Begin process of creating the council. Create web-based observatory. Ministry of Health to integrate climate change related surveillance and tracking into the operationalization of Botswana's 2011 National Health Policy and disseminate information about the process to all relevant parties. Identify areas where priority disease/vector localities require more localised focus. NHRC to undertake baseline study of current effects of climate change on health.

2023 Target: Ministry of Health to Integrate climate change related surveillance and tracking into the operationalization of Botswana's 2011 National Health Policy and disseminate information about the process to all relevant parties. Identify areas where priority disease/vector localities require more localised focus.

2026 Target: Web based observatory operational and updated constantly. Integration of climate change related surveillance ongoing.

2030 Target: Web based observatory operational and updated constantly. Integration of climate change related surveillance ongoing.

Responsible Entity: Ministry of Health and Wellness

Key Collaborating Entities:
COHRED, the Council on Health Research for Development
Ministry of Mineral Resources, Green Technology and Energy Security
The National Strategy Office

Primary SDG Implicated	Primary NDP Goal Implicated	Primary Vision 2036 Pillar Implicated	Section (or Activity) of NDC Implicated
	NDP 11 – Social development and human capital development.	Pillar Two - Human and Social Development.	N/A.

Strategic Intervention S3.3:
Develop a national climate change and public health flagship programme to provide training to healthcare professionals on the identification and tracking of climate-related health impacts, including climate-related nutritional, respiratory, and communicable disease impacts.

Policy Goal to Be Realised:
"Acceleration of development and implementation of programs and plans that will increase the country's resilience to nutrition-related, respiratory, and communicable diseases."

2020 Target:
Identification of key partners and experts to design and develop programme. Design of programme.

2023 Target:
Programme being rolled out nationally.

2026 Target:
Programme roll out ongoing – with a key focus on rural and inaccessible areas and small remote clinics.

2030 Target:
Programme being rolled out nationally.

Responsible Entity:
Ministry of Health and Wellness

Key Collaborating Entities:
The newly established National Health Research Council (as per Strategy S3.2)
The Private Sector

Primary SDG Implicated	Primary NDP Goal Implicated	Primary Vision 2036 Pillar Implicated	Section (or Activity) of NDC Implicated
	NDP 11 – Social development and human capital development.	Pillar Two - Human and Social Development.	N/A.

Strategic Intervention S3.4:
Undertake a national 'Climate Change and Health' awareness-raising and educational campaign targeting public understanding of the health impacts of climate change and geared towards promoting resilience-building measures (e.g. heat health responses)

Policy Goal to Be Realised:
"Acceleration of communities' involvement in building resilience to climate change-related public health concerns."

2020 Target:
Creation of campaign material and roll out of campaign nationally.

2023 Target:
Roll out of campaign nationally.

2026 Target:
Campaign updated and ongoing.

2030 Target:
Campaign updated and ongoing.

Responsible Entity:
Ministry of Health and Wellness

Key Collaborating Entities:
Ministry of Youth Empowerment, Sport and Culture Development
The National Strategy Office
The Private Sector

Primary SDG Implicated	Primary NDP Goal Implicated	Primary Vision 2036 Pillar Implicated	Section (or Activity) of NDC Implicated
	NDP 11 – Social development and human capital development.	Pillar Two - Human and Social Development.	N/A.

Strategic Intervention S3.5: **Implement a voluntary community-based monitoring and response system to identify community members most vulnerable to health impacts from climate change (the elderly, young children, immunocompromised individuals, persons with mental health challenges and physical challenges), and to provide community support to these vulnerable members in times of need.**			
Policy Goal to Be Realised: *"Acceleration of communities' involvement in building resilience to climate change-related public health concerns."*			
2020 Target: Begin a process of community level engagement, identify individuals/organisations in the community to establish forums to design and manage monitoring and response system. Delineate clear paths of action, responsibility and response within the system.			
2023 Target: System formalised and ratified. National roll out of the system. Awareness campaign material distributed, and systems set up.			
2026 Target: Awareness campaign material distributed, and systems set up in communities. Systems operational and working in conjunction with national healthcare system.			
2030 Target: Systems operational and working in conjunction with national healthcare system.			
Responsible Entity: Ministry of Health and Wellness			
Key Collaborating Entities: Ministry of Local Government and Rural Development The National Strategy Office The Private Sector			
Primary SDG Implicated 	**Primary NDP Goal Implicated** NDP 11 – Social development and human capital development.	**Primary Vision 2036 Pillar Implicated** Pillar Two - Human and Social Development.	**Section (or Activity) of NDC Implicated** N/A.

3.4 HUMAN SETTLEMENTS

3.4.1 KEY CLIMATE CHANGE THREATS AND VULNERABILITIES IN SECTOR

Botswana has a high rate of urbanisation, with 62% of the population living in urban areas. This migration has caused an increase in rural – urban inequalities as well as causing several other challenges for the sector including: inadequate access to land for housing, inadequate access to infrastructure, poverty and unemployment (Ministry of Lands and Housing, 2014). There is a need to improve resilience in both rural and urban areas to the impacts of climate change (Van Niekerk and Le Roux, 2017). As more people move into urban and semi-urban settlements, the demand for natural resources such as water increases in such locations. This creates greater stress on an already-scarce resource, which is expected to become even more stressed under climate change (Intergovernmental Panel on Climate Change, 2014) and cause a need for land degradation halting and reversal: need for rehabilitation and re-vegetation counter rapidly increasing land degradation and land cover loss. Human settlements (rural and urban) are also susceptible to climate change in terms of the effects of rising temperatures (especially the urban heat island effect) and impacts from extreme weather events such as flash floods, and bush fires. Heat-related infrastructure stress is also a concern (Intergovernmental Panel on Climate Change, 2014).

3.4.2 STRATEGIES FOR THE HUMAN SETTLEMENTS SECTOR

Strategic Intervention S4.1:
Introduce updated climate smart agriculture (including conservation and urban agriculture) courses at the five rural training centres of the Division of Farmer Training (under the Department of Extension Services Coordination).

Policy Goal to Be Realised:
"Adoption of conservation agriculture practices that would contribute to increasing both the resilience of rural settlements and the country's food production potential."

2020 Target:
The Department of Extension Services Coordination to both create new, and update existing, climate smart agriculture (including conservation agriculture) courses. The department to start offering these training courses at the five rural training centres of the Division of Farmer Training.

2023 Target:
Update and expand training material. Creation of new rural training centres or expansion of existing centres.

2026 Target:
Update and expand training material. Creation of new rural training centres or expansion of existing centres.

2030 Target:
Update and expand training material. Creation of new rural training centres or expansion of existing centres.

Responsible Entity:
Ministry of Agricultural Development and Food Security

Key Collaborating Entities:
Ministry of Employment, Labour Productivity and Skills Development
Ministry of Environment, Natural Resources Conservation and Tourism (MENT)
The National Strategy Office
Farmers Associations

Primary SDG Implicated	Primary NDP Goal Implicated	Primary Vision 2036 Pillar Implicated	Section (or Activity) of NDC Implicated
	NDP 11 – Sustainable use of Natural Resources.	Pillar Three – Sustainable Environment.	N/A.

Strategic Intervention S4.2:
Create a support programme to fund or subsidize the adoption of rainwater harvesting in urban and rural settlements, and to provide rebates or other financial incentives for installation of rainwater harvesting in urban households, and commercial, mining and industrial entities.

Policy Goal to Be Realised:
"Conduct research on development and use of relevant technologies for water use irrigation systems and improved rollout of rainwater harvesting strategies in both rural and urban areas."

2020 Target:
Ministry of Infrastructure and Housing Development to identify most suitable rainwater harvesting mechanisms. Batswana suppliers of harvesting technologies and supported to enable mass production of technologies. Most viable model of rebates/incentives identified, and financial model created. Publication//Awareness material to be developed and disseminated nationally.

2023 Target
National awareness of the programme created, programme being rolled out and maintained.

2026 Target:
Programme available to larger population. New technologies explored.

2030 Target:
Programme available nationally. New technologies explored. (*Could possibly make it mandatory for any existing or new business to engage in rain water capture as part of business registration/building applications*).

Responsible Entity:
Ministry of Infrastructure and Housing Development

Key Collaborating Entities:
Ministry of Local Government and Rural Development
Botswana Housing Corporation (BHC)
Ministry of Investment, Trade and Industry
Botswana Development Corporation
Botswana Housing Corporation (BHC)
Ministry of Environment, Natural Resources Conservation and Tourism (MENT)

Primary SDG Implicated	Primary NDP Goal Implicated	Primary Vision 2036 Pillar Implicated	Section (or Activity) of NDC Implicated
	NDP 11 – Sustainable use of Natural Resources.	Pillar Three – Sustainable Environment.	N/A.

Strategic Intervention S4.3:
Investigate feasibility and design of a model to develop an endowment fund (possibly with contributions from private sector profit-making industries), to provide low-cost finance to climate change adaptation projects in rural settlements, drawing on lessons from established endowment funds.

Policy Goal to Be Realised:
Provision of finance targeted at increasing the adaptive capacity and capability of rural livelihoods.

2020 Target: Start a multi-stakeholder engagement in order to design and house fund in appropriate Ministry or department. Develop a model for the endowment fund and create financial model for implementation as well as fund management and disbursement criteria and plan. *(OR: If is not found to be feasible, re-design mechanism or focus elsewhere).*

2023 Target: Fund is operational and disbursing funds. Reports generated yearly with both qualitative and quantitative aspects of the funds' beneficiary's performance is highlighted. Further investment sought for fund in order to enable more or larger allocation of funds to beneficiaries. M&E ongoing as per NMES.

2026 Target: Fund is operational and disbursing funds. Reports generated yearly with both qualitative and quantitative aspects of the funds' beneficiary's performance is highlighted. Further investment sought for fund in order to enable more or larger allocation of funds to beneficiaries. M&E ongoing as per NMES.

2030 Target: Fund is operational and disbursing funds. Monitoring and evaluation ongoing. Reports generated yearly with both qualitative and quantitative aspects of the funds' beneficiary's performance is highlighted. Further investment sought for fund in order to enable more or larger allocation of funds to beneficiaries. M&E ongoing as per NMES.

Responsible Entity:
Ministry of Infrastructure and Housing Development

Key Collaborating Entities:
Ministry of Mineral Resources, Green Technology and Energy Security
Ministry of Finance and Economic Development
Botswana Development Corporation
Botswana Housing Corporation (BHC)
Ministry of Environment, Natural Resources Conservation and Tourism (MENT)
The National Strategy Office

Primary SDG Implicated	Primary NDP Goal Implicated	Primary Vision 2036 Pillar Implicated	Section (or Activity) of NDC Implicated
	NDP 11 – Sustainable use of Natural Resources as well as; Social Development.	Pillar Three – Sustainable Environment.	N/A.

Strategic Intervention S4.4:
Create trained capacity within the Ministry of Lands and Housing to guide and manage the harmonization and alignment of policies, strategies, plans, and guidelines related to human settlements in Botswana, with the goal of explicitly harnessing the benefits of projects being implemented across different sectors/role players strengthening and aligning their climate resilience focus.

Policy Goal to Be Realised:
Harmonization of relevant human settlements related policies to enhance resilience and sustainability.

2020 Target: Identify relevant and expert training body or individuals to create a specific and relevant programme which first identifies gaps in (climate resilience specific) knowledge or capacity within Ministry of Lands and Housing and then tailors a fitting programme to enable the harmonization of policies, strategies, plans, and guidelines related to human settlements in Botswana. Undertake training programme and adjust policies, strategies, plans, and guidelines accordingly.

2023 Target: Yearly review of new policies, plans and guidelines: Undertake harmonisation activity (if need be) with a specific focus on climate resilience.

2026 Target: Yearly review of new policies, plans and guidelines: Undertake harmonisation activity (if need be) with a specific focus on climate resilience.

2030 Target: Yearly review of new policies, plans and guidelines: Undertake harmonisation activity (if need be) with a specific focus on climate resilience.

Responsible Entity:
Ministry of Infrastructure and Housing Development

Key Collaborating Entities:
Ministry of Land Management, Water and Sanitation Services
Ministry of Environment, Natural Resources Conservation and Tourism (MENT)
The National Strategy Office

Primary SDG Implicated	Primary NDP Goal Implicated	Primary Vision 2036 Pillar Implicated	Section (or Activity) of NDC Implicated
	NDP 11 – Sustainable use of Natural Resources as well as; Social Development	Pillar Three – Sustainable Environment.	N/A.

3.5 FOREST, SAVANNA AND WOODLAND MANAGEMENT

3.5.1 KEY CLIMATE CHANGE THREATS AND VULNERABILITIES IN SECTOR

Botswana is a semi-arid country, where 28% of total land area coverage is considered forest (primarily open savanna woodland, limited riparian woodland, mopane and small pockets of Zambezian dry deciduous forest in the north). There are six stateland forest reserves (Chobe Forest Reserve, Kasane Forest Reserve, Kasane Extension Forest Reserve, Kazuma Forest Reserve, Maikaelelo Forest Reserve and Sibuyu Forest Reserve) with a total estimated size of 4,09,540 ha (4095.40 km^2). The forests' contribution to the national GDP is underestimated because of unrecorded environmental values and other forest products. The benefits of forests include their role as a carbon sink, distinctive natural ecosystems and genetic resources, as well as amelioration of climate (impacts microclimate). Forests and woodlands are the sources for most of the wood and non-wood products. Biomass is the main source of fuel for rural population and accounts for 77% of the total energy consumption in the country.

Increased temperature and changes in rainfall regime will seriously affect the viability of forest sector goods and services. It is important to note that climate change effects on forest ecosystems and biodiversity are anticipated to differ subject to vegetation species, leading to changes in species composition and consequently in ecosystem services. The cross-cutting impacts to all forest types are increased risk of bush fires, die-back, pests and diseases, loss of biodiversity, disappearance of wildlife habitats, and limited availability of forest products such as timber and non-timber products. Additionally, the northern forest regions host most of Botswana's elephant population, and interactions between climate change and their impact on vegetation structure and composition is poorly understood. Tree species more vulnerable are those with limited geographical range and heat intolerance, nevertheless, knowledge of the extent of effects on individual species is still inadequate.

Botswana has a plethora of institutional arrangements for land use planning, starting with the high-level National Development Plan and National Spatial Development Plan, through to the National Master

Plan on Arable Agriculture and Dairy Development (NAMPAADD) prepared by the Ministry of Agriculture; and the National Settlement Policy (NSP) prepared by the Department of Town and Regional Planning (DTRP) as well as the integrated land use plans prepared by District Land Use Planning Units (DLUPU); and Regional Master Plans, District Settlement Strategies and Village/Town Development Plans prepared by the Department of Town and Regional Planning (DTRP) (SARPN, n.d). The multiplicity of these plans can be somewhat problematic for creating a co-ordinated approach to land use planning and to date, these plans have lacked a specific focus on building climate related resilience. The 2016 Draft Climate Botswana Climate Change Response Policy explicitly states that: Climate change related conflicts are likely to ensue as a result of competing interests on the use of land and land allocation (Republic of Botswana, 2016). Thus, adaptation measures must be incorporated into Land Use and Land Use Change and across sectors such as mining e.g. Land which needs to be rehabilitated after mines have closed should be considered for reforestation to both adapt and mitigate the effects of climate change.

Across Africa, concerns about climate change and forestry are also tied to conversion of grassland into bush-encroached wooded areas (Higgins & Scheiter, 2012) (Khavaghali & Bond, 2008) (Welz, 2013) (West, et al., 2012). Forest fires are also a more significant threat under hotter and drier conditions. Botswana is already engaged in sustainable forest management as demonstrated through the JICA funded project ‘Enhancing National Forest Monitoring System for the Promotion of Sustainable Natural Resource Management.’ Nevertheless, Botswana needs to also create new programmes to complement such existing programmes, particularly new initiatives that have an explicit climate resilience focus.

3.5.2 STRATEGIES FOR THE FORESTRY, SAVANNA AND WOODLAND SECTORS

Strategic Intervention S5.1:
Commission a multi-year research project in Botswana that reviews and identifies climate change related best practice in the forestry sector from other countries and regions and evaluates – including through pilot measures – the interventions most suited to Botswana's savannas, woodlands and forests.

Policy Goal to Be Realised:
"Strengthen the implementation of the forest policy with the view to ensuring that best practices based on available climate information and technology are adopted."

2020 Target
Best grouping of institutions to conduct research are identified. Research plan identified. Research undertaken.

2023 Target:
Research project designed and actively underway.

2026 Target:
Research project designed and actively underway.

2030 Target:
Research results published and disseminated. Research data and learnings used to inform Forestry policy.

Responsible Entity:
Ministry of Environment, Natural Resources Conservation and Tourism (MENT).

Key Collaborating Entities:
Ministry of Mineral Resources, Green Technology and Energy Security
Ministry of Environment, Natural Resources Conservation and Tourism
The National Strategy Office
Ministry of Agricultural Development and Food Security
Farmers

Primary SDG Implicated	Primary NDP Goal Implicated	Primary Vision 2036 Pillar Implicated	Section (or Activity) of NDC Implicated
	NDP 11 – Sustainable use of Natural Resources	Pillar Three – Sustainable Environment.	N/A.

Strategic Intervention S5.2:
Identify, in consultation with communities and stakeholders, as well as research and academic institutions, new climate change research areas and determine needs and gaps most suited to Botswana through promoting exchange, cooperation and networking by government, private sector, nationally, regionally, and internationally.

Policy Goal to Be Realised:
"Strengthen the implementation of the forest policy with the view to ensuring that best practices based on available climate information and technology are adopted."

2020 Target
Best grouping of institutions to conduct research are identified. Research plan identified. Needs assessment undertaken. Research commenced.

2023 Target:
Research project designed and actively underway. At least one research project focusing on applied research at landscape level.

2026 Target:
Research project designed and actively underway.

2030 Target:
Research results published and disseminated. Research data and learning used to inform Forestry policy and inform sustainable natural resources utilization.

Responsible Entity:
Ministry of Environment, Natural Resources Conservation and Tourism (MENT).

Key Collaborating Entities:
Ministry of Mineral Resources, Green Technology and Energy Security
Botswana College of Agriculture
Botswana Institute for Technology Research and Innovation
Community Based Natural Resource Management
The National Strategy Office

Primary SDG Implicated	Primary NDP Goal Implicated	Primary Vision 2036 Pillar Implicated	Section (or Activity) of NDC Implicated
	NDP 11 – Sustainable use of Natural Resources	Pillar Three – Sustainable Environment.	N/A.

Strategic Intervention S5.3:
Identify and include stronger climate change science and considerations into the next revision or update of the National Forest Policy, the National Forestry Action Plan and the Botswana Biodiversity Strategy and Action Plan and the Forest Conservation Strategy. Include a specific focus on reducing forest and savanna fires, pests and disease break outs.

Policy Goal to Be Realised:
"Strengthen the implementation of the forest policy with the view to ensuring that best practices based on available climate information and technology are adopted."

2020 Target
Identify best practice in forest management from a climate resilience perspective. Incorporate best practice into the next revision or update of the National Forest Policy, the National Forestry Action Plan, the Botswana Biodiversity Strategy and Action Plan, and the Forest Conservation Strategy. Incorporate climate change in BSc Forestry and BSc Range Management at Botswana University of Agriculture and Natural Resources.

2023 Target:
All identified and relevant sector plans and strategies updated with stronger climate change considerations and provisions.

2026 Target:
All identified and relevant sector plans and strategies updated with stronger climate change considerations and provisions.

2030 Target:
All identified and relevant sector plans and strategies updated with stronger climate change considerations and provisions.

Responsible Entity:
Ministry of Environment, Natural Resources Conservation and Tourism (MENT).

Key Collaborating Entities:
N/A.

Primary SDG Implicated	Primary NDP Goal Implicated	Primary Vision 2036 Pillar Implicated	Section (or Activity) of NDC Implicated
	NDP 11 – Sustainable use of Natural Resources	Pillar Three – Sustainable Environment.	N/A.

Strategic Intervention S5.4:
Convene and set up a national forestation and forest degradation task force (with members from government, academia, civil society, rural communities etc.) to provide guidance to the Department of Forests and Range Resources on elephant damage, wildland fires, pest and disease break out, and habitat destruction, aligned with Botswana's wildland fire strategy.

Policy Goal to Be Realised:
"Prioritize climate research and feasibility studies on forest conservation, restoration of ecosystems, and the use of modern technologies for controlling invasive species and veld fires."

2020 Target:
Identify institutes and experts to make up the task-force with members from government, civil society, forest-adjacent communities, etc. ensuring there is expertise in a wide range of areas such as conservation, forestry, animal experts, animal – human interactions, natural resource management, etc. Create task force and task-force agenda and outputs.

2023 Target:
Task force operational in an advisory capacity to the Department of Forests and Range Resources.

2026 Target:
Task force operational in an advisory capacity to the Department of Forests and Range Resources.

2030 Target:
Task force in operation in an advisory capacity to any relevant government Department.

Responsible Entity:
Ministry of Environment, Natural Resources Conservation and Tourism (MENT)

Key Collaborating Entities:
N/A.

Primary SDG Implicated	Primary NDP Goal Implicated	Primary Vision 2036 Pillar Implicated	Section (or Activity) of NDC Implicated
	NDP 11 – Sustainable use of Natural Resources	Pillar Three – Sustainable Environment.	N/A.

Strategic Intervention S5.5:
Strengthen and further build capacity of the already existing Community Based Natural Resources Management Programme (CBNRM) with a mandate and resources to guide and implement sustainable ecosystem management through the use of both traditional practices and forestry sector best practice, such as establishing community woodlots. Enhance the CBNRM trusts' capacity to monitor, report, and respond to illegal activity in forests.

Policy Goal to Be Realised:
"Promote the use of indigenous knowledge and traditional forest management practices that contribute to increased forest cover and land rehabilitation."

2020 Target
Create a specific mandate for a forest management programme within the CBNRM programme.
Create clear pathways of interaction and decision making between the CBNRM and existing forestry management mechanisms.

2023 Target:
CBNRM Forest management program functional and actively involved in all forest management decisions.

2026 Target:
CBNRM Forest management program functional and actively involved in all forest management decisions.

2030 Target:
CBNRM Forest management program functional and actively involved in all forest management decisions.

Responsible Entity:
Ministry of Environment, Natural Resources Conservation and Tourism (MENT)

Key Collaborating Entities:
Ministry of Youth Empowerment, Sport and Culture Development
The National Strategy Office
CBNRM Committees

Primary SDG Implicated	Primary NDP Goal Implicated	Primary Vision 2036 Pillar Implicated	Section (or Activity) of NDC Implicated
	NDP 11 – Sustainable use of Natural Resources	Pillar Three – Sustainable Environment.	N/A.

Strategic Intervention S5.6:
Establish comprehensive monitoring system for forest, savanna and wetland resources and ecosystem conditions through fully operationalization and up scaling of the REDD+ Integrated Monitoring System developed under Botswana's REDD+ pilot project, and by carrying out National Forest Inventory data collection and entry in order to determine carbon stock, Forest Cover and Land Degradation.

Policy Goal to Be Realised:
"Promote alternative livelihoods and REDD+ mechanisms that can reduce pressure on forests."

2020 Target:
Identify locations and scale up the REDD+ Integrated Monitoring System from the initial 4 pilot areas.

2023 Target:
Further scaling up of the System.

2026 Target:
Further scaling up of the System.

2030 Target:
National uptake of the System.

Responsible Entity:
Ministry of Environment, Natural Resources Conservation and Tourism (MENT)

Key Collaborating Entities:
SADC REDD+

Primary SDG Implicated	Primary NDP Goal Implicated	Primary Vision 2036 Pillar Implicated	Section (or Activity) of NDC Implicated
	NDP 11 – Sustainable use of Natural Resources	Pillar Three – Sustainable Environment.	N/A.

Strategic Intervention S5.7:
MENT to add to the next revision or update of the National Forest Policy, and the National Forestry Action Plan: fire Management activities such as prescribed burning, fire detection system, firebreak maintenance, deployment of seasonal fire teams, capacity building on fire management (principles and techniques), procurement of fire equipment and establishment of community fire management teams. Budget to be allocated to necessary training and roll out.

Policy Goal to Be Realised:
"Prioritize climate research and feasibility studies on forest conservation, restoration of ecosystems, and the use of modern technologies for controlling invasive species and veld fires."

2020 Target:
Incorporate fire management activities into the next revision or update of the National Forest Policy, and the National Forestry Action Plan. Allocate budget needed and commence necessary training.

2023 Target:
Continued focus on fire management systems and on-going training for necessary systems to be operational.

2026 Target:
Continued focus on fire management systems and on-going training for necessary systems to be operational.

2030 Target:
Continued focus on fire management systems and ongoing training for necessary systems to be operational.

Responsible Entity:
Ministry of Environment, Natural Resources Conservation and Tourism (MENT)

Key Collaborating Entities:
Ministry of Land Management, Water and Sanitation Services
Ministry of Mineral Resources, Green Technology and Energy Security
The National Strategy Office

Primary SDG Implicated	Primary NDP Goal Implicated	Primary Vision 2036 Pillar Implicated	Section (or Activity) of NDC Implicated
	NDP 11 – Sustainable use of Natural Resources	Pillar Three – Sustainable Environment.	N/A.

3.6 LAND USE AND LAND USE CHANGE

3.6.1 KEY CLIMATE CHANGE THREATS AND VULNERABILITIES IN SECTOR

The IPCC also highlights how climate change can impact land use, including through changes in rainfall patterns, evapotranspiration and resource availability (Intergovernmental Panel on Climate Change, 2014). Physical impacts of climate change on land in Sub Saharan Africa will increase vulnerability if not adequately addressed and adapted to (Coumou, et al., 2016). Climate change will affect and multiply the stressed faced by vegetation and rangeland in Botswana, further affecting the inhabiting species, with knock on effects felt most harshly by the agriculture/livestock, woodlands/forests, water and health sectors (School of Business, 2008).

Botswana has three different types of land tenure, and a plethora of institutional arrangements for land use planning, starting with the high-level National Development Plan, the National Spatial Development Plan and the National Master Plan on Arable Agriculture and Dairy Development (NAMPAADD) prepared by the Ministry of Agriculture; and the National Settlement Policy (NSP) prepared by the Department of Town and Regional Planning (DTRP) as well as the integrated land use plans prepared by District Land Use Planning Units (DLUPU); and Regional Master Plans, District Settlement Strategies and Village/Town Development Plans prepared by the Department of Town and Regional Planning (DTRP) (SARPN, n.d). The multiplicity of these plans can be somewhat problematic for creating a co-ordinated approach to land use planning and to date, these plans have lacked a specific focus on building climate related resilience, the 2016 Draft Climate Botswana Climate Change Response Policy explicitly states that: Climate change related conflicts are likely to ensue as a result of competing

interests on the use of land and land allocation (Republic of Botswana, 2016). Thus, adaptation measures must be incorporated into Land Use and Land Use Change.

3.6.2 STRATEGIES FOR THE LAND USE SECTOR

Strategic Intervention S6.1:
Introduce ecosystem-based adaptation (EBA) as a core criterion and consideration into Botswana's land use planning legislation and land use master planning guidelines.

Policy Goal to Be Realised:
"Ecosystem land use planning; not only to minimize the location of residential, farming, and industrial plots on sensitive ecosystems such as well fields and watersheds, but also to avoid places vulnerable to climate change disasters such as flood-prone floodplains."

2020 Target:
Identify institute or individual who can train relevant departments in EBA. Undertake training with relevant departments. Each department to define appropriate criteria and include criteria into land use planning legislation and land use master planning guidelines.

2023 Target:
Each department to define appropriate criteria and include criteria into land use planning legislation and land use master planning guidelines.

2026 Target:
EBA criterion included in planning legislation and land use master planning guidelines.

2030 Target:
EBA criterion included in planning legislation and land use master planning guidelines.

Responsible Entity:
Ministry of Environment, Natural Resources Conservation and Tourism (MENT)

Key Collaborating Entities:
Ministry of Land Management, Water and Sanitation Services
Ministry of Agricultural Development and Food Security
Ministry of Mineral Resources, Green Technology and Energy Security
The National Strategy Office

Primary SDG Implicated	Primary NDP Goal Implicated	Primary Vision 2036 Pillar Implicated	Section (or Activity) of NDC Implicated
	NDP 11 – Sustainable use of Natural Resources	Pillar Three – Sustainable Environment.	N/A.

Strategic Intervention S6.2:
Amend guidelines for preparation of regional master plans, district settlement strategy plans, district integrated land-use plans, and district development plans to include explicit directions for the integration of climate change considerations (such as climate change scenarios and modelling).

Policy Goal to Be Realised:
"Align and develop guidelines for the mainstreaming and implementation of climate change development measures in rural development, wildlife, and land use planning policies made to achieve an integrated approach to land allocation and land use management."

2020 Target:
Amend guidelines for appropriate climate change considerations (such as climate change scenarios and modelling). Locate all relevant guidelines and update to include relevant considerations.

2023 Target:
Guidelines updated and approved.

2026 Target:
Guidelines further updated as needed, approved, and used in practice.

2030 Target:
Guidelines further updated as needed, approved, and used in practice.

Responsible Entity:
Ministry of Environment, Natural Resources Conservation and Tourism (MENT)

Key Collaborating Entities:
Ministry of Infrastructure and Housing Development
The National Strategy Office

Primary SDG Implicated	Primary NDP Goal Implicated	Primary Vision 2036 Pillar Implicated	Section (or Activity) of NDC Implicated
	NDP 11 – Social Development.	Pillar Three – Sustainable Environment.	N/A.

Strategic Intervention S6.3:
The Ministry of Finance and Economic Development should develop a guidance document, a toolkit, and training modules for government officials on 'Climate-compatible Decision-making for Development,' including guidance on making administrative decisions despite climate change uncertainty.

Policy Goal to Be Realised:
"Support the establishment of climate decision-making systems that balance the interest between food production, climate smart agriculture, and development needs, and ensure appropriate allocation of land within the balanced environment."

2020 Target:
Ministry of Finance and Development Planning to locate climate change-based decision-making expert (institution or individual) to create a guidance document, a toolkit, and training modules for government officials on 'Climate-compatible Decision-making for Development,' including guidance on making administrative decisions despite climate change uncertainty.

2023 Target:
Programme underway.

2026 Target:
Ongoing training.

2030 Target:
Ongoing training.

Responsible Entity:
Ministry of Environment, Natural Resources Conservation and Tourism (MENT)

Key Collaborating Entities:
Ministry of Finance and Economic Development
All Ministries.

Primary SDG Implicated	Primary NDP Goal Implicated	Primary Vision 2036 Pillar Implicated	Section (or Activity) of NDC Implicated
	NDP 11 – Sustainable use of natural resources as well as; Consolidation of good governance and strengthening of national security	Pillar Three – Sustainable Environment.	N/A.

Strategic Intervention S6.4:
Strengthen and further build capacity of the already existing Community Based Natural Resources Management trusts with a mandate and resources to guide and implement ecosystem management on communal lands, and to include the use of both traditional practices and sector best practice.

Policy Goal to Be Realised:
"Align and develop guidelines for the mainstreaming and implementation of climate change development measures in rural development, wildlife, and land use planning policies made to achieve an integrated approach to land allocation and land use management."

2020 Target
Create a specific mandate for ecosystem management for CBNRM trusts. Create clear pathways of interaction and decision making between CBNRM bodies and existing authorities.

2023 Target:
CBNRM land management program functional and CBOs actively involved in all communal lands management decisions.

2026 Target:
CBNRM land management program functional and CBOs actively involved in all communal lands management decisions.

2030 Target:
CBNRM land management program functional and CBOs actively involved in all communal lands management decisions.

Responsible Entity:
Ministry of Environment, Natural Resources Conservation and Tourism (MENT)

Key Collaborating Entities:
Ministry of Local Government and Rural Development
The National Strategy Office
Land Boards
Department of Lands
District Councils
CBNRM trusts

Primary SDG Implicated	Primary NDP Goal Implicated	Primary Vision 2036 Pillar Implicated	Section (or Activity) of NDC Implicated
	NDP 11 – Sustainable use of Natural Resources	Pillar Three – Sustainable Environment.	N/A.

Strategic Intervention S6.5 **Recapacitate the national land rehabilitation programme with an explicit focus on rehabilitating land in a climate resilient manner that promotes biodiversity and conservation concerns. A key aspect of the program should be on restoration through reduction of bush encroachment on land which needs to be rehabilitated.**			
Policy Goal to Be Realised: *"Align and develop guidelines for the mainstreaming and implementation of climate change development measures in rural development, wildlife, and land use planning policies made to achieve an integrated approach to land allocation and land use management."*			
2020 Target: Identify key areas of the existing national land rehabilitation programme which can be mandated with the rehabilitation of land in a climate resilient manner with a key focus on restoration through reduction in bush encroachment on land which needs to be rehabilitated.			
2023 Target: Programme commenced and ongoing.			
2026 Target: Programme ongoing.			
2030 Target: Programme ongoing.			
Responsible Entity: Ministry of Environment, Natural Resources Conservation and Tourism (MENT)			
Key Collaborating Entities: Ministry of Land Management, Water and Sanitation Services Ministry of Agricultural Development and Food Security Ministry of Mineral Resources, Green Technology and Energy Security Ministry of Local Government and Rural Development The National Strategy Office			
Primary SDG Implicated 	**Primary NDP Goal Implicated** NDP 11 – Sustainable use of Natural Resources	**Primary Vision 2036 Pillar Implicated** Pillar Three – Sustainable Environment.	**Section (or Activity) of NDC Implicated** N/A.

3.7 DISASTER RISK MANAGEMENT

3.7.1 CLIMATE CHANGE THREATS AND VULNERABILITIES IN SECTOR

Climate Change poses a real and great threat to Botswana in that it precipitates large environmental shocks and stresses such as droughts and flash floods. The frequency, intensity and unpredictability of these events are likely to worsen with continued warming trends. A 2018 study ranked Botswana as one of the top countries in terms of both temperature and precipitation change as global temperatures rise (Nkemelang, et al., 2018). Climate change is expected to increase flash flooding in northeast Botswana, and drought in already-arid northern Botswana and in western Botswana (Ministry of Environment, Wildlife and Tourism, 2012). Furthermore, extreme heat causes yields to suffer and thus can cause major threats to food security (Nkemelang, et al., 2018). The IPCC is also unequivocal in its position that climate change is likely to increase the threat to human security, in the form of heightened natural disasters (Intergovernmental Panel on Climate Change, 2014). The IPCC SP15 highlights just how damaging a global rise of 1.5℃ will be for Botswana (International Panel on Climate Change, 2018), where it will cause an even larger local temperature increase due to the specific geography of Botswana. Such a rise will create more severe and longer droughts, less frequent and more intense rainfall events, causing greater flash flooding and in turn greater human health impacts. Further these effects are expected to cause a drop of crop yields by 35% as well as having a direct negative impact on livestock herds, causing both food and economic instability (Mark & Brendon, 2018). These events demand a rapid, data-driven and capacitated disaster risk management process and response.

3.7.2 STRATEGIES FOR DISASTER RISK MANAGEMENT SECTOR

Strategic Intervention S7.1:
Update and operationalize a 2019 – 2023 National Disaster Management Strategy (to succeed the current 2013 – 2018 national strategy), with a strong emphasis on the entire disaster management continuum, as well as climate change specific hazards, vulnerabilities, management/capacity building. Capture the integration of climate change adaptation and disaster management in a disaster management legislative framework to give this the power of the law and enforceability.

Policy Goal to Be Realised:
"Strengthening and monitoring the implementation of disaster reduction plans through guidelines on climate change induced disasters."

2020 Target:
The National Disaster Management Office (NDMO) to update and operationalize a 2019 – 2023 National Disaster Management Strategy with a strong emphasis on the entire disaster management continuum, as well as climate change specific hazards, vulnerabilities, management/capacity building.

2023 Target:
Updated strategies translated into a legislative framework (enforceable acts of parliament).

2026 Target:
Strategy updated, and legislative framework updated if required.

2030 Target:
Strategy updated, and legislative framework updated if required.

Responsible Entity
Office of the President (OP)

Key Collaborating Entities:
Ministry of Environment, Natural Resources Conservation and Tourism (MENT)
The National Strategy Office

Primary SDG Implicated	Primary NDP Goal Implicated	Primary Vision 2036 Pillar Implicated	Section (or Activity) of NDC Implicated
	NDP 11 – Consolidation of good governance and strengthening of national security.	Pillar Three – Sustainable Environment.	N/A.

Strategic Intervention S7.2:
Develop a national disaster information management portal or platform that allows for consolidation of currently fragmented information, contains a user-friendly database, dashboards that indicate actions taken by different departments, and tracks responses. Ensure this national portal is well-linked to and integrates data from regional and international centres such as the SADC Climate Services Centre.

Policy Goal to Be Realised:
"Strengthening collaboration with the regional and international forecasting centres to share early warning systems for national application and benefit."

2020 Target:
The National Disaster Management Office (NDMO) to collect all existing information and format it into a database friendly format. Commence creation of the national disaster information management portal. Commence creation of systems to integrate local, regional and international centres. Portal marketing/awareness drive to all Ministries and relevant organisations.

2023 Target:
Portal updates and maintenance.

2026 Target:
Portal updates and maintenance.

2030 Target:
Portal updates and maintenance.

Responsible Entity:
Office of the President (OP)

Key Collaborating Entities:
Ministry of Environment, Natural Resources Conservation and Tourism (MENT)
All Ministries.
Local, Regional and International information sources.
SADC Climate Services Centre

Primary SDG Implicated	Primary NDP Goal Implicated	Primary Vision 2036 Pillar Implicated	Section (or Activity) of NDC Implicated
	NDP 11 – Consolidation of good governance and strengthening of national security.	Pillar Three – Sustainable Environment.	N/A.

Strategic Intervention S7.3:
Incentivize the private sector's involvement in disaster risk identification, assessment, insurance, prevention, mitigation, adaptation, early warning systems, response and recovery, through financial opportunities (such as, but not limited to, allocating resources to purchase innovative and effective climate services and disaster-related ICT products).

Policy Goal to Be Realised:
"Build the country's resilience and coping mechanisms to disasters, through interventions of key actors."

2020 Target:
Identify key large – scale (industry dominant) private sector companies to engage with in disaster risk identification, prevention, mitigation, reduction, early warning systems, response and recovery to design useful climate services for the sector. Create a forum with elected members of the private sector (with a deliberately diverse membership to ensure sector and size representation) to enable discussion and engagement on climate risk related issues between the sector and the state. Commence creation of financial opportunities and criteria for use as well as reporting and monitoring mechanisms.

2023 Target:
Through the forum identify and create useful and relevant private sector climate service tools. Promotion of tools across all sectors. Uptake of tools by major industry leaders and sectors most vulnerable to climate related risk. Offering of finance to enable uptake.

2026 Target:
Uptake of tools by major industry leaders and sectors most vulnerable to climate related risk. Uptake by smaller private sector companies. Offering of finance to enable uptake.

2030 Target:
National uptake across all sectors.

Responsible Entity:
Ministry of Environment, Natural Resources Conservation and Tourism (MENT)

Key Collaborating Entities:
Office of the President
Ministry of Investment, Trade and Industry
Ministry of Mineral Resources, Green Technology and Energy Security
Ministry of Finance and Economic Development
Botswana Development Corporation (BDC)
The National Strategy Office

Primary SDG Implicated	Primary NDP Goal Implicated	Primary Vision 2036 Pillar Implicated	Section (or Activity) of NDC Implicated
	NDP 11 – Consolidation of good governance and strengthening of national security.	Pillar Three – Sustainable Environment.	N/A.

3.8 BIODIVERSITY AND ECOSYSTEMS

3.8.1 KEY CLIMATE CHANGE THREATS AND VULNERABILITIES IN SECTOR

Botswana has a wide range of ecosystems, each with distinct biodiversity characteristics. Of particular importance are those savanna systems that play host to large wildlife populations that are of global conservation concern and national economic importance. These ecosystems are threatened by the effects of climate change both directly through changes in precipitation and fire regimes, and indirectly through in synergistic interactions with unregulated wildlife harvesting or as a result of human wildlife conflict. The need to maintain the important flora and fauna that exist in Botswana is made even more important as these eco-systems (particularly wetlands) act as carbon sink, absorbing more greenhouse gasses than they produce, so serve an important role from a mitigation perspective (School of Business, 2008). Botswana also houses many animals which are globally endangered and climate change stresses on their environments could be devastating for species numbers globally (Republic of Bostwana, 2016) Flora and fauna's growth patterns, physiological characteristics, growing ranges, growing seasons, reproductive cycles etc. are all influenced by temperature and by water availability (Intergovernmental Panel on Climate Change, 2014). As growing conditions for plants and animals change, so will the natural capital Botswana has access to in terms of biodiversity and ecosystems. Habitability in some areas may also be affected for human communities.

Climate change has had the following negative effects on biodiversity in Botswana, with species that are in low abundance, small distribution and have specialised habitats being the most vulnerable:

- Birdlife has been threatened to by changes in rainfall distribution and temperature, further exacerbated by a change in composition of resources in their habitats,
- Inflow to the Okavango Delta is likely to be reduced,
- Evapo-transpiration in the Okavango Delta might increase by 15% by 2050 causing a decrease in outflow of about 20%
- Less water in the area due to increased evapo-transpiration will lead to a decrease in richness of species due to either migration or extinction,
- An increase in extreme events such as fires, floods and droughts will reduce and degrade vegetation cover (Republic of Botswana, 2018)

Botswana's second national communication to the UNFCCC does not place emphasis on biodiversity and ecosystems to the scale and level it focuses on several other sectors (Ministry of Environment, Wildlife and Tourism, 2012). However the third national communication includes a chapter on biodiversity. Nevertheless, these are critical sectors (especially for a country like Botswana that intends to grow the contribution of ecotourism to its GDP) for adaptation. Attention to these sectors is in evidence in the National Biodiversity Strategy and Action Plan (NBSAP), which notes that climate change is one of the causes of biodiversity loss in Botswana. Botswana can further utilise the lessons learned in successful local projects such as the Sustainable land management project in Ngamiland. Notably, the Fire management Component, the Sustainable agriculture practices and Climate Smart Agriculture and the management and utilization of invasive species (from bush encroachment).

3.8.2 STRATEGIES FOR THE BIODIVERSITY AND ECOSYSTEMS SECTOR

Strategic Intervention S8.1:
Establish a public-private-civil society alien invasive species task force to develop and implement an action plan against Botswana's most damaging invasive species (such as mesquite, Kariba weed or Salvinia, and water lettuce).

Policy Goal to Be Realised:
"Accelerate the prioritization of climate change related research into species richness changes, migration, pests, and diseases."

2020 Target:
Identify key public institutions to engage with and bring into a public-private-civil society task force. Commence the creation of task force and creation of mandate.

2023 Target:
Utilising learnings from pilot projects, plans are rolled out nationally and task force equipped to enable roll out. Monitoring systems implemented.

2026 Target: :
National ongoing management and monitoring of invasive species via the task force.

2030 Target:
National ongoing management and monitoring of invasive species via the task force.

Responsible Entity:
National Biodiversity Authority

Key Collaborating Entities:
Ministry of Environment, Natural Resources Conservation and Tourism (MENT)
Ministry of Mineral Resources, Green Technology and Energy Security
Ministry of Investment, Trade and Industry
Civil Society Organisations
Private Sector Companies and Bodies
The National Strategy Office

Primary SDG Implicated	Primary NDP Goal Implicated	Primary Vision 2036 Pillar Implicated	Section (or Activity) of NDC Implicated
	NDP 11 – Sustainable use of natural resources as well as; NBSAP's strategic action for target 9.	Pillar Three – Sustainable Environment.	N/A.

Strategic Intervention S8.2:
Fully implement and accomplish the targets of the National Biodiversity Strategy and Action Plan (NBSAP) 2016 - 2025, the Community Based Natural Resources Management Policy, and other relevant ecosystem and species-specific strategies and plans.

Policy Goal to Be Realised:
"Support the coordinated implementation and integration of climate change into existing biodiversity and ecosystem related policies and community-based programs"

2020 Target:
Ministry of Environment, Natural Resources Conservation and Tourism (MENT) to fully implement the National Biodiversity Strategy and Action Plan (NBSAP) 2016 - 2025. Ministry to finalise and formalise existing draft ecosystem and species-specific strategies and plans, and the Community Based Natural Resources Management Policy.

2023 Target:
NBSAP, CBNRM Policy, and related ecosystem and species management strategies and plans in full implementation.

2026 Target:
NBSAP, CBNRM Policy, and related ecosystem and species management strategies and plans in full implementation.

2030 Target:
NBSAP, CBNRM Policy, and related ecosystem and species management strategies and plans in full implementation.

Responsible Entity:
Ministry of Environment, Natural Resources Conservation and Tourism (MENT)

Key Collaborating Entities:
N/A.

Primary SDG Implicated	Primary NDP Goal Implicated	Primary Vision 2036 Pillar Implicated	Section (or Activity) of NDC Implicated
	NDP 11 – Sustainable use of natural resources.	Pillar Three – Sustainable Environment.	N/A.

Strategic Intervention S8.3:
Amend (or issue a notification on) the 2016 NBSAP's (NBSAP 3) target 11 (for goal 3) and target 15 (for goal 4) to explicitly include ecosystem-based adaptation (EBA).

Policy Goal to Be Realised:
"Promote the use of ecosystem-based adaptation approaches in order to take into consideration the full range of possible climate outcomes."

2020 Target:
Amend (or issue a notification on) the 2016 NBSAP's (NBSAP 3) target 11 (for goal 3) and target 15 (for goal 4) to explicitly include ecosystem-based adaptation (EBA).

2023 Target:
Amendments made and under full implementation.

2026 Target:
Amended provisions to be reflected in next NBSAP for the post-2026 period.

2030 Target:
EBA inclusions in NBSAP to be under full implementation.

Responsible Entity:
Ministry of Environment, Natural Resources Conservation and Tourism (MENT)

Key Collaborating Entities:
N/A.

Primary SDG Implicated	Primary NDP Goal Implicated	Primary Vision 2036 Pillar Implicated	Section (or Activity) of NDC Implicated
	NDP 11 – Sustainable use of natural resources.	Pillar Three – Sustainable Environment.	N/A.

Strategic Intervention S8.4:
Amend the Botswana Environmental Impact Assessment (EIA) Act (No. 10 of 2011) to include more stringent requirements related to ecosystem climate resilience in the Environmental Management Plan (EMP) to be submitted as part of the EIA or Strategic Environmental Assessment (SEA) process to DEA.

Policy Goal to Be Realised:
"Adopt climate change guidelines for designing and monitoring of development activities within and adjacent to sensitive ecosystems in order to enhance their resilience under changing climates."

2020 Target:
Identify requirements related to ecosystem climate resilience. Amend Act accordingly.

2023 Target:
All EIAs and SEAs to reflect strengthened ecosystem resilience requirements.

2026 Target:
All EIAs and SEAs to reflect strengthened ecosystem resilience requirements.

2030 Target:
All EIAs and SEAs to reflect strengthened ecosystem resilience requirements.

Responsible Entity:
Ministry of Environment, Natural Resources Conservation and Tourism (MENT)

Key Collaborating Entities:
N/A.

Primary SDG Implicated	Primary NDP Goal Implicated	Primary Vision 2036 Pillar Implicated	Section (or Activity) of NDC Implicated
	NDP 11 – Sustainable use of natural resources.	Pillar Three – Sustainable Environment.	N/A.

Strategic Intervention S8.5:
Mandate and capacitate local authorities (district councils and town councils) to require specific climate resilience planning and measures when evaluating and approving building or construction permits within proximity of climate-sensitive ecosystems.

Policy Goal to Be Realised:
"Where possible, avoid human settlements adjacent to sensitive ecosystems that may interfere with the natural rehabilitation cycles of such ecosystems, especially large water bodies."

2020 Target:
Identify appropriate climate resilience measures for specific eco-system scenarios. Mandate local authorities to require measures.

2023 Target:
Authorities mandated.

2026 Target:
Authorities mandated.

2030 Target:
Authorities mandated.

Responsible Entity:
Ministry of Environment, Natural Resources Conservation and Tourism (MENT)

Key Collaborating Entities:
Ministry of Local Government and Rural Development
Ministry of Infrastructure and Housing Development
Botswana Housing Corporation (BHC)
The National Strategy Office

Primary SDG Implicated	Primary NDP Goal Implicated	Primary Vision 2036 Pillar Implicated	Section (or Activity) of NDC Implicated
	NDP 11 – Sustainable use of natural resources.	Pillar Three – Sustainable Environment.	N/A.

Strategic Intervention S8.6:
Accelerate the adoption of natural capital accounting methods developed under Botswana's waves partnership (water accounts, energy accounts, mineral accounts, tourism related land and ecosystem accounts, and macroeconomic indicators such as adjusted national income, adjusted national savings, and adjusted national wealth accounts) into government-wide annual budgeting processes and into the NDP 12.

Policy Goal to Be Realised:
"Promote the implementation of natural capital accounting measures."

2020 Target:
Begin conducting training for relevant accounting departments in WAVES natural capital accounting methods. Mandate the use of the WAVES data into annual budgeting and include WAVES data in NDP 12.

2023 Target:
All relevant parties trained and proficient in waves accounting methods. Waves data included in annual budgets.

2026 Target:
All relevant parties trained and proficient in waves accounting methods. Waves data included in annual budgets.

2030 Target:
All relevant parties trained and proficient in waves accounting methods. Waves data included in annual budgets.

Responsible Entity:
Ministry of Environment, Natural Resources Conservation and Tourism (MENT)

Key Collaborating Entities:
All Ministries.

Primary SDG Implicated	Primary NDP Goal Implicated	Primary Vision 2036 Pillar Implicated	Section (or Activity) of NDC Implicated
	NDP 11 – Sustainable use of natural resources.	Pillar Three – Sustainable Environment.	N/A.

3.9 INFRASTRUCTURE DEVELOPMENT

3.9.1 KEY CLIMATE CHANGE THREATS AND VULNERABILITIES IN SECTOR

Botswana has a good road network and well-developed civil infrastructure, despite a slowdown in government spending post the 2015 global financial crisis (Mbulawa, 2017). Botswana has had or currently has adaptation projects underway in the areas of:

- Energy: Small - and large-scale energy generation through wind, solar, hydro-electric and other forms of traditional or new energy generation.
- Transportation projects and transport systems optimisation.
- Waste management: Sanitation, sewerage and drainage as well as landfills.
- Encompassing sanitation, sewage systems, drainage systems, and landfills.
- Buildings: Including built structures and amendments to building codes and practises as well as green construction. Adapted from (Crawford, 2016)

An important point of focus for Botswana from a climate change perspective is that of increasing resilience to water related climate threats such as water scarcity and flooding (World Bank, 2010). There needs to be more investment for water storage infrastructure (to enable additional water storage) to build resilience towards changing and erratic rainfall patterns. Water management systems must also be improved to enable better management of scarce water resources, contrary to this but also necessary are flood management infrastructures that can protect citizens from flood occurrences (The World Bank, 2010). Climate change will stress existing built infrastructure as a result of the wear and tear caused by higher or fluctuating temperatures, variable and intense rainfall, and the stress of extreme weather events. For instance, roads sustain greater damage as climate variability increases – as is expected with climate change (due to buckling and melting). Electricity infrastructure is also at

greater threat due to transmission wires sagging in high heat and losing efficiency. Water infrastructure such as storage reservoirs may become stranded assets as rivers dry up or water volumes in rivers fall (Intergovernmental Panel on Climate Change, 2014).

3.9.2 STRATEGIES FOR THE INFRASTRUCTURE DEVELOPMENT SECTOR

Strategic Intervention S9.1:
Develop, under the auspices of the Ministry of Infrastructure and Housing and Development, a planning and implementation guidance document for integration of climate resilience into large infrastructure design and development in Botswana, localizing best practice from across Africa and major development partners.

Policy Goal to Be Realised:
"Integration of climate change considerations into infrastructure planning, designing, and development processes."

2020 Target:
Commence engagement with key experts in the development of a guidance document for integration of climate resilience into large infrastructure design and development in Botswana. Development and publication of guidance material. Dissemination and promotion of guidance document to relevant departments and the private sector.

2023 Target:
Review and update guidance document with relevant new data and technologies.

2026 Target:
Review and update guidance document with relevant new data and technologies.

2030 Target:
Review and update guidance document with relevant new data and technologies.

Responsible Entity:
Ministry of Infrastructure and Housing and Development

Key Collaborating Entities:
Botswana Development Corporation
Ministry of Environment, Natural Resources Conservation and Tourism (MENT)
Botswana Housing Corporation (BHC)
Ministry of Investment, Trade and Industry
Ministry of Mineral Resources, Green Technology and Energy Security
The National Strategy Office

Primary SDG Implicated	Primary NDP Goal Implicated	Primary Vision 2036 Pillar Implicated	Section (or Activity) of NDC Implicated
	NDP 11 – Social Development.	Pillar Three – Sustainable Economic Development.	N/A.

Strategic Intervention S9.2:
Develop training modules and workshops for entities like the Botswana Institution of Engineers, the Association of Botswana Building and Civil Engineering Contractors, and the Association of Consulting Engineers Botswana to study the integration of climate resilience into power and water infrastructure.

Policy Goal to Be Realised:
"Providing incentives for the use of clean climate technologies for water supply and electricity in domestic, industrial, and commercial buildings."

2020 Target:
Identify and employ expert institutions or individuals to develop training modules and workshops. Training and workshops developed, promoted and offered to relevant parties.

2023 Target:
Training and workshops updated and offered.

2026 Target:
Training and workshops updated and offered.

2030 Target:
Training and workshops updated and offered.

Responsible Entity:
Ministry of Infrastructure and Housing and Development

Key Collaborating Entities:
Botswana Development Corporation
Ministry of Environment, Natural Resources Conservation and Tourism (MENT)
Botswana Housing Corporation (BHC)
Ministry of Investment, Trade and Industry
Ministry of Mineral Resources, Green Technology and Energy Security
Botswana Institution of Engineers,
The Association of Botswana Building and Civil Engineering Contractors
Association of Consulting Engineers Botswana
The National Strategy Office

Primary SDG Implicated	Primary NDP Goal Implicated	Primary Vision 2036 Pillar Implicated	Section (or Activity) of NDC Implicated
	NDP 11 – Social Development.	Pillar Three – Sustainable Economic Development.	N/A.

Strategic Intervention S9.3:
Support climate-related research on infrastructure development through the issuance of publicly-funded research grants, with a focus on preventing or reducing climate-related depreciation and stranded assets.

Policy Goal to Be Realised:
"Supporting climate related research on infrastructure that could guide development plans and priority actions."

2020 Target:
Commence the process of identifying key research institutes to partner with and fund. Design grant structure, size, type and delivery mechanism. Through a process of multi-stakeholder engagements, identify clear output goals and targets and a key research agenda. Identify reporting mechanisms for reporting on grant use.

2023 Target:
Deliver first grants through partner institutions. Grant system operational. Database created of all climate related research outputs. Research agenda updated if need be.

2026 Target:
Grant system operational. Database regularly updated and maintained. Research agenda updated if need be.

2030 Target:
Grant system operational. Database regularly updated and maintained. Research agenda updated if need be.

Responsible Entity:
Ministry of Infrastructure and Housing and Development

Key Collaborating Entities:
Ministry of Investment, Trade and Industry
Ministry of Tertiary Education, Research, Science and Technology
Ministry of Employment, Labour Productivity and Skills Development
Higher education and vocational institutions
Botswana Institution of Engineers,
The Association of Botswana Building and Civil Engineering Contractors
Association of Consulting Engineers Botswana
Ministry of Environment, Natural Resources Conservation and Tourism (MENT)
The National Strategy Office

Primary SDG Implicated	Primary NDP Goal Implicated	Primary Vision 2036 Pillar Implicated	Section (or Activity) of NDC Implicated
	NDP 11 – Social Development.	Pillar Three – Sustainable Economic Development.	N/A.

Strategic Intervention S9.4:
Conduct a study of public-private partnerships focused on adaptation in the infrastructure sector in Africa and identify project models that could be replicated in Botswana.

Policy Goal to Be Realised:
"Promoting public-private partnerships on the development and transfer of clean climate technologies required for supporting climate resilient infrastructure and energy saving innovations."

2020 Target:
Identify key institute or individuals to conduct study. Design study.

2023 Target:
Study to have been conducted. Project models identified and utilised for new infrastructure projects.

2026 Target:
Project models identified and utilised for new infrastructure projects.

2030 Target:
Project models identified and utilised for new infrastructure projects.

Responsible Entity:
Ministry of Infrastructure and Housing and Development

Key Collaborating Entities:
Ministry of Investment, Trade and Industry
Ministry of Transport and Communications
Botswana Institution of Engineers,
The Association of Botswana Building and Civil Engineering Contractors
Association of Consulting Engineers Botswana
Ministry of Environment, Natural Resources Conservation and Tourism (MENT)
The National Strategy Office

Primary SDG Implicated	Primary NDP Goal Implicated	Primary Vision 2036 Pillar Implicated	Section (or Activity) of NDC Implicated
	NDP 11 – Social Development.	Pillar Three – Sustainable Economic Development.	N/A.

Strategic Intervention S9.5:
Solicit guidance and direction from the African Union – European Union Reference Group on Infrastructure regarding the mainstreaming of climate change in infrastructure cooperation.

Policy Goal to Be Realised:
"Strengthening education and awareness on efficient, cost-effective, easily accessible and implementable infrastructure development and management methods."

2020 Target:
Identify department or grouping best suited to solicit guidance. Discuss the mainstreaming of climate change in infrastructure cooperation with the reference group/reference group representative. Commence the process of publishing and dissemination of results to state departments and the private sector.

2023 Target:
Results published and incorporated into infrastructure cooperation processes.

2026 Target:
Results published and incorporated into infrastructure cooperation processes.

2030 Target:
Results published and incorporated into infrastructure cooperation processes.

Responsible Entity:
Ministry of Infrastructure and Housing and Development

Key Collaborating Entities:
The African Union – European Union Reference Group on Infrastructure
Ministry of Environment, Natural Resources Conservation and Tourism (MENT)
Botswana Institution of Engineers,
The Association of Botswana Building and Civil Engineering Contractors
Association of Consulting Engineers Botswana

Primary SDG Implicated	Primary NDP Goal Implicated	Primary Vision 2036 Pillar Implicated	Section (or Activity) of NDC Implicated
	NDP 11 – Social Development.	Pillar Three – Sustainable Economic Development.	N/A.

3.10 INDUSTRY AND MANUFACTURING

3.10.1 KEY CLIMATE CHANGE THREATS AND VULNERABILITIES IN SECTOR

Botswana has a mixed economy, main areas of industry include agriculture, mining, manufacturing, services and tourism (KPMG, 2017). Industry creates a third of GDP, with mining accounting for 20% of all economic activity (Cross Border Road Transport Agency, 2018) and 19.4% of GDP (KPMG, 2017). Key challenge areas for industry in Botswana are insufficient water and electricity resources (Nordea, 2018). The tourism and agro-industry sectors are particularly vulnerable to environmental and eco-system damage caused by climate change (Hambira, 2012) In the tertiary sector, impacts range from changes in supply chains for agro-based industries, to loss of labour productivity, to potential damage and loss from extreme weather and climate events such as floods, fires, and droughts. Thus, the industrial sector needs to engage with climate change from both a mitigation and adaptation perspective. Industry sectors are further delineated by this strategy into agriculture, land management infrastructure and tourism. As such this sector focuses on the financial industry and partnerships across industries and commerce.

3.10.2 STRATEGIES FOR THE INDUSTRY AND MANUFACTURING SECTOR

Strategic Intervention S10.1:
Establish a joint public-private task force (with partners like Business Botswana and the Botswana Chamber of Commerce and Industry) to monitor, advise on, and recommend ways in which industry and manufacturing in Botswana could contribute to broader climate change resilience through more climate-compatible operations.

Policy Goal to Be Realised:
'Enabling the industrial and manufacturing sector in Botswana to become better aware of climate change implications and to be better prepared to adapt.'.[4]

2020 Target:
Identify key institutions and individuals to serve on task force. Create mandate for task force and formalise advisory pathways. Create and ratify task force. Create yearly agenda for task force.

2023 Target: Task force operation and actively included in in industry development processes.

2026 Target: Task force operation and actively included in in industry development processes.

2030 Target: Task force operation and actively included in in industry development processes.

Responsible Entity: Ministry of Investment, Trade and Industry

Key Collaborating Entities:
Private Sector companies
Ministry of Transport and Communications
Botswana Development Corporation
Business Botswana and the Botswana Chamber
Commerce and Industry
The National Strategy Office

Primary SDG Implicated	Primary NDP Goal Implicated	Primary Vision 2036 Pillar Implicated	Section (or Activity) of NDC Implicated
	NDP 11 – Social Development.	Pillar Three – Sustainable Economic Development.	N/A.

Strategic Intervention S10.2:
In the financial services industry, develop de-risking products to help provide finance to climate resilience measures, and develop insurance products for climate-sensitive businesses to help protect against damage and loss from climate-related events

Policy Goal to Be Realised:
'Enabling the industrial and manufacturing sector in Botswana to become better aware of climate change implications and to be better prepared to adapt.'

2020 Target:
Engage with key players in the financial industry to develop de-risking and insurance products. Create a forum within the financial services industry to engage with climate related risks.

2023 Target: Forum ongoing and products developed and in use.

2026 Target: Forum ongoing and products developed and in use. Revision exercise undertaken to track adoption of products and redesign of product if necessary

2030 Target: Forum ongoing and products developed and in use.

Responsible Entity: Ministry of Investment, Trade and Industry

Key Collaborating Entities:
Financial Services Industry
Botswana Development Corporation
Business Botswana and the Botswana Chamber
Commerce and Industry
Ministry of Finance and Economic Development
Ministry of Investment, Trade and Industry
Botswana Stock Exchange
The National Strategy Office

Primary SDG Implicated	Primary NDP Goal Implicated	Primary Vision 2036 Pillar Implicated	Section (or Activity) of NDC Implicated
	NDP 11 – Social Development.	Pillar Three – Sustainable Economic Development.	N/A.

[4] The draft national climate change response policy does not discuss the need for climate change adaptation in the industrial and manufacturing sector in Botswana. However, the impacts of climate change will be felt economy-wide, including by industries and manufacturing units. Impacts range from changes in supply chains for Agro-based industries, to loss of labour productivity, to potential damage and loss from extreme weather events such as floods, fires, and droughts. As a result, it is important for the industrial and manufacturing sector in Botswana to become better aware of climate change implications, and to be better prepared to adapt.

3.11 TOURISM

3.11.1 KEY CLIMATE CHANGE THREATS AND VULNERABILITIES IN SECTOR

The tourism industry in Botswana contributes 11.5% to GDP and employs 7.6% of the population (World Travel and Tourism Council, 2018) and is the most rapidly growing sector in Botswana (Ramooki, 2017). The government of Botswana regards tourism as an important focus area as it brings in revenue, provides employment and improves local incomes. The importance of the sector and its vulnerabilities towards climate change make it necessary to have sector-specific climate change response strategies. Much of the tourism activity in the country centres around climate sensitive areas and activities, such as the Okavango delta and safari-based tourism (Dube, et al., 2018) which makes the industry particularly vulnerable to climate change. These key areas are seeing changing eco-systems and wildlife patterns as well as being under threat to drought and flooding. The loss of these unique eco-systems will heavily adversely affect the tourist industry and therefore the economy as a whole (Dube, et al., 2018).

3.11.2 STRATEGIES FOR THE TOURISM SECTOR

Strategic Intervention S11.1.:
MENT to initiate a study on the potential impacts of climate change on the tourism industry in order to implement effective and high-potential resilience solutions.

Policy Goal to Be Realised:
'Enabling a climate resilient tourism sector which can balance a growing sector and a need to adapt to and mitigate the effects of climate change'.[5]

2020 Target: MENT to initiate and complete an initial study of tourism and climate change.

2023 Target: MENT to continue to monitor the effects of climate change on the tourism sector and integrate climate change concerns into all tourism sector planning strategies.

2026 Target: MENT to continue to monitor the effects of climate change on the sector and integrate climate change concerns into all sector planning strategies.

2030 Target: MENT to continue to monitor the effects of climate change on the sector and integrate climate change concerns into all sector planning strategies.

Responsible Entity: Ministry of Environment, Natural Resources Conservation and Tourism (MENT)

Key Collaborating Entities:
Botswana Development Corporation (BDC)
Private Sector companies
Ministry of Investment, Trade and Industry
Botswana Tourism Association
The National Strategy Office

Primary SDG Implicated	Primary NDP Goal Implicated	Primary Vision 2036 Pillar Implicated	Section (or Activity) of NDC Implicated
	NDP 11's goal – Developing diversified sources of economic growth.	Pillar One: Sustainable Economic Development.	N/A

Strategic Intervention S11.2:
Expand existing cultural tourism pilot projects focused on Botswana's traditional Masimo and Moraka farming and increase the marketing campaigns to popularise them and attract tourists, thus diversifying income streams.

Policy Goal to Be Realised:
'Enabling a climate resilient tourism sector which can balance a growing sector and a need to adapt to and mitigate the effects of climate change'

2020 Target: Initiate a base line study of existing farmstead cultural tourism models. Creation and roll out of capacity building and marketing campaigns nationally. Farmstead cultural tourism guidelines and handbook development, training programme roll out. Design of impact assessment tools to be utilised every three years. Concept note development to support investment.

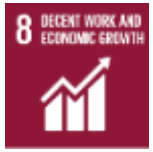
2023 Target: Identification of new farmstead cultural tourism projects and support given to these projects in order to scale up and scale out. Impact assessments undertaken.

2026 Target: Identification of new farmstead cultural tourism projects and support given to these projects in order to scale up and scale out. Impact assessments undertaken.

2030 Target: Farmstead cultural tourism projects that have been successful to be rolled out nationally (in viable areas). National farmstead cultural tourism certification and brand to be used by tour operators and government in promotion of farmstead cultural tourism projects and areas.

Responsible Entity: Ministry of Environment, Natural Resources Conservation and Tourism (MENT)

Key Collaborating Entities:
Ministry of Agricultural Development and Food Security
Ministry of Local Government and Rural Development
Botswana Tourism Association
Farmers Associations
The National Strategy Office

Primary SDG Implicated	Primary NDP Goal Implicated	Primary Vision 2036 Pillar Implicated	Section (or Activity) of NDC Implicated
	NDP 11's goal – Developing diversified sources of economic growth.	Pillar One: Sustainable Economic Development.	N/A

[5] The draft national climate change response policy does not discuss the need for climate change adaptation in tourism sector in Botswana. However, the impacts of climate change will be felt economy-wide, including by the tourism industry.

Strategic Intervention S11.3:
Update the Eco-Tourism Guidelines to include climate-friendly measures for operators to adopt and be graded against, and ensure the guidelines are more broadly adopted.

Policy Goal to Be Realised:
'Enabling a climate resilient tourism sector which can balance a growing sector and a need to adapt to and mitigate the effects of climate change'

2020 Target:
Guidelines updated.

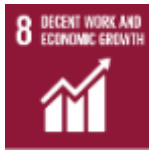
2023 Target:
Guidelines updated and utilised as grading measures.

2026 Target:
Guidelines updated and utilised as grading measures.

2030 Target:
Guidelines updated and utilised as grading measures.

Responsible Entity: Ministry of Environment, Natural Resources Conservation and Tourism (MENT)

Key Collaborating Entities:
Ministry of Agricultural Development and Food Security
Ministry of Local Government and Rural Development
Botswana Development Corporation (BDC)
The National Strategy Office
Botswana Tourism Association

Primary SDG Implicated	Primary NDP Goal Implicated	Primary Vision 2036 Pillar Implicated	Section (or Activity) of NDC Implicated
	NDP 11's goal – Developing diversified sources of economic growth.	Pillar One: Sustainable Economic Development.	N/A

4 Climate Change Mitigation

Even though Botswana's contribution to global climate change is negligible, as a member of the global community of nations and a party to the United Nations Framework Convention on Climate Change (UNFCCC) and the Paris Agreement, it is important that Botswana adopt measures to reduce the carbon-intensity of its economy and explore carbon abatement options in sectors with high greenhouse gas emissions. Effective mitigation will equip Botswana to meet its nationally determined contributions of reducing GHG emissions by 15% by 2030, relative to 2010 emissions (Government of Botswana, 2015).

Moreover, pursuing low-carbon approaches to economic growth and development may allow Botswana to reduce long-term costs linked to fossil fuel dependency, and will enable the country to be competitive in a highly likely carbon-constrained global future.

Table 1 below reflects GHG emission per sector in Botswana as per the 2012 national greenhouse gas inventory of Botswana. These 2012 readings serve as a baseline for target emission reductions.

Sector		CO2	CH4	N2O	HFCs	Emissions	CO2 Removals
		Gg CO2-eq					
Total National Emissions and Removals (with LUCF)		4814.092	4720.603	783.383	0.797	10318.875	
1.	Energy	6617.883	2161.833	474.578		9254.294	
2	Industrial Processes and Other Product Use (IPPU)	1083.667	NO	NO	0.797	1084.464	
3	Agriculture, Forestry and Other Land Use (AFOLU)		2015	286		2300.430	-288.458
4	Waste	NO	544.067	23.088		567.155	
Total National Emissions (without LUCF)		7701.550	4720.603	783.383	0.797	13206.344	

NO = Not Occurring

Table 1 Botswana's 2012 Greenhouse Gas Emissions and Removals by Sector and by Gas (Gg CO2-eq) (Republic of Botswana, 2017:18)

4.1 SUSTAINABLE ENERGY

4.1.1 KEY CLIMATE CHANGE CONTRIBUTION (GHG EMISSIONS) BY THE SECTOR

Since 1985, Botswana's energy sector has been guided by the Botswana Energy Master Plan (BEMP). Although BEMP has detailed strategies and implementation requirements for the effective and efficient management of the energy sector, the plan is now outdated. To update the framework, the sector requires novel interventions to reflect recent sustainable developments occurring both locally and internationally.

This is of particular importance as Botswana's energy sector is its largest source of greenhouse gas emissions, and its primary contribution to the problem of global climate change. The country's heavy reliance on wood fuel (biomass) fossil fuels makes Botswana's energy system very carbon-intensive. Therefore, to meet its NDC targets and reduce GHG emissions from the energy sector, Botswana should adopt strategies that increase its reliance on low-carbon energy, and which improve its energy efficiency (Ministry of Environment, Wildlife and Tourism, 2012).

With the commendable Energy Policy accompanied with the below strategic interventions, Botswana can aim to reduce the GHG emissions in this sector.

4.1.2 STRATEGIES FOR THE SUSTAINABLE ENERGY SECTOR

Strategic Intervention S12.1:
Develop a comprehensive financial and tax incentives program for energy efficiency, energy conservation, and clean energy use in micro, small, and medium enterprises and rural community enterprises.

Policy Goal to Be Realised:
"Promote the development of low-carbon economic development pathways, market-based strategies, and cooperation agreements across all major economic sectors outlining plans and programs relevant to each sector on their mitigation pathway."

2020 Target: Identify appropriate financial and tax incentives for energy efficiency, energy conservation, and clean energy use in micro, small, and medium enterprises as well as rural communities. Start to apply tax incentives. Create awareness raising publication materials to be distributed nationally.

2023 Target: Financial and tax Incentives rolled out. Awareness campaign ongoing.

2026 Target: Financial and tax Incentives rolled out. Awareness campaign ongoing.

2030 Target: Financial and tax Incentives rolled out. Awareness campaign ongoing.

Responsible Entity: Ministry of Investment, Trade and Industry

Key Collaborating Entities:
Ministry of Finance and Economic Development
Ministry of Environment, Natural Resources Conservation and Tourism (MENT)
Ministry of Mineral Resources, Green Technology and Energy Security
Mineral Resources, Green Technology and Energy Security, Department of Energy
The National Strategy Office

Primary SDG Implicated	Primary NDP Goal Implicated	Primary Vision 2036 Pillar Implicated	Section (or Activity) of NDC Implicated
	NDP 11 - Sustainable use of natural resources.	Pillar Three – Sustainable Environment.	Mitigation for GHG emission reductions

Strategic Intervention S12.2:
Develop a Low Carbon Pathways Methodology and Guidance Toolkit for Botswana, and conduct training workshops for relevant officials in all ministries in home languages, overseeing carbon-intensive sectors to adopt the low carbon pathway approach into their planning cycles as well as into the development of NDP 12.

Policy Goal to Be Realised:
"Promote the development of low-carbon economic development pathways, market-based strategies, and cooperation agreements across all major economic sectors outlining plans and programs relevant to each sector on their mitigation pathway."

2020 Target: Develop the Low Carbon Pathways Methodology and Guidance Toolkit for Botswana to ensure it contains the latest data. Define a monitoring and evaluation criteria with key targets for the training workshops for relevant officials in all ministries overseeing carbon-intensive sectors.

2023 Target: Training ongoing. Conduct an additional multi-stakeholder engagement to refine the Toolkit for Botswana with updated and relevant content. Assess monitoring and evaluation criteria for training workshops for relevant officials in all ministries overseeing carbon-intensive sectors by appointing an external evaluator to determine if the targets are being met.

2026 Target: Develop an online class and textbook on Low Carbon Pathways Methodology and Guidance. Ensure the class is compulsory for key government officials from major sectors.

2030 Target: Ongoing training. Expansion of training to include private and public sector.

Responsible Entity: Ministry of Investment, Trade and Industry

Key Collaborating Entities:
Mineral Resources, Green Technology and Energy Security, Department of Energy
Ministry of Environment, Natural Resources Conservation and Tourism (MENT)
Ministry of Finance and Economic Development
Ministry of Investment, Trade and Industry
Business Botswana
University of Botswana
The National Strategy Office

Primary SDG Implicated	Primary NDP Goal Implicated	Primary Vision 2036 Pillar Implicated	Section (or Activity) of NDC Implicated
	NDP 11 -Sustainable use of natural resources.	Pillar Three – Sustainable Environment.	Mitigation for GHG emission reductions

Strategic Intervention S12.3:
Adopt and fully implement the Botswana Renewable Energy Strategy finalized in 2017.

Policy Goal to Be Realised:
"Facilitate investment and access to technologies such as solar energy and wind power for domestic, industrial, and commercial purposes."

2020 Target:
Strategy adopted, and implementation plan commenced

2023 Target:
Strategy operational.

2026 Target:
Strategy operational.

2030 Target:
Strategy operational.

Responsible Entity:
Mineral Resources, Green Technology and Energy Security, Department of Energy

Key Collaborating Entities:
Ministry of Environment, Natural Resources Conservation and Tourism (MENT)
The National Strategy Office

Primary SDG Implicated	Primary NDP Goal Implicated	Primary Vision 2036 Pillar Implicated	Section (or Activity) of NDC Implicated
	NDP 11 -Sustainable use of natural resources.	Pillar Three – Sustainable Environment.	Mitigation for GHG emission reductions

Strategic Intervention S12.4:
A**dopt and fully implement the draft Net Metering guidelines being finalized in 2018, to incentivize growth in domestic and commercial solar power generation and usage.**

Policy Goal to Be Realised:
"Promote the development of guidelines including reporting mechanisms for transition of society to a green economy, and to sustainable energy production and consumption patterns."

2020 Target:
Net Metering regulations to be finalized, approved, and implemented. Baseline of grid-connected solar power to be established based on 2019 or 2020 data.

2023 Target:
Steady and continued increase in rooftop solar connections feeding into the grid

2026 Target:
Steady and continued increase in rooftop solar connections feeding into the grid

2030 Target:
Steady and continued increase in rooftop solar connections feeding into the grid

Responsible Entity:
Mineral Resources, Green Technology and Energy Security, Department of Energy

Key Collaborating Entities:
Ministry of Finance and Economic Development
Ministry of Investment, Trade and Industry
Business Botswana
University of Botswana
The National Strategy Office

Primary SDG Implicated	Primary NDP Goal Implicated	Primary Vision 2036 Pillar Implicated	Section (or Activity) of NDC Implicated
	NDP 11 -Sustainable use of natural resources and Good governance and national security	Pillar Three – Sustainable Environment.	Mitigation for GHG emission reductions.

Strategic Intervention S12.5:
Increase the levels of incentives to renewable energy and conservation related technologies and equipment under Botswana's Manufacturing Investment Incentive and Import Duty Exemption.

Policy Goal to Be Realised:
"Facilitate investment and access to technologies such as solar energy and wind power for domestic, industrial, and commercial purposes."

2020 Target:
Identify current volume or value of renewable energy equipment imported. Identify appropriate levels and forms of increased incentives to renewable energy related technologies and equipment imports per import category. Amend levels accordingly.

2023 Target:
Incentives amended.

2026 Target:
Re-visit amendments and adapt where necessary to new green technologies and national needs.

2030 Target:
Re-visit amendments and adapt where necessary to new green technologies and national needs.

Responsible Entity:
Ministry of Mineral Resources, Green Technology and Energy Security, Department of Energy

Key Collaborating Entities:
Ministry of Investment, Trade and Industry
Ministry of International Affairs and Co operation
Mineral Resources, Green Technology and Energy Security, Department of Energy
Ministry of Environment, Natural Resources Conservation and Tourism (MENT)
The National Strategy Office

Primary SDG Implicated	Primary NDP Goal Implicated	Primary Vision 2036 Pillar Implicated	Section (or Activity) of NDC Implicated
	NDP 11 -Sustainable use of natural resources and Good governance and national security	Pillar Three – Sustainable Environment.	Mitigation for GHG emission reductions

Strategic Intervention S12.6:
Increase the levels of incentives for renewable energy and energy efficiency related technologies and equipment such as solar power to households and businesses.

Policy Goal to Be Realised:
"Facilitate investment and access to technologies such as solar energy and wind power for domestic, industrial, and commercial purposes."

2020 Target:
Identify appropriate levels and forms of increased incentives to renewable energy related technologies and equipment for households and businesses. Promote and enable the adoption of such technologies at a household level and in businesses.

2023 Target:
Significant uptake of solar energy capture and storage at a national level. Increase in targets for such adoption and include new technologies where appropriate.

2026 Target:
Significant uptake of solar energy capture and storage at a national level. Increase in targets for such adoption and include new technologies where appropriate.

2030 Target:
Significant uptake of solar energy capture and storage at a national level. Increase in targets for such adoption and include new technologies where appropriate.

Responsible Entity:
Mineral Resources, Green Technology and Energy Security, Department of Energy

Key Collaborating Entities:
Ministry of Investment, Trade and Industry
Ministry of International Affairs and Co operation
The National Strategy Office
Ministry of Environment, Natural Resources Conservation and Tourism (MENT)

Primary SDG Implicated	Primary NDP Goal Implicated	Primary Vision 2036 Pillar Implicated	Section (or Activity) of NDC Implicated
	NDP 11 - Sustainable use of natural resources and Good governance and national security	Pillar Three – Sustainable Environment.	Mitigation for GHG emission reductions

Strategic Intervention S12.7:
Design, put in place, and operationalize a multi-sectoral greenhouse gas emissions monitoring, reporting, and verification system in compliance with UNFCCC standards, to annually measure progress against the NDC target of 15% GHG reduction in absolute terms over the 2010 baseline.

Policy Goal to Be Realised:
"Promote the development of guidelines including reporting mechanisms for transition of society to a green economy, and to sustainable energy production and consumption patterns."

2020 Target:
Design the multi-sectoral greenhouse gas emissions monitoring, reporting, and verification system. Appoint an external evaluator to determine whether the system can be improved and the level of compliance with UNFCCC standards.

2023 Target:
Update the targets, outputs and indicators for the multi-sectoral greenhouse gas emissions monitoring, reporting, and verification system. Conduct a comparison of verification systems internationally to include in the updated system.

2026 Target:
Reassess and report the findings and recommendations of the multi-sectoral greenhouse gas emissions monitoring, reporting, and verification system in a high-level publicly available report.

2030 Target:
Reassess and report the findings and recommendations of the multi-sectoral greenhouse gas emissions monitoring, reporting, and verification system in a high-level publicly available report.

Responsible Entity:
Mineral Resources, Green Technology and Energy Security, Department of Energy

Key Collaborating Entities:
Ministry of Finance and Economic Development
Ministry of Investment, Trade and Industry
Business Botswana
University of Botswana
The National Strategy Office

Primary SDG Implicated	Primary NDP Goal Implicated	Primary Vision 2036 Pillar Implicated	Section (or Activity) of NDC Implicated
	NDP 11 -Sustainable use of natural resources and Good governance and national security	Pillar Three – Sustainable Environment.	Mitigation for GHG emission reductions.

4.2 TRANSPORTATION

4.2.1 KEY CLIMATE CHANGE CONTRIBUTION (GHG EMISSIONS) BY THE SECTOR

The transport sector is one of the fastest growing sectors of the economy in Botswana and contributes the greatest share of Botswana's energy-related GHG emissions, mostly produced by road transport. The number of motorized vehicles has increased rapidly from 131,796 in 1999 to 318,400 in year 2010 in the country with an average growth rate of 8.34 % per year during the last 11 years (Pal, 2012). It is estimated that the transport sector's energy demand will continue rise at an annual average rate of 2.4% between 2000 and 2035.

With the continued increase in Non-Motorized Transport (NMT) it is imperative to consider as an alternative mode to Motorized Transport (MT) to reduce growth in transport related GHGs. Moreover, there is a need to create strategic shifts in the sector the reduce the prevalence of private motorized vehicles, increase public and multi-modal transport, enable fuel-switching, and improve fuel-efficiency as well as streamlining climate resilience into transport infrastructure (Ministry of Environment, Wildlife and Tourism, 2012).

Yet, the strategic interventions below, do not only focus on the NMT but on enhancing Botswana's overall integrated national and local city planning transport development systems to ensure the targets can be met.

4.2.2 STRATEGIES FOR THE TRANSPORTATION SECTOR

Strategic Intervention S13.1:
Put into effect and fully operationalise the National Multi-Modal Transport Master Plan developed with the World Bank's support, with accelerated implementation of public transportation and related components.

Policy Goals to Be Realised:
"Development of a public transport network that is reliable and can advocate for GHG emission reductions."

2020 Target:
Operationalise the National Multi-Modal Transport Master Plan, keeping GHG reductions in mind. Ensure it is accessible online and in hardcopy.

2023 Target:
Conduct a national stakeholder workshop to discuss the progress on and effectiveness of the updated National Multi-Modal Transport Master Plan.

2026 Target:
Assess whether the recommendations from the national stakeholder workshop have been implemented. Conduct a national stakeholder workshop to guide a post - 2030 plan.

2030 Target:
Develop, finalise, adopt and begin implementation of post - 2030 plan.

Responsible Entity:
Ministry of Transport and Communications

Key Collaborating Entities:
Botswana Tourism Organisation
University of Botswana – Engineering
Botswana International University of Science and Technology
Ministry of Infrastructure and Housing Development
Ministry of Finance and Economic Development
The National Strategy Office

Primary SDG Implicated	Primary NDP Goal Implicated	Primary Vision 2036 Pillar Implicated	Section (or Activity) of NDC Implicated
	NDP 11 – Social Development	Pillar Three – Sustainable Environment	Mitigation for GHG emission reductions

Strategic Intervention S13.2:
Develop an Integrated Public Transport Network (IPTN) framework and plan for Botswana's three most populated cities, including a focus on safety and operational standards and options for regularising and formalizing informal public transportation networks if feasible.

Policy Goal to Be Realised:
"Enhancement of the safety and operational standards for public transport and roads to attract commuters into using public transport."

2020 Target:
Commence the development of an Integrated Public Transport Network (IPTN) framework including new focus areas and standards.

2023 Target:
Implement the IPTN policies and corresponding guidelines. Develop a capacity building assessment for the department of transport.

2026 Target:
Monitor implementation of the legislations, policies, strategies and planning tools to enhance promotion of public transport.

2030 Target:
Monitor implementation of the legislations, policies, strategies and planning tools to enhance promotion of public transport.

Responsible Entity:
Ministry of Transport and Communications

Key Collaborating Entities:
Botswana Tourism Organisation
University of Botswana – Engineering
Botswana International University of Science and Technology
Ministry of Infrastructure and Housing Development
Ministry of Finance and Economic Development
Ministry of Transport and Communications
The National Strategy Office

Primary SDG Implicated	Primary NDP Goal Implicated	Primary Vision 2036 Pillar Implicated	Section (or Activity) of NDC Implicated
	NDP 11 – Social Development	Pillar 3 – Sustainable Environment	Mitigation for GHG emission reductions

Strategic Intervention S13.3:
Put into effect and fully operationalise the National Multi-Modal Transport Master Plan developed with multilateral organisations support, which contains components on the sustainability of the national carrier Air Botswana and Commence preparations and capacity building for Botswana's voluntary participation from 2021 in the International Civil Aviation Organization's (ICAO's) global market-based mechanism – Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA)(ICAO, n.d.)

Policy Goal to Be Realised:
"Setting of guidelines for the contribution of the aviation sector towards reduction of GHG emissions."

2020 Target:
Expand and refine the National Multi-Modal Transport Master Plan, keeping GHG reductions from aviation in mind. Ensure it is accessible online and in hard copy. Ensure its alignment with the International Civil Aviation Organization's (ICAO's) global market-based mechanism – Carbon Offsetting and Reduction Scheme for International Aviation.

2023 Target:
Conduct a national stakeholder workshop to discuss the progress on and effectiveness of the updated National Multi-Modal Transport Master Plan.

2026 Target:
Assess whether the recommendations from the national stakeholder workshop have been implemented. Conduct a national stakeholder workshop to guide a post - 2030 plan.

2030 Target:
Develop, finalize, adopt, and begin implementation of a post - 2030 plan.

Responsible Entity:
Civil Aviation Authority of Botswana

Key Collaborating Entities:
International Civil Aviation Organisation' (ICAO)
Air Botswana
Botswana Tourism Organisation
University of Botswana – Engineering
Botswana International University of Science and Technology
Ministry of Infrastructure and Housing Development
Ministry of Finance and Economic Development
The National Strategy Office

Primary SDG Implicated	Primary NDP Goal Implicated	Primary Vision 2036 Pillar Implicated	Section (or Activity) of NDC Implicated
	NDP 11 - Social Development	Pillar 3 – Sustainable Environment.	Mitigation for GHG emission reductions

Strategic Intervention S13.4:
Develop a transport sector emissions reduction target consistent with and to contribute to Botswana's economy-wide NDC 2030 target of 15% GHG reduction in absolute terms over the 2010 baseline.

Policy Goal to Be Realised:
"Establishment of legal frameworks for the transformation and regulation of climate related transport elements."

2020 Target:
Commence the creation of a working group to update or finalize existing targets for emissions reduction in the transport sector and appropriate interventions to reach the target. Group to publish updated emissions targets for sector. Target pathways to be included in relevant policy at all levels of government. GHG emission reporting methods for the sector defined and created.

2023 Target:
Targets revisited and refined based on overall GHG emissions and new technologies available. Ongoing reporting.

2026 Target:
Targets revisited and refined based on overall GHG emissions and new technologies available. Ongoing reporting.

2030 Target:
Targets revisited and refined based on overall GHG emissions and new technologies available. Ongoing reporting.

Responsible Entity:
Ministry of Transport and Communications

Key Collaborating Entities:
Ministry of Mineral Resources, Green Technology and Energy Security
Ministry of Investment, Trade and Industry
Ministry of Environment, Natural Resources Conservation and Tourism (MENT)
The National Strategy Office

Primary SDG Implicated	Primary NDP Goal Implicated	Primary Vision 2036 Pillar Implicated	Section (or Activity) of NDC Implicated
	NDP 11 - Social Development	Pillar 3 – Sustainable Environment.	Mitigation for GHG emission reductions

Strategic Intervention S13.5:
Develop, publish, issue, and bring into effect under the auspices of the Botswana Bureau of Standards, appropriate vehicular emission standards for motorized transport. Design and operationalise an emissions monitoring and reporting system with private sector involvement as well as an enforcement and penalty system to support the implementation of the vehicular emission standards adopted.

Policy Goal to Be Realised:
"Formulation, implementation, and enforcement of emission standards for motor vehicle emissions."

2020 Target:
Set and publish emission limits for all GHGs from vehicular emissions. Identify private sector partners to enable monitoring. Develop a theory of change model to sustain, bring to scale, and evaluate the progress of the emissions monitoring and reporting system as well as an enforcement and penalty system.

2023 Target:
System operational. Conduct an evaluation of the system by appointing an external evaluator to assess its effectiveness. Update the theory of change model with new outputs, activities, assumptions and outcomes.

2026 Target:
System operational and updated. Conduct a final evaluation by appointing an external evaluator to assess the effectiveness of the monitoring and reporting system.

2030 Target:
System operational with ongoing M&E as per NMES.

Responsible Entity:
Ministry of Transport and Communications

Key Collaborating Entities:
The Botswana Bureau of Standards (BOBS)
Botswana International University of Science and Technology
Ministry of Infrastructure and Housing Development
Ministry of Finance and Economic Development
Ministry of Environment, Natural Resources Conservation and Tourism (MENT)
The National Strategy Office

Primary SDG Implicated	Primary NDP Goal Implicated	Primary Vision 2036 Pillar Implicated	Section (or Activity) of NDC Implicated
	NDP 11 - Social Development	Pillar 3 – Sustainable Environment.	Mitigation for GHG emission reductions

Strategic Intervention S13.6:
Ensure that Transport sector policy, strategy and planning is fully responsive and addresses climate change issues, providing sustainable solutions for both mitigation and adaptation. Ensure that the Ministry of Transport and Communications creates sector wide strategies, followed by specific strategies for each sub-sector.

Policy Goal to Be Realised:
"Formulation, implementation, and enforcement of emission standards for motor vehicle emissions."

2020 Target:
The Ministry of Transport and Communications to begin enacting the strategies outlined by this document and create a climate change working group that meets quarterly to review or update strategies.

2023 Target:
Strategies to be written and implemented by transport subsectors including: Road (including hybrid-electric vehicles and biofuel use), Rail, Air, Water, Intermodal, NMT to develop and roll out climate change responsive strategies. Relevant subsectors to create strategies around uptake of non-fossil fuel vehicles as private and state fleet.

2026 Target:
All strategies operational with groups meeting quarterly.

2030 Target:
All strategies operational with groups meeting quarterly.

Responsible Entity:
Ministry of Transport and Communications

Key Collaborating Entities:
Botswana Tourism Organisation
University of Botswana
Botswana International University of Science and Technology
Ministry of Infrastructure and Housing Development
Ministry of Finance and Economic Development
Ministry of Environment, Natural Resources Conservation and Tourism (MENT)
The National Strategy Office

Primary SDG Implicated	Primary NDP Goal Implicated	Primary Vision 2036 Pillar Implicated	Section (or Activity) of NDC Implicated
	NDP 11 - Social Development	Pillar 3 – Sustainable Environment.	Mitigation for GHG emission reductions

Strategic Intervention S13.7:
Create and operationalise an Air Quality Monitoring System (AQMS) in locations of heavy transport activities.

Policy Goal to Be Realised:
"Formulation, implementation, and enforcement of emission standards for motor vehicle emissions."

2020 Target:
Create AQMS working group from relevant experts, practitioners and government officials. Creation of AQMS underway.

2023 Target:
AQMS operational and feeding back into NDC systems and BOBS systems and information gained from the system used to inform the relevant sections of the 2023 NDP.

2026 Target:
AQMS operational and feeding back into NDC systems and BOBS systems.

2030 Target:
AQMS operational and feeding back into NDC systems and BOBS systems.

Responsible Entity:
Ministry of Transport and Communications

Key Collaborating Entities:
Botswana Tourism Organisation
University of Botswana
Botswana International University of Science and Technology
Ministry of Infrastructure and Housing Development
Ministry of Finance and Economic Development
Ministry of Environment, Natural Resources Conservation and Tourism (MENT)
The National Strategy Office

Primary SDG Implicated	Primary NDP Goal Implicated	Primary Vision 2036 Pillar Implicated	Section (or Activity) of NDC Implicated
	NDP 11 - Social Development	Pillar 3 – Sustainable Environment.	Mitigation for GHG emission reductions

Strategic Intervention S13.8:
Lower GHGs emissions within the transport sector though a relevant taxation system based on GHG emissions by vehicle and use.

Policy Goal to Be Realised:
"Formulation, implementation, and enforcement of emission standards for motor vehicle emissions."

2020 Target:
Formation of new tax system working group. Design of system underway and implementation plan rolled out. National awareness campaign rolled out.

2023 Target:
Taxation system operational. Awareness campaign underway.

2026 Target:
System operational.

2030 Target:
System operational.

Responsible Entity:
Ministry of Transport and Communications

Key Collaborating Entities:
Botswana Tourism Organisation
University of Botswana
Botswana International University of Science and Technology
Ministry of Infrastructure and Housing Development
Ministry of Finance and Economic Development
Ministry of Environment, Natural Resources Conservation and Tourism (MENT)
The National Strategy Office

Primary SDG Implicated	Primary NDP Goal Implicated	Primary Vision 2036 Pillar Implicated	Section (or Activity) of NDC Implicated
	NDP 11 - Social Development	Pillar 3 – Sustainable Environment.	Mitigation for GHG emission reductions

4.3 WASTE MANAGEMENT

4.3.1 KEY CLIMATE CHANGE CONTRIBUTION (GHG EMISSIONS) BY THE SECTOR

Waste in Botswana can broadly be classified into two categories: solid waste from sanitation facilities (such as municipal waste and sewer waste) and waste water treatment and discharge. Waste is managed in ways which produce mostly carbon dioxide and a small amount of methane, further, waste in not manged by category (such as vegetable, paper, glass etc) so it is not possible to disaggregate GHG emissions by type of waste (Statistics Botswana, 2017) The waste management practices in Gaborone are mainly driven by stakeholders from various government and private sectors. There still exist several flaws in the management practices which makes the current system environmentally unsound. As the waste sector is the third highest emitter of GHGs in Botswana after the energy and agriculture sectors, it is an important sector for strategic interventions to reduce emissions growth. Indeed, between the 2000 inventory and the 2012 inventory, the waste sector's contribution to Botswana's GHGs grew from 1.5% to 4.3%. Thus, the following section highlights key strategic interventions to curb GHG emissions in the waste sector in Botswana including strategies focused on re-utilising waste products, reducing waste and recycling.

4.3.2 STRATEGIES FOR THE WASTE MANAGEMENT SECTOR

Strategic Intervention S14.1:
Fully implement the recently concluded opportunities assessment of waste-to-energy projects in Botswana with a view to managing waste as a resource.

Policy Goal to Be Realised:
"Promoting integrated approaches and best practices in management of waste with the view to reducing GHG emissions."

2020 Target:
Identify, scale up and out existing projects from pilot waste-to-energy projects.

2023 Target:
Scale up and out projects from existing pilot waste-to-energy projects.

2026 Target:
Scale up and out projects and incorporate new learnings from projects.

2030 Target:
Reassess the effectiveness of the projects and revise plans for post-2030 waste-to-energy projects.

Responsible Entity:
Ministry of Environment, Natural Resources Conservation and Tourism

Key Collaborating Entities:
University of Botswana
Botswana International University of Science and Technology
Ministry of Finance and Economic Development
Ministry of Mineral Resources and Energy, Security
Ministry of Local Government and Rural Development
The National Strategy Office

Primary SDG Implicated	Primary NDP Goal Implicated	Primary Vision 2036 Pillar Implicated	Section (or Activity) of NDC Implicated
	NDP 11 - Social Development	Pillar 3 – Sustainable Environment.	N/A

Strategic Intervention S14.2:
Fully operationalise the Botswana Recycling Guidelines, including components on valorisation and contribution of waste recycling to climate change mitigation.

Policy Goal to Be Realised:
"Promote and support the recycling of waste for economic benefits."

2020 Target:
Update and operationalise the Botswana Recycling Guidelines.

2023 Target:
Revise Botswana Recycling Guidelines and the newly draft legislative frameworks if need be. Codify the Botswana Recycling Guidelines by drafting associated legislation and policies to support the guidelines.

2026 Target:
Guidelines implemented and amended as necessary.

2030 Target:
Guidelines implemented and amended as necessary.

Responsible Entity:
Ministry of Environment, Natural Resources Conservation and Tourism (MENT)

Key Collaborating Entities:
University of Botswana
Botswana International University of Science and Technology
Ministry of Finance and Economic Development
Ministry of Mineral Resources and Energy, Security
Ministry of Local Government and Rural Development
The National Strategy Office

Primary SDG Implicated	Primary NDP Goal Implicated	Primary Vision 2036 Pillar Implicated	Section (or Activity) of NDC Implicated
	NDP 11 - Social Development	Pillar 3 – Sustainable Environment.	N/A

4.4 AGRICULTURE, FORESTRY AND LAND USE

4.4.1 KEY CLIMATE CHANGE CONTRIBUTION (GHG EMISSIONS) BY THE SECTOR

The draft national climate change response policy does not discuss the need for climate change mitigation in the agriculture, forestry, and land use (AFOLU) sector in Botswana.

However, based on Botswana's most recent national GHG inventory in 2017 (calculated on the base year 2012), the AFOLU sector accounted for nearly a fifth of the country's total GHG emissions, and was the second largest sector in terms of its share of overall emissions (after energy) emanating from methane emissions from domestic livestock enteric fermentation and manure management (Ministry of Environment, Wildlife and Tourism, 2016). Thus, for Botswana to achieve its NDC target of 15% absolute emissions reductions by 2030, it will be critical that the AFOLU sector plays a part in the country's mitigation efforts.

In light of this, the following potential strategies are offered for consideration.

4.4.2 STRATEGIES FOR THE AGRICULTURE, FORESTRY AND LAND USE SECTOR

Strategic Intervention S15.1:
Become a member of international partnerships and alliances on agriculture sector mitigation to enable Botswana to be exposed to best practices and explore collaborative opportunities with global institutions working to reduce AFOLU emissions.

Policy Goal to Be Realised:
Strengthen Botswana's knowledge and ability to implement greenhouse gas mitigation measures in the AFOLU sector

2020 Target:
Become a member of the Global Alliance for Climate Smart Agriculture (GACSA). Identify and join other such groupings.

2023 Target:
Draft guidelines on agriculture sector emissions reduction and abatement in Botswana, incorporating learnings from the GACSA and other such groupings.

2026 Target:
Incorporate capacity building workshops for local community organisations on lessons learned from GACSA and such groupings.

2030 Target:
Conduct national stakeholder workshops on how to incorporate learnings from the GACSA and such groupings

Responsible Entity:
Ministry of Environment, Natural Resources Conservation and Tourism (MENT)

Key Collaborating Entities:
Ministry of Agricultural Development and Food Security
Ministry of Land Management, Water and Sanitation Services
University of Botswana – Dept. of Agriculture and Natural Resources
Botswana International University of Science and Technology
Local Government and Rural Development
Farmers Associations
Forestry Association of Botswana
South African Sciences Centre for Climate Change and Adaptive Land Management
The National Strategy Office

Primary SDG Implicated	Primary NDP Goal Implicated	Primary Vision 2036 Pillar Implicated	Section (or Activity) of NDC Implicated
	NDP 11 – Sustainable use of Natural Resources.	Pillar One – Sustainable Economic Development and Pillar Two – Sustainable Environment	N/A.

Strategic Intervention S15.2:
Implement and enforce climate change mitigation as a core criterion and consideration into Botswana's land use planning legislation and land use master planning guidelines, to realise the goals of Botswana's National Spatial Plan 2036, which emphasizes the need for spatially targeting climate resilience in key sectors.

Policy Goal to Be Realised:
Strengthen Botswana's knowledge and ability to implement greenhouse gas mitigation measures in the AFOLU sector

2020 Target:
Identify specific land use planning legislation and land use master planning guidelines to amend. Make amendments to include climate change mitigation as a core criterion.

2023 Target:
Criterion included in all relevant planning legislation and land use master planning guidelines.

2026 Target:
Criterion included in all relevant planning legislation and land use master planning guidelines.

2030 Target:
Criterion included in all relevant planning legislation and land use master planning guidelines.

Responsible Entity:
Ministry of Land Management, Water and Sanitation Services

Key Collaborating Entities:
Ministry of Agricultural Development and Food Security
Farmers Associations
The National Strategy Office

Primary SDG Implicated	Primary NDP Goal Implicated	Primary Vision 2036 Pillar Implicated	Section (or Activity) of NDC Implicated
	NDP 11 – Sustainable use of Natural Resources.	Pillar One – Sustainable Economic Development and Pillar Two – Sustainable Environment	N/A.

Strategic Intervention S15.3:
Utilising the new mandated CBNRM programme and its institutions to create a forest wildfire early warning, monitoring and management system to help combat GHG emissions through forest wildfires.

Policy Goal to Be Realised:
Strengthen Botswana's knowledge and ability to implement greenhouse gas mitigation measures in the AFOLU sector

2020 Target:
Commence the creation of the forest wildfire warning, monitoring and management system.

2023 Target:
Wildfire monitoring and management system operational.

2026 Target:
Wildfire monitoring and management system operational.

2030 Target:
Wildfire monitoring and management system operational.

Responsible Entity:
CBNRM Programme.

Key Collaborating Entities:
Ministry of Environment, Natural Resources Conservation and Tourism (MENT)
Ministry of Land Management, Water and Sanitation Services
Ministry of Mineral Resources, Green Technology and Energy Security
The National Strategy Office

Primary SDG Implicated	Primary NDP Goal Implicated	Primary Vision 2036 Pillar Implicated	Section (or Activity) of NDC Implicated
	NDP 11 – Sustainable use of Natural Resources.	Pillar One – Sustainable Economic Development and Pillar Two – Sustainable Environment	N/A.

Strategic Intervention S15.4:
Identify key livestock-focused areas of intervention within existing Climate Smart Agriculture (CSA) programmes, and scale-up such programmes with a specific focus on manure management through the adoption of new manure storage, handling and treatment technologies in order to lower GHG emissions for the sector.

Policy Goal to Be Realised:
Strengthen Botswana's knowledge and ability to implement greenhouse gas mitigation measures in the AFOLU sector

2020 Target:
Key CSA programmes involving livestock identified where manure management technologies can reduce GHGs. Creation of new manure management specific CSA programmes.

2023 Target:
New programme specifically around manure management and GHG reduction has been created and rolled out.

2026 Target:
Programmes ongoing.

2030 Target:
Programmes ongoing.

Responsible Entity:
Ministry of Agricultural Development and Food Security

Key Collaborating Entities:
Ministry of Environment, Natural Resources Conservation and Tourism (MENT)
Ministry of Local Government and Rural Development
Botswana Development Corporation (BDC)
Farmers Associations
The National Strategy Office

Primary SDG Implicated	Primary NDP Goal Implicated	Primary Vision 2036 Pillar Implicated	Section (or Activity) of NDC Implicated
	NDP 11 – Sustainable use of Natural Resources.	Pillar One – Sustainable Economic Development and Pillar Two – Sustainable Environment	N/A.

Strategic Intervention S15.5:
Utilising the new mandated CBNRM programme, implement a National Woodlot Management System in order to create sustainable and managed woodlots.

Policy Goal to Be Realised:
Strengthen Botswana's knowledge and ability to implement greenhouse gas mitigation measures in the AFOLU sector

2020 Target
Utilise the newly mandated CBNRM programme to create a system for the establishment and management of woodlots.

2023 Target:
Woodlot management system operational.

2026 Target:
Woodlot management system operational.

2030 Target:
Woodlot management system operational.

Responsible Entity:
CBNRM Programme.

Key Collaborating Entities:
Ministry of Environment, Natural Resources Conservation and Tourism (MENT)
Ministry of Youth Empowerment, Sport and Culture Development
The National Strategy Office

Primary SDG Implicated	Primary NDP Goal Implicated	Primary Vision 2036 Pillar Implicated	Section (or Activity) of NDC Implicated
	NDP 11 – Sustainable use of Natural Resources.	Pillar One – Sustainable Economic Development and Pillar Two – Sustainable Environment	N/A.

4.5 EXTRACTIVES AND MINING

4.5.1 KEY CLIMATE CHANGE CONTRIBUTION (GHG EMISSIONS) BY THE SECTOR

Extractives and mining are not included in the sectors identified by the draft national climate change response policy as areas for mitigation measures in Botswana.

However, the mining sector continues to be the backbone of Botswana's economy, despite efforts to diversify. The sector is one of the major consumers of energy mainly electricity, petroleum products and even water resources. Undeniably the country's largest sector is mining, specifically diamond and mineral extraction. The extractive sector contributes almost 40% of the total fiscal revenue. It is projected that diamond production output should remain stable at current levels for the next 35 years which encourages a useful base for GDP, government revenues and exports. In addition, over a third of all electricity demand is from the mining sector, which consumed 34% of the country's power in 2015 (RECP Market Information , n.d.).

Botswana has received widespread commendation and praise for its management of mineral revenues. Indeed, Botswana has invested the revenues in sectors such as education, health care and other forms of assets. In some respects, it has managed to avoid "mineral curse" and "Dutch Disease" through appropriate macroeconomic, exchange rate and fiscal policies, as well as institutional design (Bank, 2016).

As the sector grows, its contribution to climate change is also expected to grow. Therefore, due to its impact on climate change (through GHGs), it should take mitigation actions.

In light of this, the following potential strategies are offered for consideration.

4.5.2 STRATEGIES FOR THE EXTRACTIVES AND MINING SECTOR

Strategic Intervention S16.1:
Develop an extractive (mining and quarrying) sector emissions reduction target consistent with and to contribute to Botswana's economy-wide NDC 2030 target of 15% GHG reduction in absolute terms over the 2010 baseline.

Policy Goal to Be Realised:
N/A[6]

2020 Target: Commence the creation of a working group to update or finalize existing targets for emissions reduction in the extractives sector and appropriate interventions to reach the target. Group to publish updated emissions targets for sector. Target pathways to be included in relevant policy at all levels of government. GHG emission reporting methods for the sector defined and created.

2023 Target: Targets revisited and refined based on overall GHG emissions and new technologies available. Ongoing reporting.

2026 Target: Targets revisited and refined based on overall GHG emissions and new technologies available. Ongoing reporting.

2030 Target: Targets revisited and refined based on overall GHG emissions and new technologies available. Ongoing reporting.

Responsible Entity: Ministry of Mineral Resources, Green Technology and Energy Security

Key Collaborating Entities:
Ministry of Finance and Economic Development
Botswana Chamber of Mines
Ministry of International Affairs and Cooperation
Ministry of Investment, Trade and Industry
Ministry of Environment, Natural Resources Conservation and Tourism (MENT)

Primary SDG Implicated	Primary NDP Goal Implicated	Primary Vision 2036 Pillar Implicated	Section (or Activity) of NDC Implicated
	NDP 11 - Sustainable Use of Natural Resources	Pillar One – Sustainable Economic Development	N/A

Strategic Intervention S16.2:
Ensure adoption of GHG reduction initiatives by members of the Chambers of Mines that reflect international best practice from the extractives and mining industry in its approach to climate change including monitoring and evaluation pathways.

Policy Goal to Be Realised:
N/A

2020 Target: Develop a monitoring and evaluation criteria to determine if the sector emissions are reducing. Build the capacity of the Chamber of Mines to assist with the monitoring and evaluation of sector emission reduction and to present best practice for the sector.

2023 Target: Assess with the monitoring and evaluation criteria the reductions in sector emissions. Upscale the capacity of the Chamber of Mines to assist with the monitoring and evaluation of sector emission reduction. Develop new activities for reducing sector emissions. Consider penalties for failure to comply with the reduction target.

2026 Target: Roll-out and support new activities for reducing emissions as well as to penalise entities for non-compliance.

2030 Target: Continued roll-out and support of new activities for reducing emissions as well as to penalise entities for non-compliance.

Responsible Entity: Mineral Resources, Green Technology and Energy Security

Key Collaborating Entities:
Ministry of Finance and Economic Development
Botswana Chamber of Mines
International Affairs and Cooperation
Business Botswana
Ministry of Investment, Trade and Industry
Ministry of Environment, Natural Resources Conservation and Tourism (MENT)] The National Strategy Office

Primary SDG Implicated	Primary NDP Goal Implicated	Primary Vision 2036 Pillar Implicated	Section (or Activity) of NDC Implicated
	NDP 11 - Sustainable Use of Natural Resources	Pillar One – Sustainable Economic Development	N/A

[6] Extractives and mining are not included in the sectors identified by the draft national climate change response policy as areas for mitigation measures in Botswana. As the sector grows, its contribution to climate change is also expected to grow. Therefore, due to its impact on climate change (through GHGs), it should take mitigation actions.

4.6 CARBON BUDGETS AND ABATEMENT PATHWAYS

4.6.1 KEY CLIMATE CHANGE CONTRIBUTION (GHG EMISSIONS) BY THE SECTOR

As carbon markets continue to expand over time, it will be increasingly important to ensure environmental integrity and maximise cost effectiveness (Walker, 2016).

For Botswana to achieve its economic development objectives and continue growing its economy whilst simultaneously reducing its GHG emissions and meeting its NDC commitments, it needs to enhance its ability to calculate, analyse, and implement robust carbon budgets and abatement pathways by sector.

Below the possible interventions to are to mandate the inclusion of sectoral carbon budgets for the period covered by NDP 12 as well as to prepare a study that determines the most appropriate methodology for calculating short, medium, and long-term sectoral carbon budgets. These interventions can assist Botswana to develop well-designed carbon markets to encourage an essential source of climate finance, combined with strong governance, transparency and accounting frameworks. By realising these strategic interventions, Botswana will have access to markets that will enable it to reach its full potential of realising its nationally determined contribution (NDCs) (Walker, 2016).

4.6.2 STRATEGIES FOR CARBON BUDGETS AND ABATEMENT PATHWAY

Strategic Intervention S17.1:
Prepare a study that determines the most appropriate methodology for calculating short, medium, and long-term sectoral carbon budgets in Botswana, drawing on best practice and models from the region and in alignment with Botswana's NDC target of 15% GHG reductions by 2030.

Policy Goal to Be Realised:
"Establish and implement short-term and long-term carbon budgets which are sector-driven, including implementation and reporting guidelines for major economic sectors."

2020 Target:
Study to be designed and launched.

2023 Target:
Implement the recommendations from the study. Update the study or develop a new study that determines the most appropriate methodology for calculating short, medium, and long-term sectoral carbon budgets in Botswana.

2026 Target:
Sectoral carbon budgets to be formally adopted and adhered to in all sectors.

2030 Target:
Sectoral carbon budgets to be reduced annually.

Responsible Entity:
Ministry of Mineral Resources, Green Technology and Energy Security

Key Collaborating Entities:
Botswana Chamber of Mines
International Affairs and Cooperation
Business Botswana
Ministry of Investment Trade and Industry
Ministry of Finance and Investment
Ministry of Environment, Natural Resources Conservation and Tourism (MENT)

Primary SDG Implicated	Primary NDP Goal Implicated	Primary Vision 2036 Pillar Implicated	Section (or Activity) of NDC Implicated
	NDP 11 - Sustainable Use of Natural Resources	Pillar One – Sustainable Economic Development and Pillar 2 – Sustainable Environment	N/A

Strategic Intervention S17.2:
Issue guidelines for the development of NDP 12 that explicitly mandate the inclusion of sectoral carbon budgets for the period covered by NDP 12.

Policy Goal to Be Realised:
"Adopt and integrate carbon budgets into existing resource deployment planning processes to avoid duplication of efforts."

2020 Target:
Guidelines to be developed and published to explicitly mandate the inclusion of sectoral carbon budgets for the period covered by NDP 12.

2023 Target:
Guidelines to be adhered to by sectors during the development of the 2023 NDP.

2026 Target:
Codify the inclusion of sectoral carbon budgets into relevant legislation.

2030 Target:
Sectors to meet carbon budgets as part of their performance against the NDP.

Responsible Entity:
Ministry of Mineral Resources, Green Technology and Energy Security

Key Collaborating Entities:
Ministry of Finance and Economic Development
Botswana Chamber of Mines
International Affairs and Cooperation
Business Botswana
Investment Trade and Industry
Ministry of Environment, Natural Resources Conservation and Tourism (MENT)

Primary SDG Implicated	Primary NDP Goal Implicated	Primary Vision 2036 Pillar Implicated	Section (or Activity) of NDC Implicated
	NDP 11 - Sustainable Use of Natural Resources	Pillar One – Sustainable Economic Development and Pillar 2 – Sustainable Environment	N/A

4.7 MARKET BASED MECHANISMS

4.7.1 KEY CLIMATE CHANGE CONTRIBUTION (GHG EMISSIONS) BY THE SECTOR

Market-based mechanisms and linked carbon markets attract investments where emissions reductions can occur at the lowest cost. This is a critical component of accelerating clean energy investment at the pace and scale needed to hold the average global temperature increase to well below 2°C, as agreed in UNFCCC's Paris Agreement (Walker, 2016).

Moreover, the Agreement recognizes that countries can adopt market-based and non-market-based mechanisms as means to achieve its nationally determined targets. The UNFCCC's Subsidiary Body for Scientific and Technological Advice (SBSTA) is continually developing approaches, rules, modalities for the same, and the final mechanism is yet to take shape and be operationalised (UNFCCC, n.d.).

It is commendable that Botswana's draft national climate change response policy takes a very positive and proactive view of market-based mechanisms, signalling that Botswana will adopt the UNFCCC's guidance and participate in the market in some manner. Still, in light of the infancy of such approaches when they take effect, the numerous challenges that plagued other countries' efforts at carbon markets and taxes, and Botswana's lack of extensive experience with market-based climate change mechanisms in the past, it would be advisable that Botswana prioritize strategic approaches that help it slowly capacitate itself to the level of complexity and sophistication required.

By Botswana creating linked market-based mechanisms, there is a greater possibility of achieving net emissions reductions than if governments attempt to achieve its targets in isolation (Walker, 2016). Access to markets could therefore enable Botswana to go beyond its NDC commitments but at a notable lower cost.

With this in mind, the following strategic interventions are suggested in response to the draft policy's prescription

4.7.2 STRATEGIES FOR MARKET BASED MECHANISMS

Strategic Intervention S18.1:
Drawing on learnings from other developing countries, develop a comprehensive report that studies, models, and analyses various scenarios for carbon taxes in Botswana, including an evaluation of the sectors or industries that would be taxed, the level of taxation, progressive taxation features, ringfencing of the tax revenues, and multiplier effects on consumption, incomes, and economic activity.

Policy Goal to Be Realised:
"Adopt and enforce carbon taxes and their compounded effect on the standard of living on ordinary citizens."

2020 Target: Develop and disseminate the report. Commence the process of presenting the report at workshops designed to inform policy discussions on carbon taxes in Botswana.

2023 Target: Revise and update the report to reflect global and regional developments on carbon taxes.

2026 Target: Revise and update the report to reflect global and regional developments on carbon taxes.

2030 Target: Revise and update the report to reflect global and regional developments on carbon taxes.

Responsible Entity: Ministry of Environment, Natural Resources Conservation and Tourism (MENT)

Key Collaborating Entities:
Botswana Chamber of Mines
Ministry of Finance and Economic Development
International Affairs and Cooperation
Business Botswana
Investment Trade and Industry
The National Strategy Office

Primary SDG Implicated	Primary NDP Goal Implicated	Primary Vision 2036 Pillar Implicated	Section (or Activity) of NDC Implicated
	NDP 11- Sustainable Use of Natural Resources	Pillar One – Sustainable Economic Development and Pillar 2 – Sustainable Environment.	N/A

Strategic Intervention S18.2:
Drawing on learnings from other developing countries, develop studies, models, and analyses that examine various scenarios for:
(A) an international emissions or offsets trading mechanisms in Botswana that reflects the guidance from the UNFCCC on the new 'Article 6.4 sustainable development mechanism' and
(B) a domestic emissions or offsets trading scheme that could enable carbon-intensive industries to meet and reduce its carbon budgets over time.

Policy Goal to Be Realised:
"Use carbon emission offsets and an emission trading schemes for all major economic sectors where a carbon approach and cooperation agreements have been selected and adopted."

2020 Target: Put together a working group to undertake research into international emissions or offsets trading mechanisms for consideration in Botswana that reflect the guidance from the UNFCCC on the new 'Article 6.4 sustainable development mechanism' and domestic emissions or offsets trading schemes that could enable carbon-intensive industries to meet and reduce their carbon budgets over time. Group to identify mechanisms and publish results.

2023 Target: Research findings to be published, and recommendations to be formally adopted by Government.

2026 Target: Research to continue and be updated to reflect global and regional developments on emissions trading mechanisms and carbon markets.

2030 Target: Research to continue and be updated to reflect global and regional developments on emissions trading mechanisms and carbon markets.

Responsible Entity: Ministry of Mineral Resources, Green Technology and Energy Security

Key Collaborating Entities:
Ministry of Finance and Economic Development
Botswana Chamber of Mines
International Affairs and Cooperation
Business Botswana
Investment Trade and Industry
The National Strategy Office
Ministry of Environment, Natural Resources Conservation and Tourism (MENT)

Primary SDG Implicated	Primary NDP Goal Implicated	Primary Vision 2036 Pillar Implicated	Section (or Activity) of NDC Implicated
	NDP 11- Sustainable Use of Natural Resources	Pillar One – Sustainable Economic Development and Pillar 2 – Sustainable Environment.	N/A

Strategic Intervention S18.3:
Prepare for and lay the foundation for the extremely high level of accounting integrity required under the UNFCCC's global transparency mechanism that will take stock of progress on NDCs every five years, by putting in place a rigorous, multi-sectoral greenhouse gas emissions monitoring, reporting, and verification system in compliance with UNFCCC standards (linked to the NDC 2030 target of 15% GHG reduction in absolute terms over the 2010 baseline).

Policy Goal to Be Realised:
"Develop a legal framework for emission trading and access to new and existing markets at national, regional, and international levels including the establishment of a cap-and-trade system for carbon where possible."

2020 Target:
Commence a multi-stakeholder process (including experts, government, private sector and industry) to design a greenhouse gas emissions monitoring, reporting, and verification system to measure NDC progress. Finalise design. Implement System.

2023 Target:
Report on the effectiveness and results from the implemented accounting integrity required under the UNFCCC's global transparency mechanism.

2026 Target:
Amend and refine the accounting integrity mechanism

2030 Target:
Prepare a feedback report on the lessons learned, challenges and recommendations for enhancing the accounting integrity mechanism.

Responsible Entity:
Mineral Resources, Green Technology and Energy Security

Key Collaborating Entities:
Ministry of Finance and Economic Development
Botswana Chamber of Mines
International Affairs and Cooperation
Business Botswana
Ministry of Investment Trade and Industry
Ministry of Environment, Natural Resources Conservation and Tourism (MENT)

Primary SDG Implicated	Primary NDP Goal Implicated	Primary Vision 2036 Pillar Implicated	Section (or Activity) of NDC Implicated
	NDP 11- Sustainable Use of Natural Resources	Pillar One – Sustainable Economic Development and Pillar 2 – Sustainable Environment.	N/A

5 Cross-cutting Themes

5.1 GENDER AND VULNERABLE PEOPLE

An estimated 70% of people living below the poverty line around the world are women (Spetz, n.d.). There is a robust relationship between climate variability, vulnerability, poverty and gender equity. To construct a persuasive dialogue and to outline innovative and specific solutions for Botswana, a local-level gender sensitive lens should be applied to the strategy and action plan. The national climate change strategy and action plan will devote special attention to gender equality and ensure that it serves the needs of women in Botswana, given that women represent a slightly more vulnerable segment of the population.

One of the areas where such vulnerability to climatic and natural resources aspects differs is in the household. According to the Botswana Population and Housing Census of 2011, the distribution of the population aged 12 years and over, divided by the economic activity, illustrated that only 59,859 males are homemakers when compared to 182,298 women. In rural areas, where climate change effects are felt more directly (Kolawole, et al., 2016), female-headed households are still less wealthy (Cassidy, 2009), making them more susceptible to the impacts of climate change (Flato, et al., 2017) because greater access to income and disposable wealth enables more economic resilience. In Botswana, women have traditionally had less access to and control over productive resources due to cultural norms regarding (for example) rights of inheritance and division of labour as well as socio-economic factors (Govt of Botswana 2014). Less access to resources reduces adaptive capacity to most shocks and stressors, including climatic impacts.

In Botswana there is a traditional saying that says “ke nyorilwe-Ke kopa sego as metsi’, which translates to ‘I am thirsty, I am here to ask for a water calabash’. This phrase is sometimes used when a man is asking woman for her hand in marriage. The phrase implies that in traditional communities and households, a woman/wife’s critical role is to make sure water is available for household use. Given the changing climate, inadequate access to water and degradation in water quality, women are more affected by the socio-cultural responsibility to be carriers and providers of water for their household (Rao, et al., 2017). This observation is also supported by an assessment report by the Gender Affairs Department of the Ministry of Labour and Home Affairs. The report demonstrated that climate change is a threat to gender equity and women’s development in Botswana (Ministry of Labour and Home Affairs, 2014). This is due to the expected impact of climate change on water scarcity and rainfall variability which will increase the labour required to collect, store and distribute household water: a role primarily filled by women.

The change in the climate not only affects access to water but also agricultural productivity. Here too, women have a key role to play. In Botswana, in 2010, more females owned arable land than males - 58% and 42% respectively (Ministry of Agriculture, 2010). In 2009, ISPAAD conducted an assessment which indicated that women in the ISPAAD programme invest more time and resources to contribute to food production at the household level as compared to men. For example, a study undertaken in Seronga (located in the wet land system) analysed the differentiated impacts of climate change and climate variability but with a gendered dimension (Omari, 2010). The study highlighted that climate variability has had a negative impact on arable farming as the yields from rain-fed agriculture have been low due to erratic, and unpredictable rains over the past years, and analysed that women have been more adversely affected by this as arable farming is a predominantly female activity (in contrast to livestock farming and herding, which is dominated by men).

Moreover, the common livelihood activities undertaken by women Seronga include pastoral agriculture, basket and grass collection and harvesting of veldt products. With the possibility of a drier climate and variable rainfall patterns, women are likely to be negatively impacted as it may lead to less opportunities for informal employment for harvesting veldt products, food security and income generation (Ministry of Labour and Home Affairs, 2014).

Another possible impact is the increase of the distribution of diseases such as malaria and cholera. Women, as the primary family caregivers in many communities, typically devote time to sick family members that they would otherwise spend in their fields, on other work or studying (Scherer, 2013). Indeed, in traditional households, women devote more time to maintenance tasks such as cooking and child-rearing and have greater dependency ratios in the household - as well as limited involvement in decision-making procedures (Nyagapfizi, n.d.), and such dependency and reduced autonomy also diminishes resilience to shocks and stressors (of which climate change is one). It also implies that the increased burden of caregiving that results from climate-driven public health impacts may fall disproportionately on female caregivers.

One additional element of distinction between resilience in women and men relates to access to information and involvement in decision-making. Men and women have different access to climate information and use and benefit from accessing climate services. Building climate resilience depends heavily on availability and access to adequate climate data. The information networks of female-headed households in Botswana are often smaller and less cohesive in comparison to male counterparts (Cassidy & Barnes, 2012), and, traditionally, local level leadership in some areas of Botswana is the preserve of men (Kgathi & Ngwenya, 2011). Thus, efforts to enhance access to climate services and information should consider particular emphasis on women as beneficiaries.

At the same time, women can be extremely influential drivers of climate change resilience. A number of studies have demonstrated that women's greater participation in co-creating climate change solutions is likely to enhance the sustainability of such efforts, and that drawing on women's experiences, knowledge and skills and supporting their empowerment makes climate change responses more effective (UNDP, 2013). Women have their own support networks (cf matshelo groups) and their own communications channels (Wojcik, 2011) that can be explicitly and directly tapped to ensure engagement and participation of women, and inclusion of women's issues.

It thus becomes important for the draft strategy to adopt a perspective that accords special protection to women, and also creates opportunities for women to be drivers of climate change response in Botswana. This would be reflective of the sentiment behind Botswana's own progressive measures on gender, including the National Policy on Gender and Development of 2015, Vision 2036, several clauses in NDP 11, and the setting up of the National Gender Commission in 2016. This is also consistent with SDG 5 – achieve gender equality and empower all women and girls

5.1.1 GENDER BASED STRATEGIES

Strategic Intervention S19.1:
Develop a national Climate Change Gender Action Plan[7] (ccGAP), with an emphasis on women as drivers of climate resilience, and women's role in water and energy and healthcare provision in households.

Policy Goal to Be Realised:
Mainstream gender into development planning intends to ensure that climate change response measures are gender sensitive particularly the recognition of women, children and people living with disability vulnerability to climate change impacts

2020 Target:
Adoption of first national ccGAP after its development with support from UN Women and other relevant expert groups.

2023 Target:
Projects identified under the ccGAP are actively being undertaken

2026 Target:
National ccGAP routinely implemented and updated.

2030 Target:
National ccGAP routinely implemented and updated.

Responsible Entity:
Department of Gender Affairs

Key Collaborating Entities:
UN Women
MENT
Sectoral Ministries

Primary SDG Implicated	Primary NDP Goal Implicated	Primary Vision 2036 Pillar Implicated	Section (or Activity) of NDC Implicated
	NDP 11 – Social Capital and Human Capital Development.	PILLAR 2 – Human and Social Development	N/A.

Strategic Intervention S19.2:
Promote equitable participation of women farmers and female-headed households in Climate Smart Agriculture (CSA) programmes, agritourism, and access to conservation agriculture technologies.

Policy Goal to Be Realised:
Adoption of strategies that are targeted at increasing resilience of most vulnerable groups such as women, children and people living with disability to climate change impacts through provision of means of implementation such as technologies, finance and capacity building.

2020 Target:
CSA, agritourism, and conservation technology support programmes **updated to** include actions for targeting women farmers.

2023 Target:
Climate-related agricultural projects that directly focus on women farmers are in place. Participation in CSA programmes, agritourism, and adoption of conservation technologies includes equitable representation of women and men.

2026 Target:
Participation in CSA programmes, agritourism, and adoption of conservation technologies includes equitable representation of women and men.

2030 Target:
Participation in CSA programmes, agritourism, and adoption of conservation technologies includes equitable representation of women and men.

Responsible Entity:
Ministry of Agricultural Development and Food Security

Key Collaborating Entities:
Gender Affairs Department,
Ministry of Labour and Home Affairs
The National Strategy Office

Primary SDG Implicated	Primary NDP Goal Implicated	Primary Vision 2036 Pillar Implicated	Section (or Activity) of NDC Implicated
	NDP 11 – Social Capital and Human Capital Development.	PILLAR 2 – Human and Social Development	N/A.

[7] http://genderandenvironment.org/works/ccgaps/

Strategic Intervention S19.3:
Ensure equitable gender access to the proposed endowment fund providing low-cost finance to climate change adaptation projects, aligned to existing similar projects.

Policy Goal to Be Realised:
Empowering communities especially women and youth to actively participate in the implementation of climate change response measures at both rural and urban areas.

2020 Target:
Ensure that the endowment fund model explicitly incorporates gender equity in its disbursement principles.

2023 Target:
Specific calls for proposals that target women's groups are established.

2026 Target:
Men and women benefit equitably from funding for climate change adaptation projects.

2030 Target:
Men and women benefit equitably from funding for climate change adaptation projects.

Responsible Entity:
Ministry of Environment, Natural Resources Conservation and Tourism (MENT)

Key Collaborating Entities:
Gender Affairs Department,
Ministry of Labour and Home Affairs
The National Strategy Office

Primary SDG Implicated	Primary NDP Goal Implicated	Primary Vision 2036 Pillar Implicated	Section (or Activity) of NDC Implicated
	NDP 11 – Social Capital and Human Capital Development.	PILLAR 2 – Human and Social Development	N/A.

Strategic Intervention S19.4:
Ensure that women's voices are included in natural resources management through their equitable participation in CBNRM processes.

Policy Goal to Be Realised:
Empowering communities especially women and youth to actively participate in the implementation of climate change response measures at both rural and urban areas.

2020 Target:
Ensure that the gender equity is made explicit in the mandates of the CBNRM and that constitutional documents include a provision for equal gender representation on the executive body of the collective.

2023 Target:
Women and men participate equitably in CBNRM management decisions

2026 Target:
The interests and needs of both women and men are equitably accommodated in CBNRM decisions.

2030 Target:
The interests and needs of both women and men are equitably accommodated in CBNRM decisions.

Responsible Entity:
Ministry of Environment, Natural Resources Conservation and Tourism (MENT)

Key Collaborating Entities:
Ministry of Local Government and Rural Development
Ministry of Agricultural Development and Food Security
The National Strategy Office

Primary SDG Implicated	Primary NDP Goal Implicated	Primary Vision 2036 Pillar Implicated	Section (or Activity) of NDC Implicated
	NDP 11 – Social Capital and Human Capital Development.	Pillar 2 – Human and Social Development and Pillar 3 – Sustainable Environment	N/A.

Strategic Intervention S19.5:
Ensure that gendered differences of climate change are mainstreamed into climate change education.

Policy Goal to Be Realised:
Include gender and climate change into academic curriculum at all levels.

2020 Target:
Ensure the curriculum assessments for determining content needs include gender aspects.

2023 Target:
All new curricula materials include components on gender and climate change, and that teachers are trained on gender issues.

2026 Target:
All new curricula materials include components on gender and climate change, and that teachers are trained on gender issues.

2030 Target:
All new curricula materials include components on gender and climate change, and that teachers are trained on gender issues.

Responsible Entity:
Ministry of Tertiary Education, Research, Science and Technology

Key Collaborating Entities:
Ministry of Basic Education
Gender Affairs Department

Primary SDG Implicated	Primary NDP Goal Implicated	Primary Vision 2036 Pillar Implicated	Section (or Activity) of NDC Implicated
	NDP 11 – Social Capital and Human Capital Development	Pillar 2 – Human and Social Development	N/A

Strategic Intervention S19.6:
Ensure the full participation of women and female-headed households in disaster management public gatherings, to address both the higher vulnerability of women and children, and to plan for the higher post-disaster burden placed on women due to their dual roles as producers and carers.

Policy Goal to Be Realised:
Adoption of strategies that are targeted at increasing resilience of most vulnerable groups such as women, children and people living with disability to climate change impacts through provision of means of implementation such as technologies, finance and capacity building.

2020 Target:
The NDMO actively targets women's groups for invitation to and participation in regional gatherings and information dissemination exercises.

2023 Target:
Women are equal participants in yearly disaster management public gatherings.

2026 Target:
Women are equal participants in yearly disaster management public gatherings.

2030 Target:
Women are equal participants in yearly disaster management public gatherings.

Responsible Entity:
Office of the President

Key Collaborating Entities:
Ministry of Environment, Natural Resources Conservation and Tourism (MENT)
Gender Affairs Department

Primary SDG Implicated	Primary NDP Goal Implicated	Primary Vision 2036 Pillar Implicated	Section (or Activity) of NDC Implicated
	NDP 11 – Social Capital and Human Capital Development	Pillar 2 – Human and Social Development	N/A.

5.2 EDUCATION, TRAINING, AND CAPACITY BUILDING

For the success of Botswana's draft national climate change response policy and this strategy and action plan, it is imperative that significant attention (and commensurate resources) be devoted to the educational support, training, and capacity building interventions that are needed. Climate change is still a relatively new concept within policy and administrative circles in Botswana, and there is nascent understanding about how to integrate climate change response into governance.

Stakeholders have recognized education, training, and capacity building as a crucial cross-cutting theme and have lent support to the following suggested strategic interventions (note that this strategy also addresses the need for research and development under section 5.4 Strategies on research are complementary to strategies on education, training and capacity building, but are distinct in character. Therefore, research should not be conflated with the strategic guidance provided in this section on education, training, and capacity building).

5.2.1 STRATEGIES FOR EDUCATION, TRAINING AND CAPACITY BUILDING

Strategic Intervention S20.1:
National educational curriculum at all levels (primary, secondary and tertiary as well as including professional and technical education) shall be revised and updated to include (distinct from existing environmental education) a study of climate change causes, impacts, responses, and solutions, and a focus on both mitigation and adaptation as core curricula.

Policy Goal to Be Realised:
'Ensure inclusion of climate change related subject matter into curricula and training throughout all sectors in Botswana.'[8]

2020 Target: Scan all school curricula to determine what needs to be developed (per subject and year level) in order to include a study of climate change causes, impacts, responses, and solutions, and a focus on both mitigation and adaptation. Define how and in what order new material will be incorporated into existing and new curricula materials. Inform all relevant stakeholders in the process of creation of curricula materials of new content. Creation of teacher training around new content.

2023 Target: All new curricula materials to include new content and all teachers to have been trained on new content.

2026 Target: All new curricula materials to include new content and all teachers to have been trained on new content.

2030 Target: All new curricula materials to include new content and all teachers to have been trained on new content.

Responsible Entity: Ministry of Tertiary Education, Research, Science and Technology

Key Collaborating Entities:
Ministry of Basic Education
Vocational Institutes and Universities
Ministry of Environment, Natural Resources Conservation and Tourism (MENT)
The National Strategy Office

Primary SDG Implicated	Primary NDP Goal Implicated	Primary Vision 2036 Pillar Implicated	Section (or Activity) of NDC Implicated
	NDP 11 – Social development and human capital development.	Pillar Two - Human and Social Development.	N/A.

Strategic Intervention S20.2:
Training modules and knowledge-transfer workshops shall be developed and conducted annually across all spheres of government to strengthen understanding of climate change through continuing education.

Policy Goal to Be Realised:
'*Ensure inclusion of climate change related subject matter into curricula and training throughout all sectors in Botswana.'*

2020 Target:
Training modules to be created by qualified individuals/institutions. Training roll out plan created. Training commences.

2023 Target: Training ongoing.

2026 Target: Training ongoing.

2030 Target: Training ongoing.

Responsible Entity: Ministry of Environment, Natural Resources Conservation and Tourism (MENT)

Key Collaborating Entities:
All Ministries.

Primary SDG Implicated	Primary NDP Goal Implicated	Primary Vision 2036 Pillar Implicated	Section (or Activity) of NDC Implicated
	NDP 11 – Social development and human capital development.	Pillar Two - Human and Social Development.	N/A.

[8] Education, Training, and Capacity Building are not included in the sectors identified by the draft national climate change response policy however, expanding understanding of climate change and its effects are key to overcoming the challenged posed by climate change, and as such, are included in this strategy.

5.3 ECONOMIC EQUALITY AND EQUITY

Growing inequality in Botswana is a key national challenge and has implications for climate change response. Individuals, households, and communities with limited access to resources (financial capital, physical capital and assets, as well as social capital) have less wherewithal to respond adequately to shocks and stresses like climate change.

Stakeholders have emphasized that climate change response in Botswana should disaggregate marginalised groups and direct individual attention to minorities, children, youth, the elderly, those suffering mental health challenges, people living with disability, and other socially vulnerable categories of citizens.

The draft climate change policy notes, under social considerations, that the response measures shall be employed in a manner that results in social transformation and does not result in a decline in living standards.

In light of the above, the following strategic interventions are suggested.

5.3.1 STRATEGIES FOR ECONOMIC EQUALITY AND EQUITY

Strategic Intervention S21.1:
The revised and updated national school curriculum to be developed shall include discussions of how climate change affects different social groups distinctly, and how vulnerability as well as adaptive capacity varies amongst women, children, youth, minorities, the elderly, mental health patients, and other vulnerable groups.

Policy Goal to Be Realised:
Ensure economic equity and equality in the face of threats posed by climate change[9].

2020 Target: Scan all school curricula to determine what needs to be developed (per subject and year level) in order to include a study of how climate change affects different social groups distinctly, and how vulnerability as well as adaptive capacity varies amongst women, children, youth, minorities, the elderly, mental health patients, and other vulnerable groups. Define how and in what order new material will be incorporated into existing and new curricula materials. Inform all relevant stakeholders in the process of creation of curricula materials of new content. Creation of teacher training around new content.

2023 Target: All new curricula materials to include new content and all teachers to have been trained on new content.

2026 Target: All new curricula materials to include new content and all teachers to have been trained on new content.

2030 Target: All new curricula materials to include new content and all teachers to have been trained on new content.

Responsible Entity: Ministry of Tertiary Education, Research, Science and Technology

Key Collaborating Entities:
Ministry of Basic Education
Ministry of Environment, Natural Resources Conservation and Tourism (MENT)

Primary SDG Implicated	Primary NDP Goal Implicated	Primary Vision 2036 Pillar Implicated	Section (or Activity) of NDC Implicated
	NDP 11 – Social development and human capital development.	Pillar Two - Human and Social Development.	N/A.

Strategic Intervention S21.2:
All sectors shall make special allocation of resources, within the overall programme or project budget, for climate change activities to devote to enhancing the involvement of specific groups of beneficiaries. The beneficiary allocation will be disaggregated into specific amounts targeting women, children, youth, minorities, the elderly, mental health patients, and other vulnerable groups.

Policy Goal to Be Realised:
Ensure economic equity and equality in the face of threats posed by climate change.

2020 Target:
All sectors and levels of government to be informed of need for new budgeting allocations to ensure that special allocation of resources is made to devote to enhancing the involvement of specific groups of beneficiaries. Relevant individuals to meet in each sector to define allocation and disaggregation of amounts and (if necessary) specific allocation and access pathways.

2023 Target: Budgets to include special allocations.

2026 Target: Budgets to include special allocations.

2030 Target: Budgets to include special allocations.

Responsible Entity: Ministry of Environment, Natural Resources Conservation and Tourism (MENT)

Key Collaborating Entities:
All Ministries.

Primary SDG Implicated	Primary NDP Goal Implicated	Primary Vision 2036 Pillar Implicated	Section (or Activity) of NDC Implicated
	NDP 11 – Social development and human capital development.	Pillar Two - Human and Social Development.	N/A.

[9] Economic Equality and Equity are not included in the sectors identified by the draft national climate change response policy but remain key national economic concerns and as such are included in this strategy.

5.4 INNOVATION, RESEARCH AND DEVELOPMENT

Climate change is a scientific phenomenon, instigated by political, socio-cultural, economic, and financial elements. For Botswana to ensure that it adopts an evidence-based approach to tackling these diverse aspects of climate change, it is imperative that research and development as well as innovation should be treated as national strategic priorities.

In this spirit, Botswana's draft national climate change response policy affirms that Botswana is "committed to allocating resources for climate change research and for collaboration with institutions of learning at national, regional, and international levels to promote adaptation and mitigation related research." The draft policy also points to the need for a "robust research agenda that focuses on quantitative and qualitative research, enhancement of predictability, vulnerabilities, impacts, and sustainable societal adaptation strategies."

This commitment to strong research is evidenced in the sectoral climate change studies Botswana has commissioned for its Third National Communication (TNC) to the UNFCCC. However, with national communications only generated every four years (and in reality, over longer intervals), it is important that Botswana should make a commitment to producing consistent, ongoing, and timely research on climate change. In particular, the country needs to fill gaps in some sectors to bring the knowledge-base on sectoral climate change impacts and solutions up to par with other sectors. This is because across different sectors, there are varying levels of existing research. For instance, there is a greater volume of peer-reviewed climate change literature from Botswana on the agriculture and water sectors, than there is on climate change impacts on biodiversity, forestry and land use sectors, human health, on industry and manufacturing, or infrastructure.

5.4.1 STRATEGIES RECOMMENDED FOR INNOVATION AND R&D

Strategic Intervention S22.1:
Establish publicly funded grants for climate change research – focused on both adaptation and mitigation – for each of the sectors covered by the national climate change strategy and action plan and stipulating that the majority of such grant funding would be disbursed to research institutions located within Botswana.

Policy Goal to Be Realised:
Botswana should be equipped with robust and reliable knowledge on climate change impacts and solutions and be able to make evidence-based decisions on climate change in the public and private sectors.

2020 Target:
Establishment of body or identification of pre-existing body to manage and deliver grants. Create grant forms, sizes and criteria. Identify multi-year climate change research focus. First grants delivered.

2023 Target:
Research projects underway and first projects published.

2026 Target:
Research projects underway and first projects published.

2030 Target:
Research projects underway and ongoing projects funded.

Responsible Entity:
Ministry of Environment, Natural Resources Conservation and Tourism (MENT)

Key Collaborating Entities:
Ministry of Mineral Resources, Green Technology and Energy Security
Tertiary Education, Research, Science and Technology
Research Institutes
Higher Education Institutes
The National Strategy Office

Primary SDG Implicated	Primary NDP Goal Implicated	Primary Vision 2036 Pillar Implicated	Primary NDP Goal Implicated
	NDP 11 – Social development and human capital development.	Pillar Two - Human and Social Development.	NDP 11 – Social development and human capital development.

Strategic Intervention S22.2:
Set up a Climate Innovation Center (CIC) or a Climate Innovation Hub (CIH) to support the generation and growth of climate-compatible business models by providing business incubation, business acceleration, and market access guidance and tools to micro, small, and medium enterprises.

Policy Goal to Be Realised:
Botswana should leverage the entrepreneurial spirit of its people to harness climate change related innovation on adaptation and mitigation and develop cost-effective home-grown climate solutions.

2020 Target:
CIC/CIH created and ratified. Funding provided to support CIC/CIH. Key programmes/tools/services created. Publication material produced and distributed nationally including via radio campaign.

2023 Target:
Businesses being served by CIC/CIH. Growth of centre to ensure access to micro and rural businesses.

2026 Target:
Businesses being served by CIC/CIH. Growth of centre to ensure access to micro and rural businesses.

2030 Target:
Businesses being served by CIC/CIH. Growth of centre to ensure access to micro and rural businesses.

Responsible Entity:
Ministry of Environment, Natural Resources Conservation and Tourism (MENT)

Key Collaborating Entities:
Ministry of Mineral Resources, Green Technology and Energy Security
Tertiary Education, Research, Science and Technology
Research Institutes
Higher Education Institutes
Ministry of Investment, Trade and Industry
The National Strategy Office

Primary SDG Implicated	Primary NDP Goal Implicated	Primary Vision 2036 Pillar Implicated	Primary NDP Goal Implicated
	NDP 11 – Social development and human capital development.	Pillar Two - Human and Social Development.	NDP 11 – Social development and human capital development.

Strategic Intervention S22.3:
Establish government support mechanisms through the CIC that enable private sector companies to access climate funds such as the GCF as well as partner with development entities such as JICA, the AfDB etc.

Policy Goal to Be Realised:
Botswana should leverage the entrepreneurial spirit of its people to harness climate change related innovation on adaptation and mitigation and develop cost-effective home-grown climate solutions.

2020 Target:
CIC to create private sector support pathway specifically for large private entities to access funds and/or partner with development agencies.

2023 Target:
Businesses being served by CIC/CIH. Funds and linkages successfully created through the CIC.

2026 Target:
Businesses being served by CIC/CIH. Funds and linkages successfully created through the CIC.

2030 Target:
Businesses being served by CIC/CIH. Funds and linkages successfully created through the CIC.

Responsible Entity:
Ministry of Environment, Natural Resources Conservation and Tourism (MENT)

Key Collaborating Entities:
Ministry of Mineral Resources, Green Technology and Energy Security
Tertiary Education, Research, Science and Technology
Research Institutes
Higher Education Institutes
Ministry of Investment, Trade and Industry
The National Strategy Office

Primary SDG Implicated	Primary NDP Goal Implicated	Primary Vision 2036 Pillar Implicated	Primary NDP Goal Implicated
	NDP 11 – Social development and human capital development.	Pillar Two - Human and Social Development.	NDP 11 – Social development and human capital development.

Strategic Intervention S22.4:
Ensure the incorporation and utilisation of indigenous knowledge systems in all relevant climate change activities.

Policy Goal to Be Realised:
The government will also develop climate change research strategy as a cross sectoral mechanism that will ensure that climate change elements are added into formal, informal and non-formal sectors of education and training as a scare skill. This strategy will assist in exploring and utilizing indigenous knowledge and technical expertise in decision making mechanisms.

2020 Target:
Indigenous knowledge systems to be added into all relevant climate planning documents, policies, and programmes.

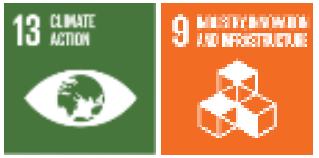
2023 Target:
Indigenous knowledge systems incorporated and utilised wherever appropriate.

2026 Target:
Indigenous knowledge systems incorporated and utilised wherever appropriate.

2030 Target:
Indigenous knowledge systems incorporated and utilised wherever appropriate.

Responsible Entity:
Ministry of Environment, Natural Resources Conservation and Tourism (MENT)

Key Collaborating Entities:
All Ministries.

Primary SDG Implicated	Primary NDP Goal Implicated	Primary Vision 2036 Pillar Implicated	Primary NDP Goal Implicated
	NDP 11 – Social development and human capital development.	Pillar Two - Human and Social Development.	NDP 11 – Social development and human capital development.

5.5 COMMUNICATION AND KNOWLEDGE MANAGEMENT

The sustainability and level of success of national policies and strategies are vastly improved when the public provides buy-in to the instruments. Moreover, public participation in the implementation of the strategic activities is necessary to achieve results at scale. The desired level of engagement is not possible without adequate communication and knowledge management - both about the core issue at stake, i.e. climate change, as well as about the import and benefits of the policy and strategy. As of yet, there is no outlined and co-ordinated climate change communication strategy, therefore, this section of the document provides direction on communication and knowledge management. Reflecting stakeholder input on this matter, suggested strategic interventions in this realm are as follows.

5.5.1 STRATEGIES FOR COMMUNICATION AND KNOWLEDGE MANAGEMENT

Strategic Intervention S23.1:
Create and implement a Climate Change communication and knowledge management strategy in order to enable the effective communication of climate change information between all relevant parties and Batswana.

2020 Target:
Multi-sector engagement undertaken in order to create the Climate Change Communication and Media Strategy. Strategy created, and implementation commenced.

2023 Target:
Strategy operational.

2026 Target:
Strategy operational.

2030 Target:
Strategy operational.

Responsible Entity:
Ministry of Environment, Natural Resources Conservation and Tourism (MENT)

Key Collaborating Entities:
Ministry of Transport and Communications
National and Local Media Outlets
Private Sector
The National Strategy Office

Primary SDG Implicated	Primary NDP Goal Implicated	Primary Vision 2036 Pillar Implicated	Section (or Activity) of NDC Implicated
	NDP 11 – Social development and human capital development.	Pillar Two - Human and Social Development.	N/A.

Strategic Intervention S23.2:
Media grants and incentives shall be provided to print and broadcast media platforms to increase content on and dissemination of credible information on climate change.

Policy Goal to Be Realised:
Ensure knowledge concerning climate change is accessible, well managed and communicated throughout all sectors.[10]

2020 Target: Climate Change Communication and Media Body created and ratified responsible for overall management and content inclusion process. Budget to be allocated towards climate change communication grant pot. Grants to be created in differing sizes and with differing access criteria.

2023 Target: Body created and ratified. Funds available and well promoted nationally. Uptake by different forms of media production entities

2026 Target: Funds available and well promoted nationally. Uptake by different forms of media production entities.

2030 Target: Funds available and well promoted nationally. Uptake by different forms of media production entities.

Responsible Entity: Ministry of Transport and Communications

Key Collaborating Entities:
Media producers
Media outlets (including Televised media, radio, theatre etc)
Ministry of Mineral Resources, Green Technology and Energy Security
Tertiary Education, Research, Science and Technology
Ministry of Youth Empowerment, Sport and Culture Development
The National Strategy Office

Primary SDG Implicated	Primary NDP Goal Implicated	Primary Vision 2036 Pillar Implicated	Section (or Activity) of NDC Implicated
	NDP 11 – Social development and human capital development.	Pillar Two - Human and Social Development.	N/A.

[10] Communication and Knowledge Management are not included in the sectors identified by the draft national climate change response policy but remain crucial for a well informed and co-ordinated approach to tackling climate change.

Strategic Intervention S23.3: **Community groups, youth groups, NGOs, civil society, and the private sector will be engaged regularly through climate change forums, town halls, and panel discussions to enhance the dialogue on climate change in Botswana with an added focus on learning from and supporting indigenous knowledge systems.**			
Policy Goal to Be Realised: *Ensure knowledge concerning climate change is accessible, well managed and communicated throughout all sectors.*			
2020 Target: Climate Change Communication and Media Body created and ratified responsible for overall management and content inclusion process. Community engagement process and timelines developed.			
2023 Target: Programme underway.			
2026 Target: Programme underway.			
2030 Target: Programme ongoing.			
Responsible Entity: Ministry of Environment, Natural Resources Conservation and Tourism (MENT)			
Key Collaborating Entities: Ministry of Local Government and Rural Development Ministry of Youth Empowerment, Sport and Culture Development Ministry of Transport and Communications Ministry of Mineral Resources, Green Technology and Energy Security The National Strategy Office			
Primary SDG Implicated 	**Primary NDP Goal Implicated** NDP 11 – Social development and human capital development.	**Primary Vision 2036 Pillar Implicated** Pillar Two - Human and Social Development.	**Section (or Activity) of NDC Implicated** N/A.

5.6 CLIMATE SERVICES

Actionable information sits at the heart of decision-making and is even more critical for decision-making in the face of the types of uncertainties created by climate change. In Botswana, government ministries working to build climate change resilience, reduce climate change vulnerability, and pursue climate-compatible development need more decision-relevant climate information. The same needs are felt by communities working to be better prepared for and better respond to climatic hazards, and to improve their personal safety as well as to safeguard their livelihoods against climate change and climate variability.

In order to be effective, climate information must be conveyed in ways that allow the target audience to easily understand key messages, and grasp what their response should be. To prioritize the well-being of its citizens and its productive economic activities against climatic hazards, Botswana must integrate the use of improved climate services across all sectors.

Therefore, this strategy provides direction on climate services as a cross-cutting theme, to ensure that climate services are designed for, developed for, tailored towards, and disseminated effectively to all sectors. Reflecting stakeholder input on this matter, suggested strategic interventions on this issue are as follows.

5.5.2 SRATEGIES FOR CLIMATE SERVICES

Strategic Intervention S24.1:
Finalize, adopt, and bring into effect the National Framework for Climate Services (NFCS)

Policy Goal to Be Realised:
"Continued research and promotion of use of information on climate change, plus early warning systems for extreme weather and climate, to inform disaster risk reduction plans and allocation of resources."

2020 Target:
Finalize, adopt, and bring into effect the National Framework for Climate Services (NFCS).

2023 Target:
NFCS fully operational.

2026 Target:
NFCS fully operational.

2030 Target:
NFCS operational and periodically revised and updated.

Responsible Entity:
Ministry of Environment, Natural Resources Conservation and Tourism (MENT)

Key Collaborating Entities:
Ministry of Agricultural Development and Food Security
Ministry of Local Government and Rural Development
National Early Warning Technical Committee (EWTC)
Inter-Ministerial Drought Committee
The National Strategy Office

Primary SDG Implicated	Primary NDP Goal Implicated	Primary Vision 2036 Pillar Implicated	Section (or Activity) of NDC Implicated
	NDP 11 – Sustainable use of natural resources.	Pillar Three – Sustainable Environment.	N/A.

Strategic Intervention S24.2:
With contemporary climate services technologies in place, identify and incubate revenue-generating opportunities through tailored weather and climate information products within Botswana.

Policy Goal to Be Realised:
"Continued research and promotion of use of information on climate change, plus early warning systems for extreme weather and climate, to inform disaster risk reduction plans and allocation of resources."

2020 Target:
Conduct an analysis to best understand relevant and viable revenue-generating opportunities through tailored weather and climate information products. Identify best products for development. Identify pathways and entities for development of these products and create development plans. Start product development.

2023 Target:
Successful development of products with proven uptake and frequent reporting on learnings.

2026 Target:
Original products strengthened and replicated, and new products being developed.

2030 Target:
Original products strengthened and replicated, and new products being developed.

Responsible Entity:
Ministry of Environment, Natural Resources Conservation and Tourism (MENT)

Key Collaborating Entities:
Ministry of Local Government and Rural Development
Ministry of Mineral Resources, Green Technology and Energy Security
Ministry of Investment, Trade and Industry
National Early Warning Technical Committee (EWTC)
Inter-Ministerial Drought Committee
The National Strategy Office

Primary SDG Implicated	Primary NDP Goal Implicated	Primary Vision 2036 Pillar Implicated	Section (or Activity) of NDC Implicated
	NDP 11 – Sustainable use of natural resources.	Pillar Three – Sustainable Environment.	N/A.

Strategic Intervention S24.3:
Develop sector-specific climate services products for all major sectors in Botswana, ensuring that the unique needs of stakeholders in each sector are catered to in terms of the type of climate information they need and the decisions they use such climate information for.

Policy Goal to Be Realised:
Ensure climate related data and information is accessible, well managed and communicated throughout all sectors in actionable and decision-ready ways.[11]

2020 Target: Baseline needs assessment completed to identify the unique, specific, and priority climate services needs of all major sectors in Botswana.

2023 Target: Department of Meteorological Services (DMS) to undergo capacity strengthening and training to help transition from a data analysis and distribution institution to a client-oriented, climate services body technically equipped to develop and provide bespoke and targeted climate services and meet different audiences' needs.

2026 Target: Full range of tailored, client-specific (sector-specific) climate services developed and disseminated on a regular and ongoing basis.

2030 Target: Full range of tailored, client-specific (sector-specific) climate services developed and disseminated, including with next-generation improvements and iterations.

Responsible Entity: Ministry of Environment, Natural Resources Conservation, and Tourism (MENT)

Key Collaborating Entities:
All other Ministries
The National Strategy Office
Private sector climate services developers and operators in Botswana
Farmers' Associations
Community Disaster Management committees and groups

Primary SDG Implicated	Primary NDP Goal Implicated	Primary Vision 2036 Pillar Implicated	Section (or Activity) of NDC Implicated
	NDP 11 – Sustainable use of natural resources.	Pillar Three – Sustainable Environment.	N/A.

Strategic Intervention S24.4:
Train a number of officials and technical specialists in every Ministry in Botswana to effectively develop requests for sector-specific climate services from DMS, coordinate with DMS on access to such climate services, and interpret the climate services products delivered to gauge what the implications for the sector are.

Policy Goal to Be Realised:
Ensure climate related data and information is accessible, well managed and communicated throughout all sectors in actionable and decision-ready ways.

2020 Target: Identification exercise completed to pinpoint the specific officials (in terms of roles and titles and mandates) in each Ministry who would receive training as climate services users.

2023 Target: Training completed to equip certain officials from each ministry to become coordinators and focal points for climate services within their ministry, to liaise with DMS and to seek out, utilize, and determine appropriate action based on climate information.

2026 Target: Full range of tailored, client-specific (sector-specific) climate services received, accessed, and utilized on a regular and ongoing basis by all ministries.

2030 Target: Full range of tailored, client-specific (sector-specific) climate services received, accessed, and utilized on a regular and ongoing basis by all ministries.

Responsible Entity: Department pf Meteorological Services (DMS)

Key Collaborating Entities:
Ministry of Environment, Natural Resources Conservation, and Tourism (MENT)
All other Ministries
The National Strategy Office
Private sector climate services developers and operators in Botswana
Farmers' Associations
Community Disaster Management committees and groups

Primary SDG Implicated	Primary NDP Goal Implicated	Primary Vision 2036 Pillar Implicated	Section (or Activity) of NDC Implicated
	NDP 11 – Sustainable use of natural resources.	Pillar Three – Sustainable Environment.	N/A.

[11] Climate services is not included in the sectors identified by the draft national climate change response policy but remain crucial as a cross-cutting themes for a well informed and co-ordinated approach to tackling climate change. (**Same for S24.4**).

6 Governance, Coordination, and Institutional Arrangements

As a middle-income country with a well-performing educational system, Botswana's governance architecture is characterised by moderate levels of institutional capacity. Individual ministries and departments are often staffed by qualified and trained individuals who are well-versed in issues relating to their sector. However, an aspect that merits strengthening is inter-sectoral coordination and joint efforts across multiple government agencies. Botswana is already working towards such inter-sectoral governance, through its grouping of Ministries into thematic working groups. Additionally, the establishment of the National Strategy Office (NSO) is another key step towards greater coordination and alignment between sectoral initiatives. Nevertheless, there remains a need for more multi-sectoral and inter-ministerial approaches to the implementation of strategic programmes and projects.

This is especially true of interventions that are aimed at climate change adaptation and mitigation. Climate change is interdisciplinary and therefore requires an inter-sectoral approach, with both mitigation and adaptation efforts having multi-sectoral elements and overlaps. Yet, Botswana is one of the few SADC countries without an approved national climate change policy or strategy in place. It is also lagging behind in its development of a National Adaptation Plan (NAP) to submit to the UNFCCC. Compared to most of SADC and East Africa, Botswana does not yet have a formal portfolio ("investment plan") of investment-ready climate change related programmes, and thus does not have a comparable pipeline of Green Climate Fund proposals.

The current governance of climate change is driven out of the Ministry of Environment, Natural Resources Conservation, and Tourism (MENT), with high level oversight by the Parliamentary Portfolio Committee on Wildlife, Tourism, Natural Resources, and Climate Change. The focal point for implementation is the Department of Meteorological Services (DMS), which functions under MENT.

Figure 1 below represents the current institutional arrangement for actively co-ordinating climate change response activities in Botswana.

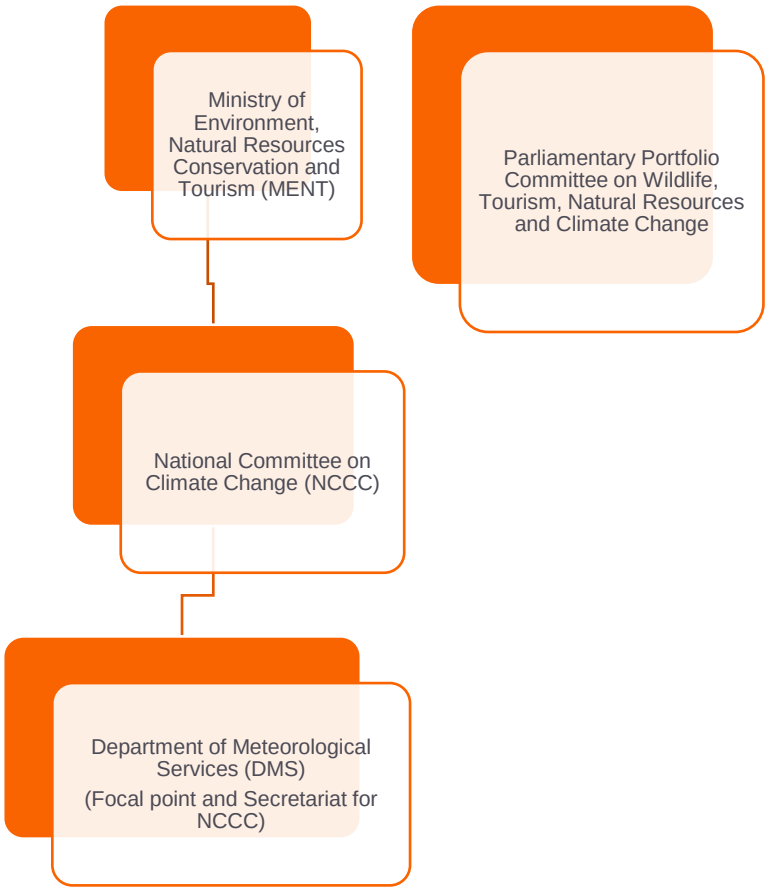


Figure 1 Current institutional arrangement for coordinating Climate Change in Botswana

Under the current institutional structure, climate change is cascaded to local levels through existing structures such as District Development Committees (DDCs). These committees are not solely for climate change; however, they offer opportunities for climate change to be considered as development planning takes place. Awareness and education are still needed in these various committees to effectively mainstream climate change into planning at the different scales. A proper monitoring and evaluation system is also required to track climate change initiatives implemented by the different sectors at different levels of governance.

While some sectors in Botswana have already taken initial steps towards identifying sector climate change vulnerabilities and risks, or identifying major sources of emissions, there remain sectors that have not been early movers on climate change adaptation or mitigation and thus need to catch up. Even the efforts that have taken place till date appear to have occurred in a somewhat ad-hoc, piece-meal manner, through siloed, sector-specific channels. This is natural in the absence of a coherent national policy that provides a shared vision and an overarching national strategy that creates a multi-sectoral, coordinated approach across ministries and departments.

As climate change is a systemic challenge arising from a complex interaction of factors, it must also be addressed consistently system-wide. This is because activities in one sector of the economy could exacerbate detrimental impacts of climate change in other sectors. As a corollary, climate change resilience in any one sector could, if well integrated with other sectors and well designed to avoid unintended maladaptation elsewhere, have co-benefits in other sectors and create a positive, system-wide ripple effect of climate change adaptation. The same is true of an economy-wide approach to mitigation and GHG reduction.

Thus, there is a need for a more cross-sectoral, systemic approach to climate resilience in Botswana. This could be catalysed by ensuring that climate change response interventions are designed and implemented in ways that account for inter-sectoral linkages between sectors, and which leverage adaptation or mitigation work taking place in one part of the economy to strengthen efforts in another.

There is benefit, therefore, to shaping institutional arrangements for the implementation of the strategy in a way to enhance inter-sectoral coordination.

The draft national policy points in the same direction and suggests specific institutional arrangements for climate change response in Botswana. With the addition of stakeholder input at multiple stages of development of this strategy, these arrangements and coordination mechanisms are presented below. **Even in the new suggested architecture, the core hub of climate change governance remains within the Department of Meteorological Services (DMS), at MENT. This central actor would be the National Climate Change Implementing Unit**, but it would function within an ecosystem of several other relevant entities that will improve cross-sectoral and geographic coordination and implementation of climate change activities, as below.

Parliamentary Portfolio Committee on Wildlife, Tourism, Natural Resources, and Climate Change

An existing national body structured and mandated to provide parliamentary oversight and facilitate an enabling environment for climate change response.

National Transformation Agency

A new institution that will develop, guide, and oversee the implementation of Botswana's National Transformation Strategy (NTS), a strategy proposed by Vision 2036. The NTS must integrate climate change throughout it and make climate change resilience and low carbon growth one of its central pillars. According to Vision 2036, the NTS will act as a framework for fully coordinated and aligned sector strategies and national strategies (such as this climate change strategy), in both the public and private sector, and at the national and local levels. Thus, it could be presumed that the composition of the National Transformation Agency will also reflect these different sectors and governance levels. The focus of the NTS and the agency will be on long-term national needs rather than short-term interests. The objectives of the NTS will be given effect through National Development Plans, District Development Plans, and Urban Development Plans.

National Strategy Office

An existing institution that is responsible for overseeing and managing Botswana's excellence strategy and for inter-ministerial coordination of key national strategies. The NSO currently hosts the secretariat of the High-Level Consultative Council (HLCC) and the Economic Advisory Council (EAC) and facilitates information exchange between ministries on progress made on strategy implementation. The NSO can act as a crucial link between national strategies such as the climate change strategy and action plan, and the National Transformation Strategy, which would operate at a broader level.

Sustainable Development Council

A new institution comprised of multiple stakeholders and experts from all major sectors of Botswana and all major geographic regions, and including representatives from the private sector, civil society, academia, NGOs and think tanks, community groups, labour unions, farmers' associations, and all major interest groups. The Council's mandate would be to specifically advise on, guide, and evaluate sustainable development and environmental strategies, programmes, and projects in Botswana, including all efforts related to climate change adaptation and mitigation and climate finance. The SDC is one of the only three new institutional entities recommended, but its creation will ensure that sustainable development generally, and climate change response specifically, receives a boost, gets focused attention, and is characterised by an interdisciplinary approach.

National Climate Change Committee

An existing national inter-ministerial committee with focal points from all major sectors, mandated to make decisions about climate change adaptation and mitigation policy, strategy, climate finance, programmes, projects, and other interventions. Moving forward, the Committee would have a focus on strengthening cross-sectoral, joint response, and aligning ministries. The NCCC is an existing structure, so this will not need the establishment or creation of a brand-new institutional entity; it will merely require ensuring as wide multi-sectoral representation within the NCCC as possible. In addition to providing guidance to DMS and MENT on the implementation and evolution of the national climate change strategy and action plan, National Climate Change Committee would guide and oversee climate change focused research initiatives, climate resilience and low-carbon development plans, climate resilience and low-carbon investment plans and portfolios, monitoring and evaluation of climate change programmes and projects, and would have a special emphasis on ensuring that women, youth, and vulnerable populations in Botswana are the beneficiaries of climate change initiatives in the country.

National Climate Change Implementation Unit at DMS (in MENT)

An implementation-oriented administrative body that would direct, design, monitor, evaluate climate change related plans, programmes, projects, and activities through on-the-ground executing entities. ***As the custodian of the national policy, strategy, and action plan, the Department of Meteorological Services (DMS) under MENT would be the appropriate location for this unit.*** *The NCCIU is one of the only three new institutional entities recommended, but it will be housed within DMS (MENT) and thus will not result in new parallel structures. It will simply require a focused mandate for a few dedicated climate change staff. This unit of climate change staff would report directly to the Permanent Secretary.*

District and Urban Development Committees

In order to ensure integration and mainstreaming of climate change into development activities at the operational level, the local governance function on climate change should rest within broader local government development bodies, i.e. the District Development Committees and the Urban Development Committees (which are responsible, respectively, for District Development Plans and Urban Development Plans). It is recommended that the DDC and UDC should identify or appoint members within their committees whose primary responsibility would be to ensure climate change considerations are mainstreamed into district and urban governance and implementation. Members responsible for climate change would deliberate on climate change issues at the local level and advise and brief the broader committee to ensure climate change is taken into consideration in the committee's overall functioning. The DDC is an existing structure, so this will not need the establishment or creation of a brand-new institutional entity; it will merely require a slightly amended mandate and composition.

In terms of strategic interventions, the following is suggested to ensure the appropriate institutional arrangements are effectively out in place:

Strategic Intervention S25.1: **Design, establish, and operationalize the institutional arrangements described in the National Climate Change Strategy, ensuring effective and representative membership of the institutional structures so that they are multisectoral and multi-stakeholder based.**			
2020 Target: Design and membership of all recommended institutions finalized by DMS, in coordination with all relevant ministries, and approved by Parliamentary Committee.			
2023 Target: Recommended institutional structures and coordination mechanisms in place and regularly utilised; mandates and membership updated as needed.			
2026 Target: Recommended institutional structures and coordination mechanisms in place and regularly utilised; mandates and membership updated as needed.			
2030 Target: Recommended institutional structures and coordination mechanisms in place and regularly utilised; mandates and membership updated as needed.			
Responsible Entity: Department of Meteorological Services (DMS)			
Key Collaborating Entities: Ministry of Environment, Natural Resources Conservation, and Tourism (MENT) All other Ministries The National Strategy Office The President's Office Botswana Climate Change Network			
Primary SDG Implicated 	**Primary NDP Goal Implicated** NDP 11 – Sustainable use of natural resources.	**Primary Vision 2036 Pillar Implicated** Pillar Three – Sustainable Environment.	**Section (or Activity) of NDC Implicated** N/A.

7 Resource Mobilisation

Botswana's Ministry of Environment, Natural Resources Conservation, and Tourism (MENT), the custodian of this strategy, is keen to secure and utilize climate change finance to fund projects and programmes that support adaptation and mitigation in Botswana. This section therefore provides an overview of the climate finance landscape in Botswana. It comments on the main sources of climate finance in Botswana and the key institutions involved in these operations. The assessment also reflects on innovative sources of climate finance for Botswana and the opportunities for catalysing a wider continuum of climate finance.

Botswana has recently drafted a national climate change response policy to articulate national climate change objectives and provide guidance on what Botswana's ambition on climate change response is. This policy, drafted in 2016, establishes a sectoral approach to climate change on the premise that certain sectors are key contributors to greenhouse gages (GHGs), thus offering mitigation potential, while others are exposed to climate change threats and are primary candidates for adaption.

A host of formal processes are underway in support of Botswana's "strong stance to include climate change vulnerability assessments, adaptation and mitigation into development planning", outlined in *Vision 2036.* The country has also committed internationally to reducing overall emissions by 15% from a 2010 baseline and has earmarked the development of a long-term low carbon strategy. Achieving its 15% emission reduction target will cost the country an estimated $ 18.4 billion. Although a relatively moderate contributor to global greenhouse (GHG), Botswana is already feeling the impacts of climate fluctuations, extreme weather events and temperature rise, which pose costs in themselves in terms of the country's ability to cope with the climate-related risks and vulnerabilities. At the same time, Botswana's changing economic profile, evolving industries, and land use patterns are likely to increase its contribution to global greenhouse gas (GHG) emissions.

In this context, the attention to climate change in Botswana's governance arenas signals important steps towards achieving policy coherence and implementable actions. Despite the significance of a national climate change policy, which offers strategic guidance on operationalizing both adaption and mitigation, Botswana's climate finance landscape is still evolving. Given the country's upper-middle income status and creditworthiness, a strategic and innovative approach can mobilize a wider continuum of climate finance for green innovations. While traditional forms of grant finance have been accessed, Botswana is strategically positioned to leverage loans and private sector sources from a position of creditworthiness.

7.1 MOBILISING FINANCE FOR GREENING AND DEVELOPMENT IN BOTSWANA

As a country taking active steps to prudently manage its macroeconomic and fiscal outlook, Botswana is well-positioned to mobilize climate finance. The government's track-record of sound macroeconomic policy, low levels of corruption, liberal tax system and political stability are solid foundations for this. In this respect, Botswana represents a "tall poppy" among its regional neighbours.

While its credit ratings and relative macroeconomic stability are certainly coveted, significant steps are needed to sustainably both attract foreign investment and diversify existing finance into non-mining sectors. Further, at the same time as being in a strategic position to leverage climate finance, Botswana's status as an upper-middle income country means that it has largely been at the periphery of development assistance. In this context, it stands to benefit from a strategic approach to mobilizing innovative finance streams for greening and development. Botswana's sustainable debt profile means that it is in a strategic position to leverage debt finance (loans) versus concessional finance (grants). As the following sections show, there are also opportunities for Botswana to consider non-traditional sources such as green bonds and existing transboundary natural resource management platforms.

7.2 USES AND DESTINATIONS OF CLIMATE FINANCE IN BOTSWANA

Climate finance is a growing source of potential funding and financing that can be channelled, in some situations, towards "greening." Climate finance typically seeks to cover the costs of transitioning to a low-carbon and climate change resilient economy across sectors and across intervention types in two areas:

1. **Adaptation** - an intervention involving adaptation typically involves a project contributing to climate change resilience and reducing vulnerability to climate change; and
2. **Mitigation** - a mitigation intervention involves actions that slow or reduce climate change.

Some climate finance allocations cover only adaptation or mitigation projects, while a select portion incorporate both. According to Vision 2036, the Government of Botswana recognizes the importance of both climate change adaption and mitigation. The outstanding factor, however, is that the draft Botswana Climate Change Strategy and Action Plan (NCCSAP) still needs to be developed. As a precursor to this process, the following section outlines the potential uses and destinations of climate finance that Botswana can leverage. The analysis shows that there are also non-traditional sources of climate-related finance, particularly from the natural resources sector and Botswana's strategic position in related transboundary processes that are linked to strategic action for climate change.

7.3 RESOURCE MOBILISATION PATHWAYS FOR BOTSWANA

As highlighted in the following section, there are several funding pools available, each with differing processes and funding focuses. In order to mobilise resources for climate change in such an institutionally complex environment a co-ordinated, ongoing and well-informed effort must be made be a dedicated resource mobilisation unit as suggested in the strategies below.

7.3.1 STRATEGIES FOR RESOURCE MOBILISATION

Strategic Intervention S26.1:
Enable access to a variety of climate funds and financing streams through the creation of a Climate Resource Mobilisation Unit (CRMU) within the National Climate Change Unit which is tasked with identifying relevant resources, identifying bankable projects, creation of concept notes and proposals, accessing project preparation funds and driving the entire resource mobilisation process as well as assessing national financial financing pathways.

Policy Goal to Be Realised:
'Further efforts shall be made to accelerate access to international resources facilitated by UNFCCC and other funding mechanisms to compliment national resources for financing the cost of achieving a low carbon development and sustainable climate resilient economy.'

2020 Target:
CRMU created within the existing National Climate Change Unit. CRMU mandated, resourced and operationalised.

2023 Target:
CRMU operational with strong links to all climate funds. Resource mobilisation activities underway. Project preparation funds sought on an ongoing basis.

2026 Target:
CRMU operational with strong links to all climate funds. Project preparation funds sought on an ongoing basis. Resource mobilisation activities underway.

2030 Target:
CRMU operational with strong links to all climate funds. Project preparation funds sought on an ongoing basis. Resource mobilisation activities underway.

Responsible Entity:
Ministry of Environment, Natural Resources Conservation and Tourism (MENT)

Key Collaborating Entities:
Ministry of Finance and Investment
Climate Funds
Private Funds
The National Strategy Office
Relevant participating ministries.

Primary SDG Implicated	Primary NDP Goal Implicated	Primary Vision 2036 Pillar Implicated	Section (or Activity) of NDC Implicated
	NDP 11 - Sustainable Use of Natural Resources	Pillar Three – Sustainable Environment.	Adaptation and Mitigation.

Strategic Intervention S26.2:
The CRMU to develop and implement a Resource Mobilisation Strategy which locates relevant and appropriate resources to mobilise from global and national funds to combat and address the effects of Climate Change as well as sets out specific sectoral pathways to finance.

Policy Goal to Be Realised:
'Further efforts shall be made to accelerate access to international resources facilitated by UNFCCC and other funding mechanisms to compliment national resources for financing the cost of achieving a low carbon development and sustainable climate resilient economy.'

2020 Target:
CRMU, in conjunction with other relevant stakeholders to develop and finalise a Resource Mobilisation Strategy.

2023 Target:
Strategy operational.

2026 Target:
CRMU operational with strong links to all climate funds. Project preparation funds sought on an ongoing basis. Resource mobilisation activities underway.

2030 Target:
CRMU operational with strong links to all climate funds. Project preparation funds sought on an ongoing basis. Resource mobilisation activities underway.

Responsible Entity:
Ministry of Environment, Natural Resources Conservation and Tourism (MENT)

Key Collaborating Entities:
Ministry of Finance and Investment
Climate Funds
Private Funds
The National Strategy Office
Relevant participating ministries.

Primary SDG Implicated	Primary NDP Goal Implicated	Primary Vision 2036 Pillar Implicated	Section (or Activity) of NDC Implicated
	NDP 11 - Sustainable Use of Natural Resources	Pillar Three – Sustainable Environment.	Adaptation and Mitigation.

7.3.2 CONSIDERATIONS FOR CLIMATE FINANCE MOBILISATION

The pathways to unlocking climate finance are specific to each fund and there are often several pathways to finance within each fund dependent on a variety of factors such as type, scale and impact of project proposed. However, certain considerations should be undertaken at each stage of application to a fund.

Stage 1 Financing Landscape

When attempting to mobilise resources, the following considerations should be made:

- The type of finance provided (development aid, private equity, loans, or concessional finance);
- The source of the finance (is it from public or private sources);
- Where the finance flows from (developed countries to developing countries, within developed or developing nations, developing to developed nations or from other sources such as multilateral development banks);
- If this finance is over and above what would have been provided anyway ("new and additional"); and
- What is ultimately financed (direct or indirect climate change related actions, or compensation for damages).

Stage 2 Project feasibility

Projects identified need to be 'Bankable', a broad term which describes the point at which financiers are willing to lend or invest in a project. To do so, financiers must have confidence in the feasibility, viability, and readiness of the venture. This will vary based on the financier, understanding what a particular audience is looking for, and tailoring the Concept Note narrative to suit, is critical. Project conceptualisation should be aligned with regional or national development plans, investment strategies and frameworks. This shows a funder support, structured coordination, and elimination of redundancy, which in turn reduces perceived risk, increases likely impact, and boosts confidence in the project.

It is important to understand the regulatory environment, in that:

- Projects are not conceived in a vacuum.
- Investors will look for acknowledgement of regulatory and institutional hurdles, and evidence of reform initiatives.
- The broader political and economic setting will also influence project viability.
- Potential project risks should be accounted.

It is important to accentuate geographic and sectoral reach: Developmental funders typically seek projects with developmental impact. Concept Notes should stress regional or national impact to appeal to these sources, even if the physical intervention is based sub-nationally. Projects should emphasise not just their immediate and explicit sectorial impact, but also secondary or spin-off benefits.

Furthermore, projects should proactively structure around Climate/Social Equity, climate change funding is growing, as are the requirements to include elements of social equity, such as gender equality and empowerment, in project development. A Concept Note should proactively incorporate these elements to appeal to funding. (And it makes for a more robust and sustainable project.)

Stage 3 Application and Project Preparation Financing

Once projects have been identified, the preparation of Concept Notes and full on proposals are both time and resource consuming. In recognition of a major barrier being a limited ability to develop such proposals and projects, project preparation funding is available and should be sought.

Concept Development is the early preparation stage of a project, consisting of two main elements:

- Enabling environment (the legal, regulatory and institutional aspects) and
- Definition (screening, identifying, and beginning the project).

The outcomes of these activities form the basis for the Concept Note. Once concept notes have been accepted, full proposals should be developed and submitted as per the requirements of the fund approached. Full proposals will also include detailed descriptions of mid stage feasibility and structuring activities as well as late stage promotion and financing activities.

7.4 KEY POLICY TAKEAWAYS

Botswana's macroeconomic and fiscal standing in the region is a strategic advantage as the country sets out on its climate action path. Key leverage points include its relatively small accumulation of debt, positive credit ratings and historical foreign exchange surpluses. As a "tall poppy" in the region, Botswana is in a position to shift away from strict or conventional definitions of climate finance, particularly because of its status as an upper-middle income country.

A key insight from this assessment is that climate finance in the form of loans should be a priority for Botswana, given its sound macroeconomic and coveted fiscal position in the region. Botswana has the opportunity to take on more debt, yet because of its prudent policies in this regard, there are also statutory limits that require consideration.

Supplementing traditional climate funding with finance from the private sector should therefore also be a strategic consideration. Options such as green bonds and equity-backed finances should explored in terms of Botswana's evolving financial sector and the opportunities for long-term finance to ensure sustainable financial backing of climate infrastructure projects. Although the Government of Botswana is taking positive steps to diversify its economy, further reforms and strategic thinking are necessary to improve investor attractiveness (African Development Bank, 2018). Trends indicating loans from market-raised funds are being directed at more creditworthy countries (OECD, 2013) show that Botswana's is in a valuable position in the global development finance landscape.

While Botswana's climate finance space is seemingly less saturated due to its income category status, there are also important existing platforms that offer leverage points for climate finance. Transboundary natural resource projects are vehicles for environmental and social impact intervention with established donor-based funding. A key policy insight is exploring how non-conventional forms of climate finance can be linked to existing environmental and social impact interventions.

For the purposes of Botswana securing climate change finance support to implement the interventions under this strategy, several potential funders have relevant funding streams or envelopes. These entities could be potentially approached to seek their interest and to better ascertain which sectors and strategies they are in a position to support. These include: the GEF-UNDP small grants programme; DfID's CRIDF programme; Agence Francaise de Development (AFD); the African Development Bank (AfDB) through its various facilities, existing transboundary water management platforms and the banking sector.

The biggest challenge with multilateral climate finance is developing projects that match funding criteria and demonstrate technical and financial viability to the level required, as well as the fact that there is a mismatch between funds approved and funds disbursed. As MENT moves to the next phase of climate change response in Botswana, i.e. developing an investment portfolio of potential projects based on this strategy, and thereafter preparing project concepts for funders, it would be well advised to take into account each targeted funder's own investment criteria and approach to bankability and financial feasibility when they evaluate project concepts.

7.5 SOURCES OF CLIMATE FINANCE FOR DEVELOPMENT

The two large multinational development bank (MDB) funds, the Green Climate Fund (GCF) and Global Environment Facility (GEF) with existing operations in Botswana. As the following sections show, major components of these funds in Botswana are directed at biodiversity and conservation industries, historically financed through grants and some co-financing. It is suggested that as per Strategy X, Botswana undertakes the exercise of identifying projects and programmes that contribute to climate resilience and apply to the relevant, matching and available fund.

7.5.1 CLIMATE FUNDS

The Green Climate Fund (GCF)

The Green Climate Fund (GCF) is an operating entity of the Financial Mechanism of the UNFCCC and offers a range of financial products including grants, concessional loans, subordinated debt, equity and guarantees (GCF, 2017). Several actors are typically involved in the GCF funding process. As many of the corresponding entities were only accredited in 2017, the GCF's footprint in Botswana is still evolving, although important foundations have been established. The Ministry of Finance and Economic Development is the overall National Designated Authority (NDA). The role of the NDA is to ensure country involvement and ownership by providing broad strategic

oversight of GCF's activities, serve as the point of contact with the Fund, and ensure that investments are aligned with local needs and priorities (Table 3). At the time of writing, a concept note has been submitted to the GCF entitled *Ecosystem and Livelihoods Resiliency: climate change risk reduction through ecosystem-based adaptation in Botswana's communal grazing lands* (GCF, 2017).

Table 2 GCF Institutions in Botswana

GCF actor	Role	Botswana representative
National Designated Authority (NDA)	Main point of communication	Ministry of Finance and Economic Development
International Accredited Entities (AEs) (At the time of writing, there are no national accredited entities)	Implementing agencies / programme managers	Conservation International GIZ UNDP AfDB Other actors must be accredited to directly access GCF resources; usually multilateral development banks and agencies; or regional entities that operate international such as the Acumen Fund; can also be a private sector facility such as banks.
Executing Entities (EEs)	Channel for funded activity or project tasks	Conservational International but can be any AE.
Beneficiaries	Project recipient	Rural poor, livestock, farming communities

The proposed *Ecosystem and Livelihoods Resiliency* project would be financed through grants, both in terms of GCF grant funding and co-financed government grants. There would be an equal split between these financing sources, a $ 22 million request from the GCF as a grant coupled with a $ 22 million provided as co-financing by the Government of Botswana. The Government of Botswana's Poverty Eradication Unit is allocated as the lead co-financing institution. There are also entities such as the Citizen Entrepreneurship Development Agency (CEDA) and the National Development Bank (NDB) that can take on financing roles but require approval and accreditation by the GCF.[12] (Letsholo, 2017).

The Global Environment Facility (GEF)

The GEF Trust Fund is available for developing and transition countries with the World Bank serving as its trustee and administer of donor resources. The GEF is also linked to a number of other trust funds such as the Special Climate Change Fund (SCCF), Least Developed Country Fund (LDCF), Nagoya Protocol Implementation Fund (NPFI), Adaptation Fund.

Through its underlying funds, the GEF is currently supporting 51 projects in Botswana ($ 224.59 million in grant funding and $ 1.81 billion in co-financing)., Botswana has also accessed $ 5.45 million of the GEF's Project Preparation Grant (PPG) – the portion to support full-sized projects (GEF, 2018). The

[12] Requires familiarity with National Implementing Entity (NIE) self-assessment including GCF Basic Fiduciary principles and standards, GCF specialized fiduciary principles, GCF Environmental and Social Safeguards, and Record and Policy Alignment. Most recently, Forest Conservation Botswana (FCB), a non-profit entity, has applied for NIE accreditation (Letsholo, 2018).

majority of GEF funding in Botswana is being directed to land degradation projects, followed by climate change and biodiversity focus areas that are relatively equally represented in the GEF portfolio.

The GEF-UNDP Small Grants Programme (SGP)

The GEF-UNDP Small Grants Programme (SGP) has been a core component of environmental and conservation assistance for Botswana. The SGP has been in operation been operating in Botswana since 1993 and has directed approximately $11 million of grant funding, $4.3 million in co-finance and $3.5 in in-kind finance to the country. Approximately 50% of the SGP in Botswana is directed to biodiversity (UNDP, 2012) and the programme plays an important conservation role, supporting endangered species such as the black rhino (UNDP, N.d).

Climate change mitigation projects constitute the third largest share of SGP flows into Botswana. These projects range from smallholder resilience and community adaptive capacity project, eco-tourism initiatives to emission reduction interventions (UNDP, 2012). Beyond strict climate change projects, Botswana's wider SGP project portfolio, such as sustainable forest management and international waters projects, can be leveraged for climate change finance. In this regard, the GEF-SGP country profile for Botswana (2015-2018) highlights that the country's substantial commitment towards environmental management through land tenure and protected area allocations as strategic platforms and entry points for GEF-SGP support (UNDP, 2017). The 2017 country profile also lauds Botswana's legal frameworks, particularly the Community Based National Resources Management (CBNRM) Policy of 2006 and the Multi-Lateral Environments Agreements (MEA) (UNDP, 2017).

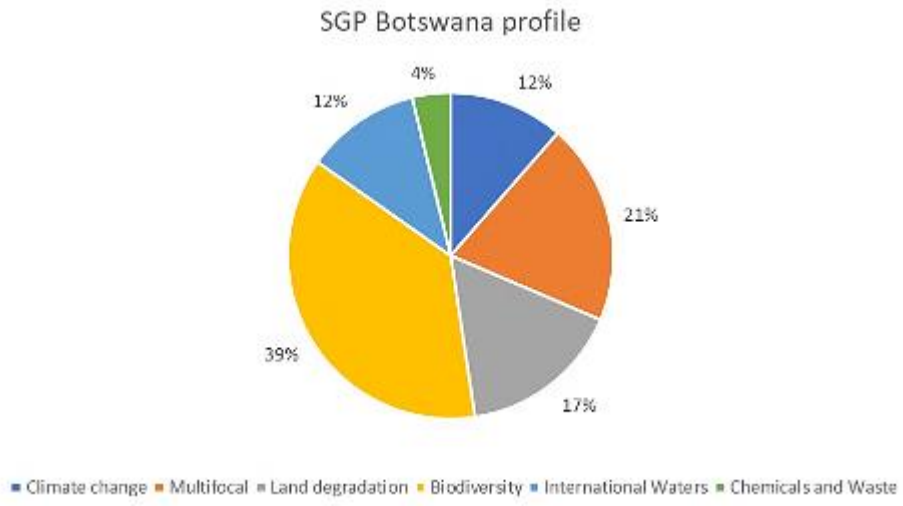


Figure 2 SGP Botswana Profile of Projects (UNDP, 2018)

Climate Investment Funds

Climate Investment Funds (CIF) comprises two funds, the Clean Technology Fund and the Strategic Climate Fund. Held by the World Bank and channelled through multilateral development banks (MDBs), the $8 billion CIF accelerates climate action by empowering transformations in clean technology, energy access, climate resilience, and sustainable forests in developing and middle-income countries (ICF, 2018). The CIFs are currently not operational in Botswana, possibly reflecting the priority given to least developed country and overseas development assistance eligibility (World Bank, 2008).

7.5.2 OTHER SOURCES OF CLIMATE FINANCE

There are numerous potential bilateral (where countries don't typically have their own specific climate funds) and multilateral sources of climate finance, or climate-related finance, that exist outside of the major specialised climate funds, but which should be explored further:

Climate Resilience Infrastructure Development Facility (CRIDF) (DfID)

CRIDF is a programme within the United Kingdom's Department for International Development (DfID). CRIDF supports long-term solutions to water issues that affects the poor in Southern, with a focus on long-term livelihood improvements. In addition to project support, CRIDF focuses on mobilizing finance from the private sector, governments and development finance institutions. Botswana is a key component of CRIDF's work due to its location within strategically important transboundary river basins. Gaborone is also the secretariat of the Permanent Okavango River Basin Water Commission (OKACOM). CRIDF's wide footprint in Botswana is an existing opportunity to leverage climate finance and there are several ongoing projects that show the potential of CRIDF as a key facility for future finance:

- Infrastructure planning and development in the Orange-Senqu Basin (Botswana, Lesotho, Namibia, South Africa)
- Infrastructure planning and development in the Okavango Basin (Angola, Botswana, Namibia)
- Financial innovation (Botswana, Mozambique, South Africa, Swaziland, Zimbabwe)
- Infrastructure planning and development in the Limpopo Basin (Botswana, Mozambique, South Africa, Zimbabwe)
- Infrastructure planning and development in the Zambezi Basin (Angola, Botswana Malawi, Mozambique, Namibia, Tanzania, Zambia, Zimbabwe) (CRIDF, 2018)

African Development Bank (AfDB)

In Botswana, the AFD has funded projects in the areas of infrastructure (power, transport, water and sanitation, communication), agriculture, finance and multi-sector. There are several AfDB facilities that Botswana can and has already accessed:

- Africa Climate Change Fund
- African Water Facility
- Agriculture Fast Track Fund
- Climate Investment Funds
- ClimDev-Africa Special Fund
- Global Environment Facility
- Green Climate Fund (AfDB accreditation in process)
- Sustainable Energy Fund for Africa

Future prospects for these funds and facilities need to be explored in terms of the AFD's recent launch of its 2017-2025 strategy period. For instance, the ADB's new strategic focus is on bankable projects, catalytic investments with direct community benefits and promoting private initiatives, major components of which include Agriculture and the Agro-Industry (AHAI) and an Urban Sanitation Investment. There are some useful insights from previous ADB support streams in Botswana. For instance, in 2016, the AWF awarded a € 2 million for the Climate Resilient Water Resources Investment Strategy and Multipurpose Project for the Orange-Senqu River Basin (ORASECOM) (IMESA, 2016). This multinational transboundary project includes Botswana, South Africa, Lesotho and Namibia, and highlights the potential of regional partnerships to mobilize climate finance, particularly through natural resources-based projects on the basis of climate change vulnerabilities.

NEPAD Climate change Fund

The NEPAD Climate Change Fund was established in 2014 by the NEPAD Planning and Coordinating Agency with support from the Government of Germany. The Fund is aligned with AU priority initiatives such as the NEPAD Environment Action Plan and the Comprehensive Africa Agricultural Development Programme (CAADP). Overall, the fund aims at strengthening the resilience of African countries to climate change by building national, sub-regional and continental capacity. The Fund also offers technical and financial assistance to AU member states, Regional Economic Communities (RECs) and institutions in clearly defined areas of support of the fund. These are opportunities for Botswana in terms of NEPAD's target areas around Climate Smart Agriculture (CSA) and implementation to support NAPs. In Botswana, the fund already supports the alignment of gender sensitive and Climate Smart Agriculture (CSA) to the country's National Development Plan (NDP).

Agence Française de Développement (AFD)

The AFD has had a presence in Botswana since 2006 and concentrates on supporting infrastructure development, fight against climate change as well as regional integrated projects (energy, transport, water). In Botswana, the AFD has implemented a tourism-biodiversity projects and a Phytotrade project, aimed at ecosystem preservation through commercialization of natural products. The Phytotrade project is through a € 1.9 million grant from the AFD, together with the French Global Environment Facility (FGEF). The FGEF is a conservation organization focused on ecosystem protection and is a key funder of the Centre for International Forestry Research (CIFOR), which is increasingly focusing on adaptation to climate change through sustainable forest management.

Statements by the AFD are revealing about the opportunities for Botswana in leveraging finance. The AFD states that "the Government of Botswana is not prone to borrowing from International Development Finance Institutions and AFD has not extended any long-term financing in the country, there is an existing potential" (AFD, 2018). The AFD also states it is "regularly in contact with the Batswana Authorities to discuss potential projects in the fields of infrastructures, regional interconnection, in particular, transport and energy" (AFD, 2018). In light of these opportunities, it is important to note that the majority of the AFD's financing is increasingly in the form of loans (84% in 2016) (AFD, 2018). While this indicates pressures facing private resources for development (AFD, 2018), the presence of loan financing in the AFD portfolio presents several opportunities for Botswana in light of the country's financial credibility:

- *Sovereign loans are loans to states.* Given Botswana's low debt levels and position to borrow, a particular opportunity lies within the AFD's sovereign loan platform. One opportunity, for example, may be to investigate whether government entities in Botswana such as municipalities can accessing AFD loans in local currency.
- *Concessional loans are those whose interest rate is lower than the market rate.* The AFD can offer concessional or "soft" loans when projects present tangible opportunities such as through infrastructure projects. A particular opportunity for concessional loans is the AFD's participation in the Southern African Development Community (SADC) energy group in Gaborone, which is a platform for regional energy policies and initiatives by international development finance institutions and donors (AFD, 2018), through which low-carbon and alternative energy projects can be promoted.
- *Variable loans are those with variable repayment terms and maturities and are typically countercyclical.* Examples include loans indexed on the international price of a raw material to reduce vulnerability of sectors to international market fluctuations. The AFD is investigating related loans where the margins vary depending on the borrower's performance in terms of environmental responsibility or with repayments indexed on the price of raw materials. Given Botswana's economic diversification strategies into agriculture and eco-tourism, variable loans may be an appealing source of future climate finance.

- *Non-sovereign loans are intended for local authorities, public institutions and non-government organisation (NGO) without a state guarantee, although there are also private sector components for large-scale infrastructure components.* This stream of financing is especially suited to Botswana's conservation and biodiversity sector, which is supported by various legal frameworks in conjunction with a strong NGO presence, such as such as Forest Conservation Botswana (FCB) and the independent conservation organization, the World Wildlife Fund (WWF).

Africa-EU Renewable Energy Cooperation Programme (RECP)

RECP is a multi-donor programme supporting the developments of markets for renewable energy in Africa, through the Africa-EU Energy Partnership. Although Botswana is registered with RECP, renewable energy initiatives remain limited, reflecting the dominance of large-scale coal plants due to domestic coal reserves (RECP, 2018). RECP funds with exposure to Botswana are shown in Table 4. Of the RECP funds with exposure in Botswana, the equity, debt and mezzanine portfolios are likely the most relevant given the country's credit rating and income status. However, further research is necessary to establish the terms of each fund.

Table 3 RECP relevant to Botswana

Fund name	Type	Size
Impact Assets Emerging Markets Climate Fund	Equity or Debt	$ 0.5-5 million
NEFCO Carbon Fund (NeCF)	Equity or Debt	$4-5 million
responsibility – Energy Access Fund	Equity or Debt and quasi-equity	$0.5-3 million
Inspired Evolution Investment – Evolution One Fund	Equity and Quasi Equity	$ 10-20 million
Emerging Africa Infrastructure Fund (EAIF)	Debt	$10-15 million
Sustainable Energy Fund for Africa (SEFA)	Grant or Equity	$1-3 million
OFID – Energy Poverty Program	Grant	$0.1-2 million
DI Frontier Investment	Equity, mezzanine capital (e.g. convertible debt or preferred shares) and short-term debt financing	$3-10 million

Transboundary water management activities

A cornerstone of Botswana's regional relevance is that it falls within the catchment basins of four transboundary river basins: the Okavango, the Limpopo, Orange and Zambezi River Basins, and all of Botswana's main rivers are shared with other countries (Omari, 2010). This context is a particular vulnerability in terms of climate change given predictions of lower rainfall and the sensitivity of groundwater recharge in the region (Omari, 2010). Yet the transboundary water context is also an opportunity for Botswana and existing transboundary projects and platforms can be being strategically leveraged for green development finance:

- **ORASECOM**.[13] is developing a climate resilience water resources investment strategy and plan that draws support from the AfDB, through the African Water Facility (AWF) and NEPAD (ORASECOM, 2017). The strategy includes an investment request of € 3.42 million of grant funding, funding raising for which is currently underway, with support from the CRIDF, the Stockholm Water Institute (SIWI) and the Global Water Partnership-Southern Africa (GWP-SA) (ORASCECOM, 2018).
- **OKAKOM** is the Permanent Okavango River Basin Water Commission. In 2011, OKAKOM established the Cubango-Okavango River Basin (CORB) Endowment Fund, which has leveraged resources from the World Bank, the Swedish Development Agency (SIDA), the UNDP, amongst others, to support climate-impacted ecosystem and livelihoods activities.[14].
- **ZAMCOM** is the Zambezi Watercourse Commission currently receiving support from a range of partnerships including the multi-donor trust fund Cooperation in International Waters in Africa (CIWA), hosted by the World Bank, and bilateral partnerships with AfDB, DANIDA, DfID, GIZ, SIDA, and others (World Bank, n.d.). A key focus of the Zambezi Strategic Plan (ZSP) is supporting and accelerating climate resilient development through ZAMCOM, with a focus on adaptive measures to climate change. As Table 5 shows, there are multiple sources of support for Zambezi River Basin Program through which Botswana can mobilize climate finance.

[13] Mentioned earlier.
[14] See:
https://www.thegef.org/sites/default/files/project_documents/03-13-17_CORB_SAP_Imp_Project_Document_PAD_0.pdf
http://www.okacom.org/observing-the-river/news-from-the-basin/undp-gef-support-to-okacom-2

Table 4 Support to the Zambezi River Basin Program Resource Mobilization Plan (extracted from (World Bank, n.d.)

TABLE 5.6 Support to the Zambezi River Basin Program: Resource Mobilization Plan

Source	Amount ($ million)	Notes
Domestic sources	30	Based on 5 percent of IDA pipeline FY15–18
IDA	120	Water sector support to riparian states
Private sector	225	20 percent potential participation in large hydropower projects
Climate finance (GCF, GEF, CIF, and so forth)	612	GEF ($12 million) and GCF ($600 million) (both figures to be confirmed)
Other development finance (bilaterals, multilaterals)	130	Based on commitments within the context of the Zambezi River Basin Program
To be determined		
Total fast track (resources raised by 2020)	1,117	Includes community investment projects that have been informed by the Zambezi Strategic Plan, followed by advancement of investment preparation, and development of integrated information management system
Longer term (additional resources raised by 2024)	3,600	Provisional estimate of large infrastructure investment, to be confirmed based on feasibility study carried out in accordance with defined strategic plan

7.5.3 OTHER INNOVATIVE SOURCES OF FUTURE CLIMATE FINANCE

The Government of Botswana can take control of its climate mandate through exploring other innovative sources of climate finance. Given the country's credit worthiness, a key opportunity lies in the fast-growing international support for green bonds to finance climate development projects (Marsh, 2017). Green bonds offer opportunities to draw on multiple sources of climate finance including the private sector, municipalities, development banks and national banks, through the "market" (IFC, 2018). The green bond commitments by several global and regional platforms in emerging markets are important trends [15] in this regard. For instance, in 2016, the AfDB launched a new SEK[16] 1.25 billion Green Bond, following a $ 500 million 3-year Green Bond in 2015. Most recently, the AfDB also launched its first Kangaroo Green Bond, as a foray into the Australian Dollar Market. The trends in other African countries such as Nigeria and South Africa, which already have their own domestic (sovereign) green bonds (AfDB, 2017), are also noteworthy. Botswana's evolving financial and commercial banking sectors present similar opportunities for diversifying climate finance away traditional types of grant funding.

Capitalizing on foreign-issued bonds therefore offers access to deeper credit market and potentially, a greater variety of projects for Botswana's mix of mitigation and adaption options. This is particularly useful for low carbon projects such as renewable energy generations and landfill gas recapture that not only require significant upfront capital but also sustained investment for maintenance and operations over time.

[15] See:
https://www.ifc.org/wps/wcm/connect/0fb2df804a9c1d78a770ef9c54e94b00/IFC_DebtCapitalMarkets_Global.pdf?MOD=AJPERES
http://www.worldbank.org/en/news/speech/2015/03/27/green-bonds-and-climate-policy-foundation-for-scalable-investment
https://www.afdb.org/en/topics-and-sectors/initiatives-partnerships/green-bonds-program/background/

[16] Swedish Krona.

In terms of catalysing a wider continuum of climate finance, Botswana's reforms towards economic diversification are also low hanging fruits. For instance, the Government of Botswana is developing eight special economic zones (SEZ) including mineral beneficiation, leather and agricultural industries and financial services, Botswana Innovation Hub (African Development Bank, 2018). Existing regional platforms, including preferential treatments such as the Economic Partnership Agreement (EPA) and the African Growth Opportunity Act, in addition to European and United States market access (African Development Bank, 2018), are leverage points for accessing private finance to compensate for climate action that can compensate for the small domestic market and facilitate diversification.

7.6 CLIMATE FINANCE INSIGHTS FROM OTHER COUNTRIES

A useful and important part of developing any strategy is allocating funds to enable the implementation of activities identified in the strategy. Unfortunately, the complex and cross sectoral nature of climate change makes it very difficult to ascertain costs for new programmes, and as the effects of climate change are specific and unique to each country, costs cannot be extrapolated from one country to another. Furthermore, costs are calculated over different times periods, making direct comparison even more complicated. Many strategies (especially in the African context) do not allocate funds in pubic national strategies, and those that do have highly varied amounts of funds allocated.

This document seeks to highlight the differences between budgets allocated to climate change in different African countries, namely Kenya, Ghana and Egypt. Other countries are not included in such detail either because they do not allocate amounts in strategies, or because some amounts in strategies are still 'to be decided' as in the case of Namibia (Repubic of Namibia, 2013). As each strategy has been independently designed to the needs of that particular country, plans cannot be compared directly, however, certain key areas are similar (agriculture and health for example) and therefore useful to see the variations between amounts allocated between countries.

Budgets from other African Countries

Ghana

Ghana's budget is reflected in Table 6 below. This table represents a summary of a much more detailed budget available in Ghana's National Climate Change Master Plan Action Programmes for Implementation: 2015–2020 (The Ministry of Environment, Science, Technology and Innovation, 2015).

Table 5 Summary of Ghana's Climate Change Strategy Budget

Sector	Ghana Cedi	Estimated Cost
Agriculture	3,638,500,000	US$ 950,000,000
Infrastructure	342,785,000	US$ 89,500,000
Communities	197,245,000	US$ 51,500,000
Carbon sinks	6,606,750,000	US$ 1,725,000,000

Sector	Ghana Cedi	Estimated Cost
Ecosystems	4,634,300,000	US$ 1,210,000,000
Health	3,852,980,000	US$ 1,006,000,000
Water and Sanitation	6,435,320,732	US$ 1,680,240,400
Gender	7,269,340,000	US$ 1,898,000,000
Migration	375,340,000	US$ 98,000,000
Energy	4,048,310,000	US$ 1,057,000,000
TOTAL COSTS	**37,400,870,732**	**US$ 9,765,240,400**

Egypt

Egypt's budget is reflected in Table 7 below. This table represents a summary of a much more detailed budget available in Egypt's National Strategy for Adaptation to Climate Change and Disaster Risk Reduction 2011 (Egypt's Cabinet Information and Decision Support Centre (IDSC) , 2011)

Table 6 Summary of Egypt's Climate Change Strategy Budget

Programme	Egyptian Pounds	Estimated Cost
Adaptation Research Programs	218,000,000	US$ 12,208,000
Adaptation Monitoring, Planning and Following up	32,500,000	US$ 1,820,000
Coastal Zones	8,606,000,000	US$ 481,936,000
Water and Irrigation	3,350,000,000	US$ 187,600,000
Agriculture	7,930,000,000	US$ 444,080,000
Health	1,160,000,000	US$ 64,960,000
Rural areas, Roads and Population	31,800,000,000	US$ 1780,800,000
Tourism	190,000,000	US$ 10,640,000
TOTAL	**53,286,500,000**	**US$ 2,984,044,000**

Kenya

Kenya's budget is reflected in Table 8 below. This table represents a summary of a much more detailed budget available in Kenya's National Climate Change Response Strategy of 2010 (Republic of Kenya, 2010).

Table 7 Summary of Kenya's Climate Change Budget as per the National Climate Change Action Plan 2013 - 2017

Strategy	Kenyan Shillings	Estimated Cost
Mainstream climate change adaptation into County Integrated Development Plans and other county plans.	10,473,113,026	US$ 108,608,452
Enhance implementation of an energy generation mix plan that increases the resilience of the current and future energy systems	338,362,114,390	US$ 3,508,888,462
Support innovation and development of appropriate technologies and capacity that promote climate resilient development	2,148,330,894	US$ 22,278,657
Integrate climate change adaptation into public sector reforms.	1,450,123,307	US$ 15,038,093
Enhance adaptive capacity and resilience of the informal sector	1,342,706,652	US$ 13,924,159
Enhance climate proofing of infrastructure.	1,960,351,932,802	US$ 20,329,274,425
Mainstreaming climate change adaptation in land reforms.	134,270,674	US$ 1,392,416
Mainstream climate change adaptation in education and training.	1,766,267,215	US$ 18,316,573.84
Strengthen integration of climate change adaptation into the health sector.	3,866,995,552	US$ 40,101,582
Mainstream climate change adaptation in the environment sector.	61,343,916,053	US$ 636,149,705
Mainstreaming of climate change adaptation in the water sector.	489,429,421,916	US$ 5,075,489,183
Enhance the adaptive capacity of the population, urbanisation, and housing sector.	286,530,991,222	US$ 2,971,388,481
Strengthen the adaptive capacity of vulnerable group	26,484,167,105	US$ 274,646,553
Enhance the resilience of the tourism value chain.	222,432,809,012	US$ 2,306,676,439
Enhance the resilience of the agricultural value chain.	36,172,521,413	US$ 375,116,887
Enhance the resilience of the livestock value chain.	2,890,579,209	US$ 299,759,329
Enhance the resilience of the fisheries value chain.	13,197,587,231	US$ 136,861,840
Create enabling environment for the resilience of private sector investment.	11,278,742	US$ 116,963
Integrate climate change adaptation into the oil and mineral resources sector.	241,687,234	US$ 2,506,349
Fast track the implementation of the Ending Drought Emergencies(EDE) Common Programme Framework.	204,265,542,911	US$ 2,118,277,952
TOTAL	**3,688,911,569,471**	**US$ 38,254,812,501**

NB: Kenya has a drastically different budget outlined in its 2010 National Climate Change Response Strategy. The strategy states that activities are planned over the '…next 20 years at an annual average cost of Ksh. 235.83 billion (approximately US$ 3.14 billion)' (Government of Kenya, 2010). The reason for this disparity is unclear, however, it may be related to unclear time frame allocation for such strategies and is a good demonstration of how, estimations can vary drastically, even in the context of one country.

Budgeting in relation to GDP

Certain countries have also indicated absolute figures without breakdowns of how those figures were reached, such as Zambia, who have calculated a cost of $4.33-5.44 Billion over a 10-year period (Ministry of Tourism, Environment and National Resources, 2010). Other overall amounts estimated include $9.3 billion for implementation of the NCCP Master Plan for 2015–2020 of Ghana, $7.5 billion for Ethiopia's Climate Change Strategy, $650 million for Tanzania's 2012 Climate Change Strategy and $258 million for Uganda's Climate Change Policy Implementation (Overseas Development Institute, 2016).

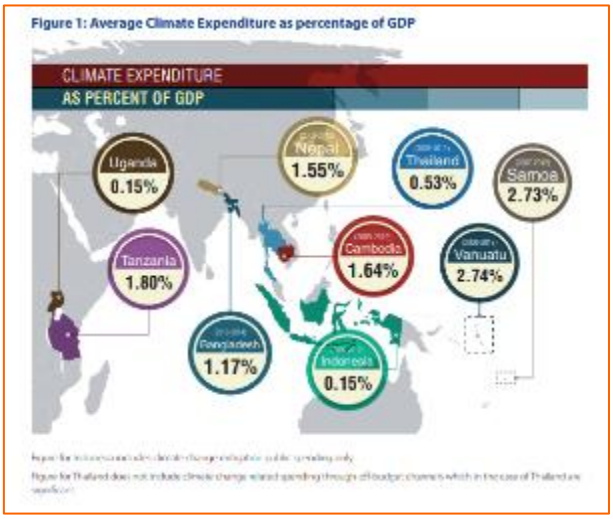


Figure 3 Average Climate Expenditure as percentage of GDP (UNDP, 2015:2)

UNDP have estimated costs for climate change responses as percentage of GDP for certain countries, depicted in Figure 3, again these figures show huge variance in amounts allocated (UNDP, 2015).

Actual Spending by African countries

Whilst it is clear that we cannot simply transpose one model of spending from a country to another, it is a useful exercise to understand what other African countries are actually spending rather than budgeted. This gives clarity on how countries are responding in the confines of limited budgets and large developmental needs other than Climate Change.

The Overseas Development Institute (ODI) provides detailed research into the actual PUBLIC spending in four African countries, namely Ethiopia, Ghana, Tanzania and Uganda. Table 5 below shows level of public expenditure on climate change actions in each country.

Table 8 Level of public expenditure on climate change actions, Ethiopia, Ghana, Tanzania and Uganda (ODI, 2016:30)

	Average annual climate change-relevant expenditure		Years
	($ mn)	(% of government expenditure)	
Ethiopia	440	10.8	2008–2011
Tanzania	383	5.5	2009–2012
Ghana	276	2.3	2011–2014
Uganda	25	0.9	2008–2011

This table highlights real spending from each country on climate change activities. The report further goes on to compare actual spending to budgeted spending and finds that:

- 'Ghana: Implementation of the NCCP Master Plan for 2015–2020 is costed at $9.3 billion, suggesting an annual average spend of approximately $1.5 billion…this compares with the estimated annual spend of $276 million – meaning a six-fold increase is needed to fulfil the spending needs of the national plan.
- Ethiopia: The country's climate change strategy has called for annual spending of $7.5 billion to respond to climate change. With national budgetary resources for climate change-relevant actions estimated at around $440 million per year, and international sources adding an uncertain Ethiopia amount that may be in the tens of millions of dollars per year, there appears to be a major financing gap.
- Tanzania: A 2011 study concluded that the immediate needs for building adaptive capacity and enhancing resilience against future climate change were of the order of $150 million per year. However, additional funding is needed to address current climate risks, with a conservative estimate of an additional $500 million per year, adding to a total of $650 million. This compares with an estimated current annual spend of $383 million.
- Uganda: The climate change policy is supported by a comprehensive implementation strategy that sets out how much it will cost. Tis cost is put at $258 million per year compared with current public spending in the region of $25 million per year.' (Overseas Development Institute, 2016, p. 31)

From this it is clear to see that whilst public finance is being allocated and spent on climate change related activities, it is not nearly enough to meet the needs of mitigation and adaptation plans across all countries. Hence access to climate funding is vital for African countries to meet the finance needs of addressing climate change.

7.7 CHALLENGES AND OPPORTUNITES

Regionally, Botswana is in a unique position to diversify away from traditional forms of development support towards a wider continuum of climate finance such as from the private sector. Botswana's prudent and measured debt policy means that public debt remains small and sustainable. Debt is well below the national statutory ceiling of 40% of GDP and far lower than the SADC convergence level of 60% of GDP. Understanding the nuances of this fiscal landscape is nevertheless critical. Key issues include:

- The future of Botswana's emerging financial services industry and the future role of the government versus commercial banks in leveraging facilities such as green bonds. It is worth noting calls for greater participation of the government in the bond market to boost liquidity and pricing of bond instruments in the market (Benza, 2017). Furthermore, despite advocating for

greater private sector participation in the market, and a member of SACU[1], Botswana was not a signatory of the Continental Free Trade Agreement in 2018.

- National policy reforms towards economic diversification and what these imply for different sources of climate finance. For instance, as part of its economic diversification strategy, the newly established Botswana Innovation Hub offers climate finance opportunities but has specific funding criteria such as intellectual property (IP) residing in Botswana.[17] . The Clean Technology Centre is a related economic diversification initiative that requires similar investigations as a source of private sector climate finance.
- Although rebounding after the downtown, Botswana required large investment capital to do so, the main sources of which were from the African Development Bank for the Morupule and Mmamabule power plant projects, and to continue supporting diamond production (Modisaemang, et al., 2015). Despite policies of diversification, Botswana's economy is still driven by the state-dominated minerals sector, closely aligned to the country's coal-based energy mix, and the source of historical financial surpluses.

Botswana is nevertheless in strategic position to move away from conventional forms of climate finance towards a wider and more innovative continuum of sources. A key insight is the opportunity to leverage the existing natural resources sector relating to conservation, diversity and ecotourism, areas that are directly impacted by climate change. Botswana is already capitalizing on its role in transboundary water management partnership to access climate finance, an important learning for developing the (NCCSAP). These platforms show that significant opportunities already exist and should be maximized:

Botswana's regional role in infrastructure development, through SADC and in driving projects such as the Walvis Bay Port to Namibia and rail to road links with Zambia (African Development Bank, 2018).

Botswana is a pioneer in natural capital accounting, through its Natural Resource Accounting Programme. While historically dominated by mineral wealth, with some manufactured capital accounts, the programme can be diversified into natural capital accounting for ecotourism and wildlife sectors.

- Botswana has been lauded for its policies on environmental conservation. The Environmental Protection Program (EPP) offers useful policy alignment to climate change. Through the EPP, Botswana aims to develop adaptation strategies for economic diversification, agriculture, malaria eradication, amongst other vulnerable and priority sectors for "early adaptation" (UNDP, 2018).

[17] http://www.bih.co.bw/fund-guidelines/

8 Monitoring, Learning, and Evaluation

Climate change response is necessarily iterative by its very nature, since climate change creates a non-stationary environment. This means that Botswana's understanding of its major climate change vulnerabilities, risks, impacts, and solutions across sectors and nationwide will also have to constantly evolve. Experiential learning, or learning-by-doing, is the most effective approach to this type of steadily improved understanding.

The effects of climate change differ across geographies and will shift over time. This means that adaptation initiatives will work in some locations in Botswana and some time periods, and not in others. A learning by doing approach is therefore needed to enable ongoing adaptation. This approach will help Botswana progressively improve its ability to deal with the inherent uncertainty of climate change.

The figure below, which is derived from Kolb's experiential learning cycle model, illustrates how experiential learning or 'learning by doing' can improve outcomes using experience, reflection, conceptualisation and testing.

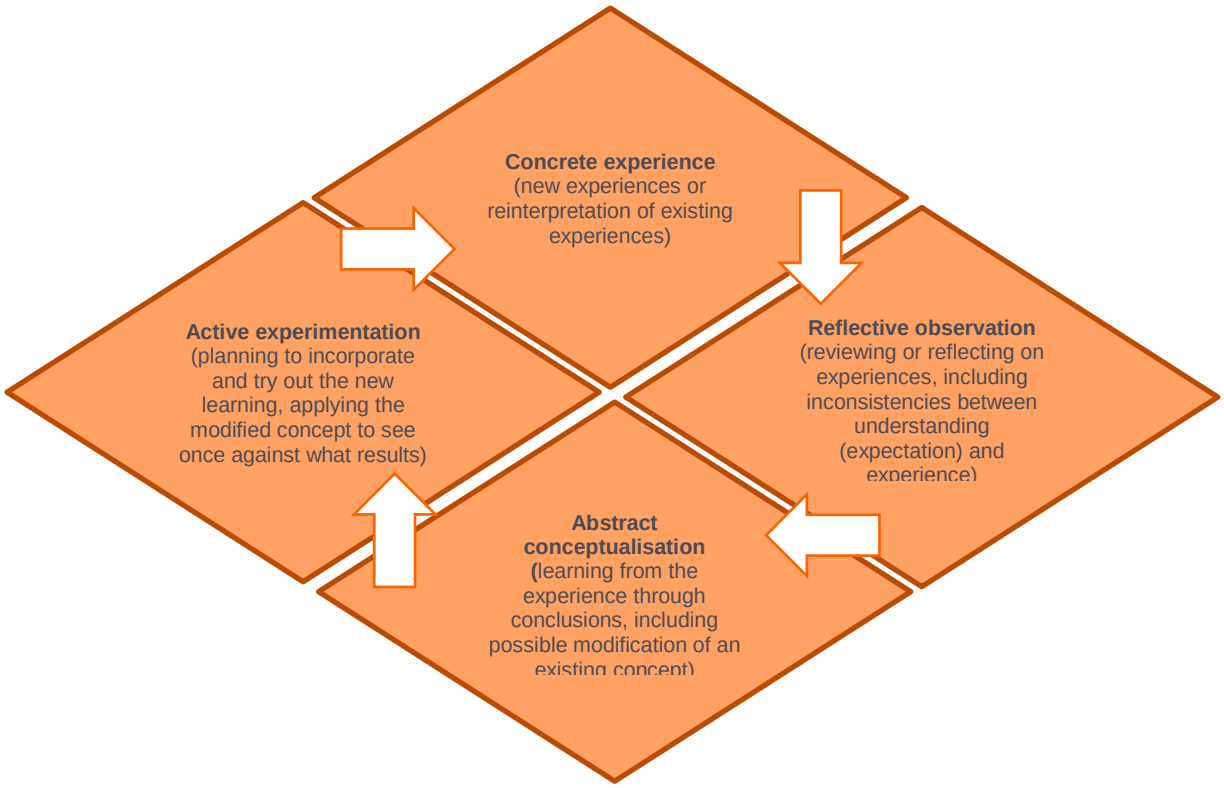


Figure 4 The Experiential Learning Cycle of M&E

This very climate change strategy itself needs to be adaptive and be dynamic enough to be responsive to changed circumstances, through the mechanism of periodic updates and amendments. New strategies may be required, and targets may change as part of a cycle of adaptive management.

To ensure that past and current efforts inform future efforts at climate change response, and that future interventions are developed as efficiently as possible, to maximize results and avoid known challenges or barriers, it is therefore critical that Botswana's national climate change strategy should create system-wide intelligence about the effectiveness of the strategic interventions articulated in this document. In

practical terms, this requires a robust Monitoring, Learning, and Evaluation (MLE) system to be put in place, with key performance indicators (KPIs) and results-based monitoring.

To that end, this strategy will be accompanied by an action plan. The action plan will align with Botswana's officially prescribed or mandated formats and structures of action plans (based on standard practice in the country).

As the custodian of the Draft National Climate Change Response Policy, and the National Climate Change Strategy and Action Plan, the Department of Meteorological Services (DMS) under the Ministry of Environment, Natural Resources Conservation, and Tourism (MENT) would bear the institutional responsibility of tracking progress on the action plan and collecting data and results on the chosen indicators.

The action plan will also provide clarity on distinct roles and players; it will point to other key collaborating ministries who may drive specific aspects of the strategy (i.e. strategic actions linked to their sectors), in close coordination with MENT.

The structure of the action plan is provided below:

Table 9 Structure for Action Plan

Strategic Intervention
Responsible Entity:
Key Collaborating Entities:
2020 Target:
2020 KP indicators:
2023 Target:
2023 KP indicators:
2026 Target:
2026 KP indicators:
2030 Target:
2030 KP indicators:

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Appendix 1: Strategy Overview

STRATEGY OVERVIEW – ADAPTATION STRATEGIES

AGRICULTURE SECTOR STRATEGY OVERVIEW			
No.	**Strategy Context**	**Strategy**	**Responsible Entity**
S1.1	UN SDG 8 NDP 11 Diversified growth sources Vision 2036 Pillar 1	Identify key livestock-focused areas of intervention within existing Climate Smart Agriculture (CSA) programmes, and scale-up such programmes with a specific focus on livestock management.	Ministry of Agricultural Development and Food Security
S1.2	UN SDG 2 NDP 11 Sustainable Natural Resources Vision 2036 Pillar 1	Implement a strengthened livestock disease surveillance and response system to manage outbreaks, thereby maintaining resilience in the livestock sector and protecting the value of Botswana's livestock, with a specific focus on climate related threats and impacts.	Ministry of Agricultural Development and Food Security
S1.3	UN SDG 2 NDP 11 Sustainable Natural Resources Vision 2036 Pillar 1	Expand the reach of Botswana's existing Climate Smart Agriculture (CSA) programmes, with a specific focus on increasing resilience in production systems and subsequently production (outcome), the midst of climate change and subsequently improved livelihoods (impact), e.g. job creation and market access.	Ministry of Agricultural Development and Food Security
S1.4	UN SDG 7 NDP 11 Diversified growth sources Vision 2036 Pillar 1	Provide low-cost credit (concessionary loans), rebates, and other financial incentives to farmers for the purchase and use of solar-power water pumps and biogas digesters.	Ministry of Agricultural Development and Food Security
S1.5	UN SDG 2 and 9 NDP 11 Sustainable Natural Resources Vision 2036 Pillar 1	Invest in expanded and advanced agricultural early warning systems across all farming regions in Botswana, including the strengthening of watercourse flow gauge network and integration of weather alerts, with integration with ICT and radio-based technologies (e.g. mobile phone alerts) for dissemination of early warnings and climate information services.	Ministry of Agricultural Development and Food Security
	WATER SECTOR STRATEGY OVERVIEW		
No.	**Strategy Context**	**Strategy**	**Responsible Entity**
S2.1	UN SDG 6 NDP 11 Sustainable Natural Resources Vision 2036 Pillar 3	Tap into technical and financial support for integrated water resource management projects more specifically, climate resilience projects in Africa's transboundary basins by taking project ideas to project preparation and financing entities.	Ministry of Land Management, Water and Sanitation Services
S2.2	UN SDG 6 NDP 11 Sustainable Natural Resources	Circulate and seek input to guidelines pertaining to the preparation of annual sectoral (Ministerial) budgets to include a climate resilience water conservation, water harvesting and water efficiency line item.	Ministry of Land Management, Water and Sanitation Services

	Vision 2036 Pillar 3		
S2.3	UN SDG 6 NDP 11 Sustainable Natural Resources Vision 2036 Pillar 3	Utilize the NDP as a channel for accelerating and prioritizing climate resilience in the water sector by making 'water security for all' 1 of the central strategic pillars.	Ministry of Land Management, Water and Sanitation Services
S2.4	UN SDG 6 NDP 11 Sustainable Natural Resources Vision 2036 Pillar 3	Develop a national groundwater identification, characterisation and protection and management strategy and action plan to delineate groundwater protection zones in major aquifers, to measure and determine management of increase recharge, and to preserve water quality.	Ministry of Land Management, Water and Sanitation Services
S2.5	UN SDG 6 NDP 11 Sustainable Natural Resources Vision 2036 Pillar 3	Provide low-cost credit (concessionary loans) and discounts on utility bills for commercial and industrial enterprises that invest in water harvesting, grey water recycling and re-use systems.	Ministry of Land Management, Water and Sanitation Services
S2.6	UN SDG 6 NDP 11 Sustainable Natural Resources Vision 2036 Pillar 3	Develop a programme to scale up the most viable and proven alternatives in Botswana for livestock watering systems (including water hauling, water storage, pump systems, solar pumps etc.).	Ministry of Land Management, Water and Sanitation Services
S2.7	UN SDG 6 NDP 11 Sustainable Natural Resources Vision 2036 Pillar 3	Expand the use of the Botswana Water Accounts – Botswana's System of Environmental and Economic Accounting (SEEA) based on the UN's method and the World Bank's WAVES system – to all Ministries for the calculation of water value and accounting.	Ministry of Land Management, Water and Sanitation Services
	HUMAN HEALTH STRATEGY OVERVIEW		
No.	**Strategy Context**	**Strategy**	**Responsible Entity**
S3.1	UN SDG 3 NDP 11 Social and Human Capital Vision 2036 Pillar 2	Update Botswana's Public Health Act of 2013 as well as other relevant and major health legislation to include provisions that address the public health impacts of climate change.	Ministry of Health and Wellness
S3.2	UN SDG 3 NDP 11 Social and Human Capital Vision 2036 Pillar 2	Integrate climate change related surveillance and tracking into the operationalization of Botswana's 2011 National Health Policy, including the policy's clear goal on collection of health information and research, development of a web-based observatory, and setting up of a National Health Research Council.	Ministry of Health and Wellness
S3.3	UN SDG 3 NDP 11 Social and Human Capital Vision 2036 Pillar 2	Develop a national climate change and public health flagship programme to provide training to healthcare professionals on the identification and tracking of climate-related health impacts, including climate-related nutritional, respiratory, and communicable disease impacts.	Ministry of Health and Wellness
S3.4	UN SDG 3 NDP 11 Social and Human Capital Vision 2036 Pillar 2	Undertake a national 'Climate Change and Health' awareness-raising and educational campaign targeting public understanding of the health impacts of climate change and geared towards promoting resilience-building measures (e.g. heat health responses)	Ministry of Health and Wellness

S3.5	UN SDG 3 NDP 11 Social and Human Capital Vision 2036 Pillar 2	Implement a voluntary community-based monitoring and response system to identify community members most vulnerable to health impacts from climate change (the elderly, young children, immunocompromised individuals, persons with mental health challenges and physical challenges), and to provide community support to these vulnerable members in times of need.	Ministry of Health and Wellness
	HUMAN SETTLEMENTS STRATEGY OVERVIEW		
No.	**Strategy Context**	**Strategy**	**Responsible Entity**
S4.1	UN SDG 2 NDP 11 Sustainable Natural Resources Vision 2036 Pillar 3	Introduce updated climate smart agriculture (including conservation and urban agriculture) courses at the five rural training centres of the Division of Farmer Training (under the Department of Extension Services Coordination).	Ministry of Infrastructure and Housing Development
S4.2	UN SDG 6 NDP 11 Sustainable Natural Resources Vision 2036 Pillar 3	Create a support programme to fund or subsidize the adoption of rainwater harvesting in urban and rural settlements, and to provide rebates or other financial incentives for installation of rainwater harvesting in urban and rural households, and commercial, mining and industrial entities.	Ministry of Infrastructure and Housing Development
S4.3	UN SDG 13 NDP 11 Sustainable Natural Resources and Social and Human Capital Vision 2036 Pillar 3	Investigate feasibility and design of a model to develop an endowment fund (possibly with contributions from private sector profit-making industries), to provide low-cost finance to climate change adaptation projects in rural settlements, drawing on lessons from established endowment funds.	Ministry of Infrastructure and Housing Development
S4.4	UN SDG 13 NDP 11 Sustainable Natural Resources and Social and Human Capital Vision 2036 Pillar 3	Create trained capacity within the Ministry of Lands and Housing to guide and manage the harmonization and alignment of policies, strategies, plans, and guidelines related to human settlements in Botswana, with the goal of explicitly harnessing the benefits of projects being implemented across different sectors/role players strengthening and aligning their climate resilience focus.	Ministry of Infrastructure and Housing Development
	FOREST, SAVANNA AND WOODLOT MANAGEMENT STRATEGY OVERVIEW		
No.	**Strategy Context**	**Strategy**	**Responsible Entity**
S5.1	UN SDG 15 NDP 11 Sustainable Natural Resources Vision 2036 Pillar 3	Commission a multi-year research project in Botswana that reviews and identifies climate change related best practice in the forestry sector from other countries and regions, and evaluates – including through pilot measures – the interventions most suited to Botswana's savannas, woodlands and forests.	Ministry of Environment, Natural Resources Conservation and Tourism (MENT)
S5.2	UN SDG 15 NDP 11 Sustainable Natural Resources Vision 2036 Pillar 3	Identify, in consultation with communities and stakeholders, as well as research and academic institutions, new climate change research areas and determine needs and gaps most suited to Botswana through promoting exchange, cooperation and networking by government, private sector, nationally, regionally, and internationally.	Ministry of Environment, Natural Resources Conservation and Tourism (MENT)
S5.3	UN SDG 15 NDP 11 Sustainable Natural Resources Vision 2036 Pillar 3	Identify and include stronger climate change science and considerations into the next revision or update of the National Forest Policy, the National Forestry Action Plan, the Botswana Biodiversity Strategy and Action Plan, and the	Ministry of Environment, Natural Resources Conservation and Tourism (MENT)

		Forest Conservation Strategy. Include a specific focus on reducing forest and savanna fires, pests and disease break outs.	
S5.4	UN SDG 15 NDP 11 Sustainable Natural Resources Vision 2036 Pillar 3	Convene and set up a national forestation and forest degradation task force (with members from government, academia, civil society, rural communities etc.) to provide guidance to the Department of Forests and Range Resources on elephant damage, wildland fires, pest and disease break out, and habitat destruction, aligned with Botswana's wildland fire strategy.	Ministry of Environment, Natural Resources Conservation and Tourism (MENT)
S5.5	UN SDG 15 NDP 11 Sustainable Natural Resources Vision 2036 Pillar 3	Strengthen and further build capacity of the already existing Community Based Natural Resources Management Programme with a mandate and resources to guide and implement sustainable ecosystem management through the use of both traditional practices and forestry sector best practice, such as establishing community woodlots. Enhance the CBNRM trusts' capacity to monitor, report, and respond to illegal activity in forests. through the use of both traditional practices and forestry sector best practice such as establishing community woodlots.	Ministry of Environment, Natural Resources Conservation and Tourism (MENT)
S5.6	UN SDG 15 NDP 11 Sustainable Natural Resources Vision 2036 Pillar 3	Establish a comprehensive monitoring system for forest, savanna and wetland resources and ecosystem conditions through full operationalization and up scaling of the REDD+ integrated Monitoring System developed under Botswana's REDD+ pilot project, and by carrying out National Forest Inventory data collection and entry in order to determine carbon stock, Forest Cover and Land Degradation..	Ministry of Environment, Natural Resources Conservation and Tourism (MENT)
S5.7	UN SDG 15 NDP 11 Sustainable Natural Resources Vision 2036 Pillar 3	MENT to add to the next revision or update of the National Forest Policy, and the National Forestry Action Plan: fire management activities such as prescribed burning, fire detection system, firebreak maintenance, deployment of seasonal fire teams, capacity building on fire management (principles and techniques), procurement of fire equipment, and establishment of community fire management teams. Budget to be allocated to necessary training and roll out.	Ministry of Environment, Natural Resources Conservation and Tourism (MENT)

LAND USE AND LAND USE CHANGE STRATEGY OVERVIEW

No.	Strategy Context	Strategy	Responsible Entity
S6.1	UN SDG 15 NDP 11 Sustainable Natural Resources Vision 2036 Pillar 3	Introduce ecosystem-based adaptation (EBA) as a core criterion and consideration into Botswana's land use planning legislation and land use master planning guidelines.	Ministry of Environment, Natural Resources Conservation and Tourism (MENT)
S6.2	UN SDG 13 NDP 11 Social and Human Capital Vision 2036 Pillar 3	Amend guidelines for preparation of regional master plans, district settlement strategy plans, district integrated land-use plans, and district development plans to include explicit directions for the integration of climate change considerations (such as climate change scenarios and modelling)	Ministry of Environment, Natural Resources Conservation and Tourism (MENT)
S6.3	UN SDG 15 NDP 11 Sustainable Natural Resources and Good governance/National Security Vision 2036 Pillar 3	The Ministry of Finance and Development Planning should develop a guidance document, a toolkit, and training modules for government officials on 'Climate-compatible Decision-making for Development,' including guidance on making administrative decisions despite climate change uncertainty.	Ministry of Finance and Development Planning
S6.4	UN SDG 13 NDP 11 Social and Human Capital Vision 2036 Pillar 3	Strengthen and further build capacity of the already existing Community Based Natural Resources Management trusts with a mandate and resources to guide and implement ecosystem management on communal lands, and to include the use of both traditional practices and sector best practice.	Ministry of Environment, Natural Resources Conservation and Tourism (MENT)

S6.5	UN SDG 13 NDP 11 Social and Human Capital Vision 2036 Pillar 3	Recapacitate the national land rehabilitation programme with an explicit focus on rehabilitating land in a climate resilient manner that promotes biodiversity and conservation concerns. A key aspect of the program should be on restoration through reduction of bush encroachment on land which needs to be rehabilitated.	Ministry of Environment, Natural Resources Conservation and Tourism (MENT)
	DISASTER RISK REDUCTION STRATEGY OVERVIEW		
No.	**Strategy Context**	**Strategy**	**Responsible Entity**
S7.1	UN SDG 13 NDP 11 Good governance/National Security Vision 2036 Pillar 3	Update and operationalise a 2019 – 2023 National Disaster Management Strategy (to succeed the current 2013 – 2018 national strategy), with a strong emphasis on the entire disaster management continuum, as well as climate change specific hazards, vulnerabilities, management/capacity building. Capture the integration of climate change adaptation and disaster management in a disaster management legislative framework to give this the power of the law and enforceability.	Office of the President (OP)
S7.2	UN SDG 13 NDP 11 Sustainable Natural Resources Vision 2036 Pillar 3	Develop a national disaster information management portal or platform that allows for consolidation of currently fragmented information, contains a user-friendly database, dashboards that indicate action taken by different departments, and tracks responses. Ensure this national portal is well-linked to and integrates data from regional and international centres such as the SADC The Climate Services Centre.	Office of the President (OP)
S7.3	UN SDG 13 NDP 11 Sustainable Natural Resources Vision 2036 Pillar 3	Incentivize the private sector's involvement in disaster risk identification, assessment, insurance, prevention, mitigation, adaptation, early warning systems, response and recovery, through financial opportunities (such as, but not limited to, allocating resources to purchase innovative and effective climate services and disaster-related ICT products).	Office of the President (OP)
	BIODIVERSITY AND ECOSYSTEM STRATEGY OVERVIEW		
No.	**Strategy Context**	**Strategy**	**Responsible Entity**
S8.1	UN SDG 15 NDP 11 Sustainable Natural Resources NBSAP Target 9 Vision 2036 Pillar 3	Establish a public-private-civil society alien invasive species task force to develop and implement an action plan against Botswana's most damaging invasive species (such as mesquite, Kariba weed or Salvinia, and water lettuce).	Ministry of Environment, Natural Resources Conservation and Tourism (MENT)
S8.2	UN SDG 15 NDP 11 Sustainable Natural Resources Vision 2036 Pillar 3	Fully implement and accomplish the targets of the National Biodiversity Strategy and Action Plan (NBSAP) 2016-2025, the Community Based Natural Resources Management policy, and other relevant ecosystem and species-specific strategies and plans.	Ministry of Environment, Natural Resources Conservation and Tourism (MENT)
S8.3	UN SDG 15 and SDG 13 NDP 11 Sustainable Natural Resources Vision 2036 Pillar 3	Amend (or issue a notification on) the 2016 NBSAP's (NBSAP 3) target 11 (for goal 3) and target 15 (for goal 4) to explicitly include ecosystem-based adaptation (EBA).	Ministry of Environment, Natural Resources Conservation and Tourism (MENT)
S8.4	UN SDG 15 and SDG 13 NDP 11 Sustainable Natural Resources Vision 2036 Pillar 3	Amend the Botswana Environmental Impact Assessment (EIA) Act (No. of 2011) to include more stringent requirements related to ecosystem climate resilience in the Environmental Management Plan (EMP) to be submitted as part of the EIA or Strategic Environmental Assessment (SEA) process to DEA.	Ministry of Environment, Natural Resources Conservation and Tourism (MENT)

S8.5	UN SDG 15 and SDG 13 NDP 11 Sustainable Natural Resources Vision 2036 Pillar 3	Mandate and capacitate local authorities (district councils and town councils) to require specific climate resilience planning and measures when evaluating and approving building or construction permits within proximity of climate-sensitive ecosystems.	Ministry of Environment, Natural Resources Conservation and Tourism (MENT)
S8.6	UN SDG 15 and SDG 13 NDP 11 Sustainable Natural Resources Vision 2036 Pillar 3	Accelerate the adoption of natural capital accounting methods developed under Botswana's waves partnership (water accounts, energy accounts, mineral accounts, tourism related land and ecosystem accounts, and macroeconomic indicators such as adjusted national income, adjusted national savings, and adjusted national wealth accounts) into government-wide annual budgeting processes and into the NDP 12	Ministry of Environment, Natural Resources Conservation and Tourism (MENT)
	INFRASTRUCTURE DEVELOPMENT STRATEGY OVERVIEW		
No.	**Strategy Context**	**Strategy**	**Responsible Entity**
S9.1	UN SDG 9 NDP 11 Social and Human Capital Vision 2036 Pillar 3	Develop, under the auspices of the Ministry of Infrastructure and Housing and Development, a planning and implementation guidance document for integration of climate resilience into large infrastructure design and development in Botswana, localizing best practice from the across Africa and major development partners.	Ministry of Infrastructure and Housing and Development
S9.2	UN SDG 9 NDP 11 Social and Human Capital Vision 2036 Pillar 3	Develop training modules and workshops for entities like the Botswana Institution of Engineers, the Association of Botswana Building and Civil Engineering Contractors, and the Association of Consulting Engineers Botswana to study the integration of climate resilience into power and water infrastructure.	Ministry of Infrastructure and Housing and Development
S9.3	UN SDG 9 NDP 11 Social and Human Capital Vision 2036 Pillar 3	Support climate-related research on infrastructure development through the issuance of publicly-funded research grants, with a focus on preventing or reducing climate-related depreciation and stranded assets.	Ministry of Infrastructure and Housing and Development
S9.4	UN SDG 9 NDP 11 Social and Human Capital Vision 2036 Pillar 3	Conduct a study of public-private partnerships focused on adaptation in the infrastructure sector in Africa and identify project models that could be replicated in Botswana.	Ministry of Infrastructure and Housing and Development
S9.5	UN SDG 9 NDP 11 Social and Human Capital Vision 2036 Pillar 3	Solicit guidance and direction from the African Union – European Union Reference Group on Infrastructure regarding the mainstreaming of climate change in infrastructure cooperation.	Ministry of Infrastructure and Housing and Development
	INDUSTRY AND MANUFACTURING STRATEGY OVERVIEW		
No.	**Strategy Context**	**Strategy**	**Responsible Entity**
S10.1	UN SDG 13 NDP 11 Social and Human Capital Vision 2036 Pillar 3	Establish a joint public-private task force (with partners like Business Botswana and the Botswana Chamber of Commerce and Industry) to monitor, advise on, and recommend ways in which industry and manufacturing in Botswana could contribute to broader climate change resilience through more climate-compatible operations.	Ministry of Investment, Trade and Industry

S10.2	UN SDG 13 NDP 11 Social and Human Capital Vision 2036 Pillar 3	In the financial services industry, develop de-risking products to help provide finance to climate resilience measures, and develop insurance products for climate-sensitive businesses to help protect against damage and loss from climate-related events.	Ministry of Investment, Trade and Industry
	TOURISM STRATEGY OVERVIEW		
No.	Strategy Context	**Strategy**	**Responsible Entity**
S11.1	UN SDG 8 NDP 11 S Developing diversified sources of economic growth. Vision 2036 Pillar 1	MENT to initiate a study on the potential impacts of climate change on the tourism industry in order to implement effective and high-potential resilience solutions.	Ministry of Environment, Natural Resources Conservation and Tourism (MENT)
S11.2	UN SDG 8 NDP 11 S Developing diversified sources of economic growth. Vision 2036 Pillar 1	Expand existing cultural tourism pilot projects focused on Botswana's traditional Masimo and Moraka farming and increase marketing campaigns to popularise them and attract tourists, thus diversifying income streams.	Ministry of Environment, Natural Resources Conservation and Tourism (MENT)
S11.3	UN SDG 8 NDP 11 S Developing diversified sources of economic growth. Vision 2036 Pillar 1	Update the Eco-Tourism Guidelines to include climate-friendly measures for operators to adopt and be graded against, and ensure the guidelines are more broadly adopted.	Ministry of Environment, Natural Resources Conservation and Tourism (MENT)

STRATEGY OVERVIEW – MITIGATION STRATEGIES

	SUSTAINABLE ENERGY STRATEGY OVERVIEW		
No.	**Strategy Context**	**Strategy**	**Responsible Entity**
S12.1	UN SDG 7 NDP 11 Sustainable Natural Resources Vision 2036 Pillar 3	Develop a comprehensive financial and tax incentives program for energy efficiency, energy conservation, and clean energy use in micro, small, and medium enterprises and in rural community enterprises.	Ministry of Investment, Trade and Industry
S12.2	UN SDG 7 NDP 11 Sustainable Natural Resources	Develop a Low Carbon Pathways Methodology and Guidance Toolkit for Botswana,	Ministry of Investment, Trade and Industry

	Vision 2036 Pillar 3	and conduct training workshops for relevant officials in all ministries in home languages overseeing carbon-intensive sectors to adopt the low carbon pathway approach into their planning cycles as well as into the development of NDP 12.	
S12.3	UN SDG 7 NDP 11 Sustainable Natural Resources Vision 2036 Pillar 3	Adopt and fully implement the Botswana Renewable Energy Strategy finalized in 2017.	Ministry of Investment, Trade and Industry
S12.4	UN SDG 7 NDP 11 Sustainable Natural Resources Vision 2036 Pillar 3	Adopt and fully implement the draft Net Metering guidelines being finalized in 2018, to incentivize growth in domestic and commercial solar power generation and usage.	Ministry of Investment, Trade and Industry
S12.5	UN SDG 7 NDP 11 Sustainable Natural Resources and Good governance/National security Vision 2036 Pillar 3	Increase the levels of incentives to renewable energy and conservation related technologies and equipment under Botswana's Manufacturing Investment Incentive and Import Duty Exemption.	Ministry of Investment, Trade and Industry
S12.6	UN SDG 7 NDP 11 Sustainable Natural Resources and Good governance/National security Vision 2036 Pillar 3	Increase the levels of incentives for renewable energy and energy efficiency related technologies and equipment such as solar power to households and businesses.	Ministry of Investment, Trade and Industry
S12.7	UN SDG 7 NDP 11 Sustainable Natural Resources and Good governance/National security Vision 2036 Pillar 3	Design, put in place, and operationalise a multi-sectoral greenhouse gas emissions monitoring, reporting, and verification system in compliance with UNFCCC standards, to annually measure progress against the NDC target of 15% GHG reduction in absolute terms over the 2010 baseline.	Ministry of Investment, Trade and Industry
	TRANSPORTATION STRATEGY OVERVIEW		
No.	**Strategy Context**	**Strategy**	**Responsible Entity**
S13.1	UN SDG 11 NDP 11 Social and Human Capital Vision 2036 Pillar 3	Put into effect and fully operationalise the National Multi-Modal Transport Master Plan developed with the World Bank's support, with accelerated implementation of public transportation and related components.	Ministry of Transport and Communications
S13.2	UN SDG 11 NDP 11 Social and Human Capital	Develop an Integrated Public Transport Network (IPTN) framework and plan for Botswana's three most populated cities, including a focus on safety and operational standards and options for regularising and formalizing informal public transportation networks if feasible.	Ministry of Transport and Communications

	Vision 2036 Pillar 3		
S13.3	UN SDG 11 NDP 11 Social and Human Capital Vision 2036 Pillar 3	Put into effect and fully operationalise the National Multi-Modal Transport Master Plan developed with multilateral organisations support, which contains components on the sustainability of the national carrier Air Botswana and Commence preparations and capacity building for Botswana's voluntary participation from 2021 in the International Civil Aviation Organization's (ICAO's) global market-based mechanism – Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA)(ICAO, n.d.)	CAAB
S13.4	UN SDG 11 NDP 11 Social and Human Capital Vision 2036 Pillar 3	Develop a transport sector emissions reduction target consistent with and to contribute to Botswana's economy-wide NDC 2030 target of 15% GHG reduction in absolute terms over the 2010 baseline.	Ministry of Transport and Communications
S13.5	UN SDG 11 NDP 11 Social and Human Capital Vision 2036 Pillar 3	Develop, publish, issue, and bring into effect under the auspices of the Botswana Bureau of Standards, appropriate vehicular emission standards for motorized transport. Design and operationalise an emissions monitoring and reporting system with private sector involvement as well as an enforcement and penalty system to support the implementation of the vehicular emission standards adopted.	Ministry of Transport and Communications
S13.6	UN SDG 11 NDP 11 Social and Human Capital Vision 2036 Pillar 3	Ensure that Transport sector policy, strategy and planning is fully responsive and addresses climate change issues, providing sustainable solutions for both mitigation and adaptation. Ensure that the Ministry of Transport and Communications creates sector wide strategies, followed by specific strategies for each sub-sector.	Ministry of Transport and Communications
S13.7	UN SDG 11 NDP 11 Social and Human Capital Vision 2036 Pillar 3	Create and operationalise an Air Quality Monitoring System (AQMS) in locations of heavy transport activities.	Ministry of Transport and Communications
S13.7	UN SDG 11 NDP 11 Social and Human Capital Vision 2036 Pillar 3	Lower GHGs emissions within the transport sector though a relevant taxation system based on GHG emissions by vehicle and use.	Ministry of Transport and Communications
	WASTE MANAGEMENT STRATEGY OVERVIEW		
No.	**Strategy Context**	**Strategy**	**Responsible Entity**
S14.1	UN SDG 13 NDP 11 Social and Human Capital Vision 2036 Pillar 3	Fully implement the recently concluded opportunities assessment of waste-to-energy projects in Botswana with a view to managing waste as a resource	Ministry of Environment, Natural Resources Conservation and Tourism (MENT)
S14.3	UN SDG 13 NDP 11 Social and Human Capital Vision 2036 Pillar 3	Fully operationalise the Botswana Recycling Guidelines, including components on valorisation and contribution of waste recycling to climate change mitigation.	Ministry of Environment, Natural Resources Conservation and Tourism (MENT)
	AGRICULTURE, FORESTRY AND LAND USE STRATEGY OVERVIEW		
No.	**Strategy Context**	**Strategy**	**Responsible Entity**

S15.1	UN SDG 13 NDP 11 Social and Human Capital Vision 2036 Pillar 2 and 3	Become a member of international partnerships and alliances on agriculture sector mitigation to enable Botswana to be exposed to best practices and explore collaborative opportunities with global institutions working to reduce AFOLU emissions.	Ministry of Environment, Natural Resources Conservation and Tourism (MENT)
S15.2	UN SDG 13 NDP 11 Social and Human Capital Vision 2036 Pillar 2 and 3	Implement and enforce climate change mitigation as a core criterion and consideration into Botswana's land use planning legislation and land use master planning guidelines, to realise the goals of Botswana's National Spatial Plan 2036, which emphasizes the need for spatially targeting climate resilience in key sectors.	Ministry of Land Management, Water and Sanitation Services
S15.3	UN SDG 13 NDP 11 Social and Human Capital Vision 2036 Pillar 2 and 3	Utilising the newly mandated CBNRM programme and its institutions, create a forest wildfire early warning, monitoring and management system to help combat GHG emissions through forest wildfires.	Ministry of Environment, Natural Resources Conservation and Tourism (MENT)
S15.4	UN SDG 13 NDP 11 Social and Human Capital Vision 2036 Pillar 2 and 3	Identify key livestock-focused areas of intervention within existing Climate Smart Agriculture (CSA) programmes, and scale-up such programmes with a specific focus on manure management through the adoption of new manure storage, handling and treatment technologies in order to lower GHG emissions for the sector.	Ministry of Agricultural Development and Food Security
S15.4	UN SDG 13 NDP 11 Social and Human Capital Vision 2036 Pillar 2 and 3	Utilising the new mandated CBNRM programme, implement a National Woodlot Management System in order to create sustainable and managed woodlots.	Ministry of Environment, Natural Resources Conservation and Tourism (MENT)
	EXTRACTIVES AND MINING STRATEGY OVERVIEW		
No.	**Strategy Context**	**Strategy**	**Responsible Entity**
S16.1	UN SDG 13 NDP 11 Sustainable Natural Resources Vision 2036 Pillar 1	Develop an extractive (mining and quarrying) sector emissions reduction target consistent with and to contribute to Botswana's economy-wide NDC 2030 target of 15% GHG reduction in absolute terms over the 2010 baseline.	Ministry of Mineral Resources, Green Technology and Energy Security
S16.2	UN SDG 13 NDP 11 Sustainable Natural Resources Vision 2036 Pillar 1	Ensure adoption of GHG reduction initiatives by members of the Chambers of Mines that reflect international best practice from the extractives and mining industry in its approach to climate change including monitoring and evaluation pathways.	Ministry of Mineral Resources, Green Technology and Energy Security
	CARBON BUDGETS AND ABATEMENT PATHWAYS STRATEGY OVERVIEW		
No.	**Strategy Context**	**Strategy**	**Responsible Entity**
S17.1	UN SDG 13 NDP 11 Sustainable Natural Resources Vision 2036 Pillar 1 and 2	Prepare a study that determines the most appropriate methodology for calculating short, medium, and long-term sectoral carbon budgets in Botswana, drawing on best practice and models from the region (Marquard, 2012), and in alignment with Botswana's NDC target of 15% GHG reductions by 2030	Ministry of Mineral Resources, Green Technology and Energy Security

S17.2	UN SDG 13 NDP 11 Sustainable Natural Resources Vision 2036 Pillar 1 and 2	Issue guidelines for the development of NDP 12 that explicitly mandate the inclusion of sectoral carbon budgets for the period covered by NDP 12.	Ministry of Mineral Resources, Green Technology and Energy Security
	MARKET BASED MECHANISMS STRATEGY OVERVIEW		
No.	**Strategy Context**	**Strategy**	**Responsible Entity**
S18.1	UN SDG 13 NDP 11 Sustainable Natural Resources Vision 2036 Pillar 1 and 2	Drawing on learnings from other developing countries, develop a comprehensive report that studies, models, and analyses various scenarios for carbon taxes in Botswana, including an evaluation of the sectors or industries that would be taxed, the level of taxation, progressive taxation features, ringfencing of the tax revenues, and multiplier effects on consumption, incomes, and economic activity.	Ministry of Environment, Natural Resources Conservation and Tourism (MENT)
S18.2	UN SDG 13 NDP 11 Sustainable Natural Resources Vision 2036 Pillar 1 and 2	Drawing on learnings from other developing countries, develop studies, models, and analyses that examine various scenarios for: (a) An international emissions or offsets trading mechanisms in Botswana that reflects the guidance from the UNFCCC on the new 'Article 6.4 sustainable development mechanism' and (b) A domestic emissions or offsets trading scheme that could enable carbon-intensive industries to meet and reduce their carbon budgets over time.	Ministry of Mineral Resources, Green Technology and Energy Security
S18.3	UN SDG 13 NDP 11 Sustainable Natural Resources Vision 2036 Pillar 1 and 2	Prepare for and lay the foundation for the extremely high level of accounting integrity required under the UNFCCC's global transparency mechanism that will take stock of progress on NDCs every five years, by putting in place a rigorous, multi-sectoral greenhouse gas emissions monitoring, reporting, and verification system in compliance with UNFCCC standards (linked to the NDC 2030 target of 15% GHG reduction in absolute terms over the 2010 baseline).	Ministry of Mineral Resources, Green Technology and Energy Security

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STRATEGY OVERVIEW – CROSS CUTTING THEMES

GENDER STRATEGY OVERVIEW			
No.	**Strategy Context**	**Strategy**	**Responsible Entity**
S19.1	SDG 5 NDP 11 Social and Human Capital Vision 2036 Pillar 2	Develop a national Climate Change Gender Action Plan[18] (ccGAP), with an emphasis on women as drivers of climate resilience, and women's role in water and energy and healthcare provision in households.	Department of Gender Affairs
S19.2	SDG 5 NDP 11 Social and Human Capital Vision 2036 Pillar 2	Promote equitable participation of women farmers and female-headed households in Climate Smart Agriculture (CSA) programmes, agritourism, and access to conservation agriculture technologies.	Ministry of Agricultural Development and Food Security
S19.3	SDG 5 NDP 11 Social and Human Capital Vision 2036 Pillar 2	Ensure equitable gender access to the proposed endowment fund providing low-cost finance to climate change adaptation projects, aligned to existing similar projects.	Ministry of Environment, Natural Resources Conservation and Tourism (MENT)
S19.4	SDG 5 NDP 11 Social and Human Capital Vision 2036 Pillar 2	Ensure that women's voices are included in natural resources management through their equitable participation in CBNRM processes.	Ministry of Environment, Natural Resources Conservation and Tourism (MENT)
S19.5	SDG 5 NDP 11 Social and Human Capital Vision 2036 Pillar 2	Ensure that gendered differences of climate change are mainstreamed into climate change education.	Ministry of Environment, Natural Resources Conservation and Tourism (MENT)
S19.6	SDG 5 NDP 11 Social and Human Capital Vision 2036 Pillar 2	Ensure the full participation of women and female-headed households in disaster management public gatherings, to address both the higher vulnerability of women and children, and to plan for the higher post-disaster burden placed on women due to their dual roles as producers and carers.	Office of the President
	EDUCATION AND TRAINING STRATEGY OVERVIEW		
No.	**Strategy Context**	**Strategy**	**Responsible Entity**

[18] http://genderandenvironment.org/works/ccgaps/

S20.1	SDG 4 and 13 NDP 11 Social and Human Capital Vision 2036 Pillar 2	National school educational curriculum at all levels (primary, secondary and tertiary as well as including professional and technical education) shall be revised and updated to include (distinct from existing environmental education) a study of climate change causes, impacts, responses, and solutions, and a focus on both mitigation and adaptation as core curricula.	Ministry of Tertiary Education, Research, Science and Technology
S21.1	SDG 4 and 13 NDP 11 Social and Human Capital Vision 2036 Pillar 2	Training modules and knowledge-transfer workshops shall be developed and conducted annually across all spheres of government to strengthen understanding of climate change through continuing education.	Ministry of Tertiary Education, Research, Science and Technology
	EQUALITY AND EQUITY STRATEGY OVERVIEW		
No.	**Strategy Context**	**Strategy**	**Responsible Entity**
S21.1	SDG 4 and 13 NDP 11 Social and Human Capital Vision 2036 Pillar 2	The revised and updated national school curriculum to be developed shall include discussions of how climate change affects different social groups distinctly, and how vulnerability as well as adaptive capacity varies amongst women, children, youth, minorities, the elderly, mental health patients, and other vulnerable groups.	Ministry of Tertiary Education, Research, Science and Technology
S21.2	SDG 4 and 13 NDP 11 Social and Human Capital Vision 2036 Pillar 2	All sectors shall make special allocation of resources, within the overall programme or project budget for climate change activities, to devote to enhancing the involvement of specific groups of beneficiaries. The beneficiary allocation will be disaggregated into specific amounts targeting women, children, youth, minorities, the elderly, mental health patients, and other vulnerable groups.	Ministry of Tertiary Education, Research, Science and Technology
	INNOVATION, RESEARCH AND DEVELOPMENT STRATEGY OVERVIEW		
No.	**Strategy Context**	**Strategy**	**Responsible Entity**
S22.1	SD6 13 NDP 11 Social and Human Capital Vision 2036 Pillar 2	Establish publicly funded grants for climate change research – focused on both adaptation and mitigation – for each of the sectors covered by the national climate change strategy and action plan and stipulating that the majority of such grant funding would be disbursed to research institutions located within Botswana.	Ministry of Environment, Natural Resources Conservation and Tourism (MENT)
S22.2	NDP 11 Social and Human Capital Vision 2036 Pillar 2	Set up a Climate Innovation Center (CIC) or a Climate Innovation Hub (CIH) to support the generation and growth of climate-compatible business models by providing business incubation, business acceleration, and market access guidance and tools to micro, small, and medium enterprises	Ministry of Environment, Natural Resources Conservation and Tourism (MENT)
S22.3	NDP 11 Social and Human Capital Vision 2036 Pillar 2	Establish government support mechanisms through the CIC that enable private sector companies to access climate funds such as the GCF as well as partner with development entities such as JICA, the AfDB etc.	Ministry of Environment, Natural Resources Conservation and Tourism (MENT)
S22.4	NDP 11 Social and Human Capital Vision 2036 Pillar 2	Ensure the incorporation and utilisation of indigenous knowledge systems in all relevant climate change activities.	Ministry of Environment, Natural Resources Conservation and Tourism (MENT)
	COMMUNICATION AND KNOWLEDGE MANAGEMENT STRATEGY OVERVIEW		

No.	Strategy Context	Strategy	Responsible Entity
S23.1	SDG 4 and 13 NDP 11 Social and Human Capital Vision 2036 Pillar 2	Create and implement a Climate Change communication and knowledge management strategy in order to enable he effective communication of climate change information between all relevant parties and Batswana.	Ministry of Transport and Communications
S23.2	SDG 4 and 13 NDP 11 Social and Human Capital Vision 2036 Pillar 2	Media grants and incentives shall be provided to print and broadcast media platforms to increase content on and dissemination of credible information on climate change (e.g. community radio).	Ministry of Transport and Communications
S23.3	SDG 4 and 13 NDP 11 Social and Human Capital Vision 2036 Pillar 2	Community groups, youth groups, NGOs, civil society, and the private sector will be engaged regularly through climate change forums, town halls, and panel discussions to enhance the dialogue on climate change in Botswana with an added focus on learning from and supporting indigenous knowledge systems.	Ministry of Transport and Communications
	CLIMATE SERVICES		
No.	**Strategy Context**	**Strategy**	**Responsible Entity**
S24.1	SDG 13 NDP 11 Sustainable use of natural resources. Vision 2036 Pillar 3	Finalize, adopt, and bring into effect the National Framework for Climate Services (NFCS).	Ministry of Environment, Natural Resources Conservation and Tourism (MENT)
S24.2	SDG 13 NDP 11 Sustainable use of natural resources. Vision 2036 Pillar 3	With contemporary climate services technologies in place, identify and incubate revenue-generating opportunities through tailored weather and climate information products within Botswana.	Ministry of Environment, Natural Resources Conservation and Tourism (MENT)
S24.3	SDG 13 NDP 11 Sustainable use of natural resources. Vision 2036 Pillar 3	Develop sector-specific climate services products for all major sectors in Botswana, ensuring that the unique needs of stakeholders in each sector are catered to in terms of the type of climate information they need and the decisions they use such climate information for.	Ministry of Environment, Natural Resources Conservation and Tourism (MENT)
S24.4	SDG 13 NDP 11 Sustainable use of natural resources. Vision 2036 Pillar 3	Train a number of officials and technical specialists in every Ministry in Botswana to effectively develop requests for sector-specific climate services from DMS, coordinate with DMS on access to such climate services, and interpret the climate services products delivered to gauge what the implications for the sector are.	Ministry of Environment, Natural Resources Conservation and Tourism (MENT)
	INSTITUTIONAL ARRANGEMENTS		
S25.1	SDG 13 NDP 11 Sustainable use of natural resources. Vision 2036 Pillar 3	Design, establish, and operationalize the institutional arrangements described in the National Climate Change Strategy, ensuring effective and representative membership of the institutional structures so that they are multisectoral and multi-stakeholder based.	Ministry of Environment, Natural Resources Conservation and Tourism (MENT)

STRATEGY OVERVIEW – RESOURCE MOBILISATION

RESOURCE MOBILISATION			
No.	**Strategy Context**	**Strategy**	**Responsible Entity**
S26.1	SDG 13 NDP 11 Sustainable use of natural resources. Vision 2036 Pillar 3	Enable access to a variety of climate funds and financing streams through the creation of a Climate Resource Mobilisation Unit (CRMU) within the National Climate Change Unit which is tasked with identifying relevant resources, identifying bankable projects, creation of concept notes and proposals, accessing project preparation funds and driving the entire resource mobilisation process as well as assessing national financial financing pathways.	Ministry of Environment, Natural Resources Conservation and Tourism (MENT)
S26.2	SDG 13 NDP 11 Sustainable use of natural resources. Vision 2036 Pillar 3	The CRNMU to develop and implement a Resource Mobilisation Strategy which locates relevant and appropriate resources to mobilise from global and national funds to combat and address the effects of Climate Change as well as sets out specific sectoral pathways to finance.	Ministry of Environment, Natural Resources Conservation and Tourism (MENT)