REPUBLIC OF BOTSWANA

MINISTRY OF LANDS AND AGRICULTURE

Botswana Agriculture Sector Policy

Turning culture into business






Prepared by the Ministry of Lands and Agriculture May 2025

1 Statement by His Excellency the President of the Republic of Botswana, on the Central Role of Agriculture in Botswana's Economic Future



Fellow Citizens, Bagaetsho,

We stand today at a critical juncture in the life of our nation. For over five decades, diamonds have served Botswana well — they have been a gift of nature, a cornerstone of our economy, and a source of immense national pride. They funded our roads, schools, hospitals, and laid the foundation for a modern and peaceful nation. But like all finite resources, they cannot sustain us forever. The time has come to prepare boldly for a post-diamond economy.

In this moment of change, **agriculture must become the beating heart of our national transformation**.

Agriculture is not new to us. It is in our blood, our culture, our history. But what is new is our recognition that agriculture must now evolve into a driver of growth, employment, export earnings, environmental stewardship, and food sovereignty. No country can be truly independent if it cannot feed itself. And no people can prosper sustainably without nurturing the land that sustains them.

We have all witnessed the challenges our farmers face — from climate variability and prolonged droughts to limited access to markets, financing, and technology. But we have also seen the incredible potential that lies untapped: fertile lands, indigenous knowledge, hardworking communities, innovative young minds, and the power of science and technology.

Today, I want to send a clear message to every Motswana, to every farmer and agro-entrepreneur, to every investor and development partner: **agriculture is a top national priority**. And the time for action is now.

To guide us, the Government has adopted a bold and forward-looking **National Agricultural Policy**. It is not just a paper — it is a declaration of intent and a commitment to action.

This policy will:

- Promote **climate-smart, science-driven agriculture** through partnerships with institutions like NARDI and BUAN, ensuring that our farmers benefit from cutting-edge research, drought-tolerant crops, improved livestock breeds, and smart irrigation systems.
- Expand access to **finance and insurance**, so that agriculture is not seen as a risky venture, but as a bankable and investable sector.
- Strengthen **land tenure and water rights** to support smallholder and commercial farmers alike in planning and growing their enterprises with security and confidence.
- Support the development of **agricultural value chains** — from farm to fork — through investments in storage, processing, packaging, and logistics.
- Position agriculture as a solution to youth unemployment by incentivizing **agri-tech, start-ups, and entrepreneurship**.
- Ensure that **women and vulnerable groups** have full access to land, finance, markets, and leadership opportunities in the agricultural space.
- Promote **sustainable practices** that regenerate soil, conserve biodiversity, and protect the environment for generations to come.

But policy alone is not enough. **The driving force must come from national will, political leadership, and the spirit of unity among our people**. I, as President, give this policy my full and unconditional support on behalf of the Government and the people of Botswana. We will commit the necessary resources. We will cut unnecessary bureaucracy. We will listen to the concerns of farmers. We will learn from best practices, both local and global.

Let me also say this: our success in agriculture is not just about food. It is about dignity. It is about sovereignty. It is about resilience. In a world increasingly shaped by pandemics, geopolitical shocks, climate crises, and rising food prices, we cannot afford to remain import-dependent. We must grow what we eat, and eat what we grow.

This is not a romantic return to the past — it is a strategic leap into the future. A green economy rooted in local innovation, digital tools, and sustainable practices. A Botswana where a child in Ghanzi eats beef raised on regenerative ranches, a student in Palapye drinks milk produced on a solar-powered dairy farm, and an entrepreneur in Francistown exports processed sorghum snacks to regional markets.

This is the Botswana we must build together.

I call upon our private sector to invest confidently in agriculture. I call upon our young people to view agriculture not as a chore, but as a frontier of opportunity. I call upon our traditional leaders to support land governance and communal farming innovation. And I call upon each and every Motswana to support our farmers — they feed the nation.

Let us cultivate the land. Let us cultivate ideas. Let us cultivate unity and pride in who we are.

Agriculture is the next diamond. Let us harvest it together.

PULA!

His Excellency the President of the Republic of Botswana
Duma Gideon Boko

2 Foreword from the Acting Minister of Lands and Agriculture



It is with great pride and a sense of responsibility that I present the new Agriculture Sector Policy, a comprehensive guide designed to steer the growth, sustainability, and diversification of our agricultural industry. As we face an ever-changing global landscape, one that is shaped by rapid technological advancements, climate change, and shifting market dynamics, **the need for innovation and adaptation within the agriculture sector has never been more pressing.**

Diversification is at the core of this policy's vision. Historically, our agricultural sector has been heavily reliant on a few staple crops. While these crops have contributed significantly to our economy, the volatility in global markets and the unpredictable impacts of climate change have underscored the importance of diversifying our agricultural base. **We must embrace a broader range of crops, livestock, and value-added products to reduce our dependency on a narrow agricultural base and improve the resilience of our sector.**

This policy lays the groundwork for enhancing agricultural productivity, fostering new opportunities, and ensuring that our farmers are equipped with the tools and knowledge they need to succeed in a modern and dynamic agricultural environment. It emphasizes the importance of sustainable farming practices, technological innovation, and market access, all while fostering an environment that encourages the growth of new industries and supports the diversification of our agricultural outputs.

Our commitment to diversification extends beyond the crops we grow. **We must also diversify the ways in which we process, market, and export our products, ensuring that we capture**

greater value from our agricultural resources. As we work to transform the sector, I am confident that we can build a robust and inclusive agricultural economy that will not only feed our nation but also contribute to global food security and environmental sustainability.

Together, we embark on a new era of agricultural transformation, where growth, sustainability, and diversification go hand in hand. This policy represents a bold step forward in securing the future of our agriculture sector and the livelihoods of those who depend on it.

Hon. Edwin Dikoloti

Acting Minister of Lands Agriculture

3 Executive Summary: Agriculture Sector Policy of Botswana

The Agriculture Sector Policy (ASP) is designed to transform Botswana's agricultural landscape into a resilient, innovative, and competitive sector that contributes significantly to national development. This policy synthesizes key areas of growth and change, addressing long-standing challenges and presenting opportunities for both immediate and long-term advancements.

Social Policy Framework: Empowering Communities

The policy envisions an inclusive agricultural sector that prioritizes rural empowerment, youth and gender inclusion, community resilience, health, and nutrition. By focusing on issues such as rural poverty, youth disengagement, and gender inequality, it aims to empower marginalized communities through skills development, land access reforms, and incentives for youth and women-led initiatives. The goal is to foster a socially equitable agricultural revolution that merges modern farming practices with indigenous knowledge. The timeframes for implementation range from immediate improvements (land rights reforms and youth incentives within two years) to more profound cultural shifts over the next 5-10 years.

Technical Policy Framework: Driving Modernization

Technical innovation is at the heart of Botswana's agricultural modernization. The policy promotes the adoption of smart farming technologies, precision agriculture, and climate-resilient practices. Key strategies include the expansion of mechanization, research-driven innovations, and access to digital tools such as mobile apps and market platforms. Immediate actions target piloting smart farming hubs, with broader, long-term goals focusing on the full mechanization of sectors and a data-driven agricultural system. This transformation aims not only for higher productivity but also to position Botswana's agriculture as a global leader in smart, sustainable practices.

Economic Policy Framework: Unlocking Growth Potential

The economic revitalization of the agriculture sector is central to achieving food security and rural prosperity. The policy emphasizes financial access, value addition, commercialization, and export competitiveness. Addressing high input costs, post-harvest losses, and market volatility, it proposes tailored financing models, value chain development, and strengthening of agro-industrial parks. Short-term goals aim to establish financing schemes and infrastructure upgrades, with medium- to long-term targets focusing on the commercialization of agricultural sectors and export market leadership.

Environmental Policy Framework: Ensuring Sustainability

Sustainability is critical to the policy's long-term success. The environmental framework addresses climate risks, land degradation, water scarcity, and biodiversity loss. Key initiatives include promoting regenerative agriculture, conservation farming, reforestation, and climate-smart aquaculture. Through sustainable farming techniques, water-efficient irrigation, and improved natural resource management, the policy aims to build climate resilience in farming communities. Short-term actions include pilot programs in regenerative farming, while long-

term goals focus on reversing desertification and achieving a sustainable, climate-resilient agricultural system.

Political Policy Framework: Strengthening Governance

Effective governance is essential for the successful implementation of the policy. The policy framework proposes institutional reforms, simplifying land governance, decentralizing services, and enhancing transparency. A dedicated Agricultural Development Authority will coordinate policy, research, and investments. The policy also aims to overhaul land tenure systems, ensuring secure, bankable leases for farmers. Anti-corruption measures, including digital land registries, will ensure fairness in policy implementation. The political framework envisions strong, transparent, and farmer-cantered governance by 10 years.

Sector-Specific Strategies

- Arable Farming: Focused on improving yields through precision farming, mechanization, and climate-smart practices. Value chain development, access to finance, and export competitiveness are also prioritized.
- Pastoral Farming: Restructuring the sector to enhance productivity through livestock breeding, veterinary services, and rangeland management. The goal is to establish Botswana as a leader in sustainable, high-quality beef and livestock products.
- Horticulture: Investments in greenhouse production, drip irrigation, and market access are aimed at creating a year-round, climate-resilient horticulture sector. The sector will contribute to food security, employment, and export revenue.
- Forestry: Balancing conservation with economic opportunities, the policy supports agroforestry, sustainable timber production, and eco-tourism. Reforestation programs and sustainable harvesting will be key.
- Aquaculture: Expanding fish farming and creating value chains in processing, cold storage, and export markets. The goal is to position Botswana as a leader in inland fisheries.
- Hydroponics: Promoting urban farming systems, such as hydroponics and vertical farming, to increase local food production and reduce imports. This will create an innovative, climate-resilient agriculture sector in urban and peri-urban areas.

Conclusion

The Agriculture Sector Policy sets the stage for a transformative agricultural revolution in Botswana, emphasizing diversification across all sectors. By addressing social, technical, economic, environmental, and political dimensions, this policy aims to create a dynamic, resilient, and sustainable agricultural sector that will empower communities, enhance productivity, and drive national development. With clear short-, medium-, and long-term goals, the policy provides a roadmap for a thriving agricultural economy that benefits all sectors of society, ensuring food security, economic prosperity, and environmental sustainability for future generations.

4 Policy synthesis

SOCIAL POLICY SYNTHESIS

Botswana's agricultural future hinges on addressing social issues that have historically hindered sector growth. The new policy emphasizes rural empowerment, youth and gender inclusion, community resilience, health and nutrition, and education. By tackling specific problems like rural poverty, youth disinterest in farming, gender inequality, and food insecurity, the policy aims to foster a socially inclusive agricultural revolution. Initiatives will include skills development programs, land access reform, incentives for youth and women-led farming, and community-based agricultural extension services. Improved healthcare access for farming communities and enhanced food nutrition campaigns will complement these efforts. Recognizing that farming is more than a livelihood but a way of life, the social policy framework promotes cultural sensitivity and indigenous knowledge integration. Modernization must not erase tradition but rather empower communities to blend ancestral wisdom with innovative practices. Key strategies include investing in community farming cooperatives, facilitating social protection schemes for vulnerable farmers, and ensuring that modern technologies are culturally acceptable and accessible. Timeframes are pragmatic, targeting quick wins (e.g., land rights reforms and youth incentives within two years) alongside long-term cultural shifts (over 5–10 years). The overall goal is to create an agricultural society that is dynamic, equitable, and resilient — capable of retaining young talent, promoting social justice, and restoring dignity to rural life.

TECHNICAL POLICY SYNTHESIS

Technical innovation will be the engine that drives Botswana's agricultural modernization. The policy focuses on expanding the use of smart farming techniques, promoting mechanization, strengthening research and development, improving input systems (seeds, fertilizers, livestock genetics), and bridging the rural digital divide. Problems such as low productivity, outdated farming methods, and lack of research uptake are targeted by introducing precision agriculture technologies (e.g., drones, sensors, satellite monitoring), smart irrigation systems, climate-resilient crop varieties, and livestock genetic improvement programs. Training farmers and extension officers on modern tools is prioritized to ensure adoption. Research centre's will be revitalized to focus not just on academic knowledge but on delivering practical, market-driven innovations for farmers, including early warning systems for pests, diseases, and climate shocks. Enhancing access to quality inputs, standardizing input certification, and supporting private sector input suppliers will guarantee better results on farms. Importantly, digital agriculture solutions — mobile apps, e-extension, and market platforms — will connect farmers with information and markets, especially targeting youth and women. Short-term actions (1–3 years) focus on piloting smart farming hubs and digital extension services. Medium- and long-term strategies (4–10 years) include full mechanization of specific farming sectors and achieving wide-scale adoption of data-driven farming practices. The technical transformation aims not only for higher productivity but for creating an agriculture that is resilient, data-smart, and competitive on a global scale.

ECONOMIC POLICY SYNTHESIS

Economic revitalization of agriculture is crucial for Botswana's food security and rural prosperity. The new policy emphasizes financial access, value addition, commercialization, export competitiveness, and farmer entrepreneurship. Key problems such as high input costs, limited financing, post-harvest losses, market volatility, and dependency on raw exports are tackled systematically. Farmers will benefit from tailored financing models, including grants, affordable loans, and risk management tools like crop insurance. Value chains will be strengthened by promoting local processing industries, agro-industrial parks, and cooperatives focused on adding value to products like maize, sorghum, beef, poultry, vegetables, cotton, and hemp. Market access initiatives will prioritize export development, regional integration, and establishing quality certification systems to meet international standards. Farm-to-market infrastructure, such as rural roads, cold chains, and storage facilities, will be upgraded through public-private partnerships. Youth entrepreneurship will be stimulated through innovation grants, agribusiness incubators, and training programs. Incentives will also encourage sustainable farming practices that reduce reliance on inputs and improve profitability. Short-term goals (1–3 years) focus on establishing financing schemes, agro-processing hubs, and improved rural infrastructure. Medium- to long-term goals (4–10 years) target full commercialization of selected agricultural sectors, regional market leadership in niche products (e.g., climate-resilient beans, premium beef), and doubling agricultural GDP contribution. Economic modernization will ensure that agriculture is not only a social safety net but a driver of national wealth and industrialization.

ENVIRONMENTAL POLICY SYNTHESIS

Sustainability is at the heart of Botswana's agricultural transformation. The environmental policy framework tackles soil degradation, water scarcity, climate vulnerability, biodiversity loss, and unsustainable land use. Key problems include inefficient water use, land degradation from overgrazing, poor forestry management, and weak adaptation to climate risks. The policy promotes regenerative agriculture, conservation farming, climate-smart aquaculture, reforestation programs, wetland conservation, and sustainable land tenure systems. Initiatives include subsidizing drip irrigation, promoting organic fertilizers, supporting rotational grazing systems, expanding agroforestry, and restoring degraded landscapes through community-driven programs. Critical actions also include strengthening the management of natural resources such as forests, water bodies, and protected agricultural zones. Farmers will receive technical and financial support to transition to sustainable practices. Climate risk insurance and early warning systems will protect vulnerable farmers from droughts and floods. Environmental education campaigns will raise awareness of sustainable land and water management. In the short term (1–3 years), efforts will focus on pilot programs in regenerative farming and targeted land rehabilitation. Medium- to long-term goals (4–10 years) include reversing desertification trends, expanding tree cover, restoring wetlands, and achieving climate resilience across farming systems. Ultimately, the environmental pillar ensures that Botswana's agricultural growth does not deplete future resources but regenerates ecosystems, secures water resources, and strengthens the rural economy's resilience to climate change.

POLITICAL SYNTHESIS

Effective governance is the backbone of successful agricultural transformation. Botswana's agricultural political policy addresses weak institutional frameworks, policy incoherence, corruption risks, and limited farmer participation in decision-making. Specific problems include fragmented responsibilities between ministries, delayed land allocation, opaque resource

distribution, and inadequate policy enforcement. The new policy commits to building strong institutions, simplifying land governance, decentralizing agricultural services, and enhancing transparency. Reforms will include setting up a dedicated Agricultural Development Authority to coordinate policies, investments, and research efforts across all subsectors. Land tenure systems will be overhauled to grant farmers secure, bankable leases quickly and transparently. New legislation will support farmer cooperatives, guarantee farmers' representation in policymaking forums, and safeguard against political interference in market operations. Regulatory frameworks will be updated to attract private investment while protecting environmental and social standards. Anti-corruption measures — such as digital land registries and transparent subsidy allocation systems — will be embedded. Capacity-building initiatives for district-level agricultural offices will empower local service delivery. Short-term actions (1–3 years) include legal and institutional reforms to streamline land and investment processes. Medium-term goals (4–7 years) will focus on strengthening farmer organizations and embedding participatory governance models. By 10 years, Botswana aims to have a robust, transparent, farmer-centred agricultural governance system that ensures policy continuity, accountability, and fairness. Good governance will underpin the success of every other STEEP pillar, creating an environment where agriculture thrives sustainably and inclusively.

ARABLE FARMING SUMMARY

Arable farming will be revolutionized through a dual focus on technical modernization and economic empowerment. Key challenges such as low yields, soil degradation, and market volatility will be tackled through precision farming, improved input systems, and strong value chain development. Technically, farmers will adopt climate-smart practices like conservation agriculture, minimum tillage, and use of drought-tolerant seeds. Smart irrigation technologies such as drip systems and moisture sensors will improve water efficiency. Mechanization will be expanded through affordable leasing schemes and farm equipment hubs. Economically, farmers will benefit from crop insurance, access to affordable finance, and contract farming arrangements linking them to processors and exporters. Cooperative models will be strengthened to lower input costs and enhance bargaining power. Investments in post-harvest technologies — storage, cold chains, and processing — will reduce losses and improve incomes. Infrastructure upgrades (e.g., feeder roads) will ensure better market access. Export competitiveness will be pursued through crop certification programs and branding Botswana's arable products for regional and international markets. Short-term (1–3 years) goals include mechanization pilots, finance schemes, and value chain mapping. Medium- to long-term (4–10 years) aims are full integration of smallholders into formal markets, expansion into niche high-value crops, and doubling productivity sustainably. The vision is a thriving, technology-driven, commercially viable arable sector.

PASTORAL FARMING SUMMARY

Botswana's pastoral sector will be restructured to achieve higher productivity, resilience, and profitability. Technical interventions will address genetic improvement, veterinary services, rangeland management, and climate adaptation. Upgrading livestock breeds, expanding artificial insemination programs, and improving animal health services will boost herd quality and reduce mortality. Pasture management practices — rotational grazing, feedlot systems, and drought fodder reserves — will be promoted to counter land degradation. Economically, pastoralists will access microfinance, livestock insurance, and export-oriented value chains.

New livestock aggregation centre's will facilitate quality control and market access. Leather and meat processing plants will add value locally, increasing rural incomes. Government-backed feed subsidies during droughts and veterinary outreach programs will reduce financial risks. Animal identification and traceability systems will unlock premium export markets. Short-term priorities include expanding animal health coverage and introducing feed support programs. Medium- to long-term plans involve building full livestock corridors linking production, processing, and export facilities. The goal is to position Botswana as a global leader in sustainable, high-quality beef and livestock products.

HORTICULTURE SUMMARY

Horticulture will be a pillar of Botswana's new agricultural economy, providing high-value crops for domestic consumption and export. Technically, investments will focus on greenhouse production, drip irrigation, seedling nurseries, and integrated pest management (IPM) to improve yields and reduce climate risk. Cold storage facilities and logistics systems will extend shelf-life and market reach. Hydroponics and vertical farming will be promoted, especially in peri-urban areas, to maximize land use. Financially, targeted credit lines, public-private investment platforms, and aggregation models will ensure smallholder inclusion. Value addition — in juices, dried fruits, pickles, and cut flowers — will diversify income streams. Certification schemes will help access regional supermarkets and international buyers. Youth-targeted horticulture incubators and e-commerce platforms will further expand opportunities. Short-term actions include expanding extension services for horticulture and setting up demonstration farms. Medium- and long-term plans focus on cluster development, export certification, and horticulture industrial zones. The ambition is to create a vibrant, year-round, climate-resilient horticulture sector driving jobs, food security, and export revenue.

FORESTRY SUMMARY

Botswana's forestry sector will blend conservation with economic opportunity. Technical strategies include promoting agroforestry systems, community woodlots, and sustainable harvesting practices. Indigenous tree species will be protected while commercial timber plantations (e.g., fast-growing species like eucalyptus) will be developed under strict environmental guidelines. Nursery programs will expand tree supply chains, and digital mapping will monitor forest health. Financially, forest enterprises — timber, honey, oils, medicinal plants — will be supported through grants, investment incentives, and community-business partnerships. Eco-tourism linked to forest conservation will open new revenue streams. Sustainable charcoal and biomass energy initiatives will create rural jobs while reducing pressure on natural forests. In the short term, community forestry projects and reforestation campaigns will be launched. In the medium term, sustainable certification schemes and export markets for forest products will be developed. Long-term goals include reversing forest loss and building a green economy where forests contribute to GDP, livelihoods, and carbon sequestration. Botswana's forests will be productive, sustainable, and resilient.

AQUACULTURE SUMMARY

Aquaculture offers immense potential to diversify Botswana's agricultural economy. Technically, the focus will be on expanding freshwater fish farming through pond systems, cage culture in reservoirs, and integrated aquaponics. Improved fingerling production, feed formulation, disease control, and water quality monitoring will drive yields. Training programs

for fish farmers will emphasize best management practices and sustainable harvesting. Economically, affordable start-up financing, input supply chains, and cold chain development will be key. Processing facilities for fish filleting, packaging, and fishmeal production will add value and create jobs. Local feed manufacturing will reduce costs and improve profitability. Markets will be expanded through contracts with hotels, retailers, and export platforms. In the short term, fish farming clusters and model farms will be launched. In the medium term, aquaculture zones near water bodies will be developed with common infrastructure. The long-term goal is to establish a vibrant aquaculture industry contributing to nutrition security, employment, and exports, positioning Botswana as a leader in sustainable inland fisheries.

HYDROPONICS SUMMARY

Hydroponics will redefine farming in Botswana's urban and peri-urban landscapes. Technically, hydroponic systems — nutrient film techniques (NFT), deep water culture (DWC), and vertical farming towers — will be deployed to optimize land and water use. Solar-powered greenhouses, climate control systems, and automated nutrient delivery will ensure high yields even under harsh conditions. Technical training and start-up kits will equip young entrepreneurs and cooperatives to lead the sector. Economically, investment funds, venture capital, and innovation hubs will support hydroponics start-ups. Urban supermarkets, hotels, and restaurants will be targeted as primary markets. Value chains will include fresh salads, herbs, strawberries, and niche vegetables. E-commerce and farm-to-table models will enhance market access. Short-term priorities are hydroponic demonstration farms and training programs. Medium-term actions include establishing hydroponic parks and integrating hydroponics into urban development plans. The long-term goal is for hydroponics to secure year-round fresh produce supply, reduce imports, and create a dynamic urban agriculture sector that is smart, profitable, and climate-resilient.

5 Summary of the Agriculture Sector Policy for Botswana

Purpose: This executive summary distils over 140 agrisector policies across 12 strategic areas into a concise, politically relevant overview. The aim is to guide decision-makers in aligning agricultural transformation with Botswana's Vision 2036, SDGs, and climate adaptation priorities. The summary highlights key challenges, proposed interventions, and cross-cutting recommendations.

1. Agrisector Social Policies (Policy Group 1.1 – 1.11)

Botswana's rural agricultural base faces deep-seated social challenges. These include youth disengagement, gender inequality, ageing farmers, low education levels, migration, health and mental wellness crises, and the erosion of traditional knowledge.

Key Priorities:

- Promote youth engagement through agri-entrepreneurship schemes.
- Empower women farmers via land rights reform and targeted support.
- Introduce agri-wellness programs for mental and physical health.
- Strengthen leadership, mentorship, and intergenerational knowledge transfer.

2. Agrisector Technology Policies (2.1 – 2.15)

Technology deployment remains limited by poor R&D uptake, underfunding, and disconnects between public and private sectors.

Key Priorities:

- Modernize seed systems, breeding, cold chains, and post-harvest management.
- Scale up precision agriculture, data platforms, and climate-smart irrigation.
- Strengthen agricultural extension with ICT, and invest in skills development.
- Improve coordination in research and promote public-private partnerships.

3. Agrisector Economic Policies (3.1 – 3.14)

While Botswana's economy relies heavily on food imports, the agriculture sector is underperforming due to land tenure insecurity, informal markets, and weak risk mitigation tools.

Key Priorities:

- Introduce comprehensive insurance schemes and early warning systems.
- Improve market formalization, digital access, and inclusive mechanization.
- Support informal producers with infrastructure and market linkages.
- Facilitate land consolidation and secure land rights to attract investment.

4. Agrisector Environment Policy (4.1 – 4.15)

Climate change threatens agricultural sustainability. Poor water use, land degradation, and emissions from farming practices are major concerns.

Key Priorities:

- Scale up climate-smart agriculture and sustainable land management.
- Promote renewable energy in farming and reduce methane emissions.
- Protect indigenous species, biodiversity, and habitats.
- Prevent deforestation and overgrazing through conservation programs.

5. Agrisector Governance Policy (5.1 – 5.16)

Weak institutional coordination and policy fragmentation hamper progress.

Key Priorities:

- Strengthen governance and accountability in subsidies and investments.
- Create a National Food Systems Framework.
- Leverage BOTSAT-1 for spatial data in land and crop monitoring.
- Promote farmer inclusion in policy processes and foster transparency.

6. Agrisector Arable Farming (6.1 – 6.10)

Smallholder arable farming is constrained by fragmented land, low financial access, and underuse of mechanisation and biotechnology.

Key Priorities:

- Support seed and biotech innovation.
- Expand irrigation and training for agri-mechanisation.
- Provide tailored finance and risk tools for small-scale farmers.
- Encourage land consolidation for commercial viability.

7. Pastoral Farming Policies (7.1 – 7.16)

Livestock productivity remains sub-optimal despite the national herd's potential. Climate risks, animal health gaps, and inefficient value chains persist.

Key Priorities:

- Modernize the beef and goat value chains.
- Improve breed quality and feed systems.
- Digitize livestock traceability and strengthen animal health services.
- Restructure and commercialize the Botswana Meat Commission.

8. Horticulture Policies (8.1 – 8.7)

Horticulture has high value potential but faces capital, irrigation, and insurance barriers.

Key Priorities:

- Support tree crop expansion and propagation systems.
- Invest in protected agriculture and fertigation technologies.
- Reduce capital barriers and introduce sector-specific insurance.

9. Forestry Policies (9.1 – 9.9)

Forestry is under-utilized and threatened by deforestation, land degradation, and low investment.

Key Priorities:

- Promote value addition in forest products.
- Expand pest control, data systems, and carbon credit funding.
- Improve access to credit and profitability in forest-based industries.

10. Aquaculture Policies (10.1 – 10.8)

Aquaculture offers a diversification path but is hampered by poor infrastructure and limited market access.

Key Priorities:

- Upgrade water quality, breeding, and health systems.
- Improve competitiveness and create small-scale farmer linkages to markets.
- Invest in infrastructure and feed innovation.

11. Hydroponics Industry (11.1 – 11.6)

This emerging sector faces knowledge, capital, and commercialisation barriers.

Key Priorities:

- Launch targeted financing and innovation grants.
- Train youth and new entrants in hydroponics.
- Address water and nutrient challenges with tailored R&D.

12. Cash Crop Policy (12.1 – 12.6)

Cash crop production has potential but risks displacing food crops. Capital access and climate resilience are key concerns.

Key Priorities:

- Support industrial hemp as a high-value crop.
- Balance food security with export opportunities.
- Improve access to long-term finance for climate-resilient cash cropping.

Cross-Cutting Recommendations

1. **Institutional Integration:** Align efforts across ministries, local government, and research bodies.
2. **Finance & Investment:** Create dedicated agri-finance windows targeting underserved areas.
3. **Data & Innovation:** Operationalize digital agriculture and monitoring systems.
4. **Climate Alignment:** Embed resilience across all subsectors.
5. **Youth & Women:** Centre these groups in all policy implementation plans.
6. **Monitoring & Evaluation:** Establish a performance-linked M&E system tied to Vision 2036 and SDGs.

Conclusion: Botswana's agriculture sector must be repositioned from subsistence and fragmentation to productivity, resilience, and commercial viability. This comprehensive policy framework offers clear, implementable priorities. With sustained political will, inter-ministerial collaboration, and stakeholder participation, agriculture can become a cornerstone of inclusive growth and food sovereignty.

Contents

1 Statement by His Excellency the President of the Republic of Botswana, on the Central Role of Agriculture in Botswana's Economic Future 2
2 Foreword from the Acting Minister of Lands and Agriculture 5
3 Executive Summary: Agriculture Sector Policy of Botswana 7
4 Policy synthesis 9
5 Summary of the Agriculture Sector Policy for Botswana 14
6 Introduction 29
6.1 Why make a Policy for Agriculture 29
6.2 Analytical Approach 29
6.3 Sector wide and beyond 29
7 Situation Analysis: Agriculture Sector Performance in Botswana 30
7.1 From Local culture to Sophisticated Markets 30
7.2 Agriculture and the Economy 30
7.3 Food Imports and Trade Balance 31
7.4 Food Security 32
7.5 Agricultural Economy – Formal and Informal 32
7.6 Farm Support 33
7.7 Livestock Farming Performance 34
7.7.1 The pillar of Botswana's agricultural sector 34
7.7.2 Cattle farming and beef production 34
7.7.3 The vital role of Goat Farming 36
7.7.4 Nascent Dairy Industry 37
7.7.5 Poultry and Egg Production 37
7.7.6 Pig Production in Botswana: Status and Outlook 38
7.7.7 Honey Production 38
7.8 Crop Production Performance 39
7.8.1 Underdeveloped Arable Farming 39
7.8.2 Cereal Production 39
7.8.3 Grain and Cereals Imports, Flour Milling, and Value-Added Production in Botswana 41
7.8.4 Commercial vs Smallholder Dynamics 41
7.9 Agriculture Research and Development 42
7.9.1 Agriculture Sector Organisation 47
7.9.2 Key Agricultural Sector Stakeholders 47
7.9.3 International Agreements 49

7.10 Past Agricultural Policies: NDP 11 and Vision 2036 50
7.10.1 Key Agricultural Policies and Programs in Botswana (1980–Present) 50
7.10.2 Farming in NDP11 51
7.10.3 Farming in 2036 52
7.10.4 Conclusion 52
8 Agriculture Sector Policy Rationale and Objectives 52
8.1 Importance of the Objectives and Their Role in Shaping the Agricultural Policy 52
8.1.1 Introduction 52
8.1.2 Why a Top-Down Approach? 52
8.1.3 From Vision to Action 52
8.1.4 Setting the Stage for Monitoring and Evaluation 53
8.2 Hierarchy of Objectives for Botswana's Agricultural Sector 53
8.2.1 National Vision and Global Commitments 53
8.2.2 Global Sustainable Development Goals (SDGs) 53
8.2.3 National Development Plan (NDP 12 - 2023-2029) 54
8.2.4 Agricultural Sector Objectives 54
8.2.5 Agricultural Subsector Objectives 55
9 Agrisector Social Policies 59
9.1 Introduction 59
9.2 Youth Disengagement from Agriculture 59
9.3 Gender Inequality in Agriculture 59
9.4 Aging Farming Population 60
9.5 Low Farmer Education Levels 61
9.6 Rural-Urban Migration 61
9.7 Poor Health and Nutrition Among Farming Communities 62
9.8 Farmer Mental Health Challenges 63
9.9 Inequality in Access to Services 63
9.10 Lack of Agricultural Leadership and Advocacy 64
9.11 Erosion of Traditional Agricultural Knowledge 65
10 Agrisector Technology Policies 66
10.1 Introduction 66
10.2 Improving Livestock Breeding Systems 66
10.3 Seed Quality 67
10.4 Post-Harvest Technologies 67
10.5 Cold Chain Systems 68
10.6 Precision Agriculture 69

10.7 Agricultural Data and Decision-Making 69
10.8 Agricultural Extension Services Enhancement 70
10.9 Water Conservation and Management in Agriculture 71
10.10 R&D Policy Analytical Framework 72
10.11 Weak R&D Uptake 73
10.12 Underfunding of R&D 73
10.13 Skills and Capacity Erosion 74
10.14 Limited Data-Sharing Infrastructure 75
10.15 Disconnect from the Private Sector 75
11 Agrisector Economic Policies 77
11.1 Introduction 77
11.2 Holistic Economic Management of the Agriculture Sector in Botswana 77
11.3 Enhancing Mechanization for Inclusive Agricultural Productivity 79
11.4 Expanding Irrigation Access and Efficiency 79
11.5 Bridging the Digital Divide in Agriculture 80
11.6 Strengthening Agricultural Advisory Services 81
11.7 Early Warning Systems for Agricultural Risks 81
11.8 Risk Management through Agricultural Insurance 82
11.9 Dependence on Food Imports 83
11.10 Formalization and Support of the Informal Agricultural Sector 84
11.11 Informal and Fragmented Agricultural Markets 85
11.12 Foreign Market Access (Exports) 85
11.13 Land and Tenure Insecurity Affecting Investment 86
11.14 Lack of Agricultural Insurance and Risk Management 87
12 AgriSector Environment Policy 88
12.1 Introduction 88
12.2 Promotion of Climate-Smart Agriculture 88
12.3 Sustainable Land Management and Soil Fertility 90
12.4 Land Degradation and Soil Erosion: Overgrazing and Poor Farming Practices 92
12.5 Unsustainable Tillage Practices 92
12.6 Inefficient Agricultural Water Use 93
12.7 Depletion of Groundwater Resources 94
12.8 Cutting of Trees for Land Clearing and Fuel 94
12.9 Invasion by Encroaching Bush Species 95
12.10 Habitat Loss Due to Expansion of Farming 95
12.11 Loss of Indigenous Crop and Livestock Species 96

12.12 Livestock Methane Emissions 96
12.13 Emissions from Land Clearing and Burning 97
12.14 Renewable Energy Use in Agriculture 97
12.15 Energy Transition in Farming 98
13 Agrisector Governance Policy 100
13.1 Introduction 100
13.2 Strengthening Agricultural Governance 100
13.3 Improving Land Tenure and Administration 101
13.4 Enforcement of Agricultural Standards 102
13.5 Farmer Participation in Policy Processes 103
13.6 Agricultural Data and Information Systems 103
13.7 Leveraging BOTSAT-1 for Agricultural Development and Resilience 104
13.8 Local Government Capacity in Agricultural Development 105
13.9 Investment in Agricultural Research and Innovation 106
13.10 Accountability and Transparency in Agricultural Subsidies 107
13.11 Climate Risk Governance in Agriculture 108
13.12 National Food Systems Governance Framework 109
13.13 National Plan for Agricultural Development (NPAD) 110
13.14 Enhancing Agricultural Shows and Trade Fairs for Innovation, Market Access, and Sector Visibility 111
13.15 Support for Agro-Processing and Value Addition 112
13.16 Brand Botswana: A Policy on the Certification and Promotion of Locally Grown Agricultural Products 113
14 Agrisector Arable 116
14.1 Introduction 116
14.2 Improved Seeds and Biotechnology 117
14.3 Biotech Crops 118
14.4 Agri-Mechanization 119
14.5 Up-skilling for Mechanisation 120
14.6 Irrigation Technologies 120
14.7 Access to Affordable Financing (Financial) 121
14.8 Consolidating Land for Viable Farming 122
14.9 Low Financial Inclusion in Rural Areas (Financial) 123
14.10 Inadequate Risk Management Tools 124
15 PASTORAL FARMING POLICIES 125
15.1 Introduction 125

15.2 Upscaling Botswana's National Herd to 5 Million Head by 2036 126
15.3 Low Adoption of Improved Livestock Breeds 127
15.4 Climate-Resilient Cattle Production 127
15.5 Modernizing the Beef Value Chain 128
15.5.1 Enhancing Goat Production for Economic Growth and Livelihoods 129
15.6 Livestock Losses due to climate change 130
15.7 Support Small-Scale Poultry Farming 132
15.8 Enhancing Domestic Pork Production in Botswana 134
15.9 Apiculture and Honey Production 134
15.10 Game Farming 135
15.11 Veterinary Fencing and National Pest Controls 136
15.12 Animal Health Technologies 137
15.13 Improving Feeding Systems 138
15.14 Livestock Traceability Systems 139
15.15 Value Addition in Animal Products 139
15.16 Restructuring and Phased Privatisation of the Botswana Meat Commission (BMC) 140
15.17 Access to Credit for Pastoralists 142
15.18 Improving Profitability and Cash Flow 142
15.19 Financial Products for Risk Mitigation 143
15.20 Emergency Funds for Livestock Farmers 144
16 Agrisector Horticulture Policies 145
16.1 Introduction to the Botswana Horticulture Subsector Policy 145
16.2 Frut Tree Crop Policy 146
16.3 Seedling and Plant Propagation Systems 147
16.4 Adoption of Protected Agriculture 148
16.5 Irrigation and Fertigation Systems 149
16.6 Phytosanitary Controls 150
16.7 High Capital Costs for Horticulture Farming 150
16.8 Access to Insurance 151
17 AgriSubsector Forestry Policies 152
17.1 Introduction Forestry Sub-Sector Policies 152
17.2 Adoption of Modern Forestry Techniques 153
17.3 Deforestation and Land Degradation 153
17.4 Forest Product Value Addition 154
17.5 Forest Health Management and Pest Control 155

17.6 Forest Data Collection and Monitoring Systems 156
17.7 Funding Forest Conservation through Carbon Credits 157
17.8 Lack of Access to Credit for Forestry Businesses 158
17.9 Low Profitability in Forest-Based Industries 158
18 Agrisubsector Aquaculture 160
18.1 Introduction 160
18.2 Improving Water Quality Management in Aquaculture Systems 160
18.3 Promoting Sustainable Feed Practices in Aquaculture 161
18.4 Enhancing Fish Breeding Systems and Technology 162
18.5 Improving Fish Health Management Systems 163
18.6 Expanding Aquaculture Infrastructure 164
18.7 Improving Market Access for Small-Scale Aquaculture Farmers 165
18.8 Improving Competitiveness of Local Aquaculture Products 166
19 Hydroponics Industry 167
19.1 Introduction 167
19.2 High Initial Capital Costs 167
19.3 Knowledge and Training 168
19.4 Water and Nutrient Management Challenge 168
19.5 Market Access and Commercialization 169
19.6 Limited Research and Innovation 169
20 Cash Crops 170
20.1 Introduction to Policies on Cash Crops 170
20.2 Cash Crops in low rainfall countries 171
20.3 Cash crops v Food Production 172
20.4 Difficulty in Obtaining Long-Term Capital for Cash Crop Farming 173
20.5 Cultivation and Processing of Industrial Hemp 174
20.6 Balancing Cash Crop Promotion and Food Security in Botswana 174
21 Monitoring and Evaluation Framework for Botswana's Agricultural Sector 176
21.1 Vision 2036 and SDG Alignment 176
21.2 NDP 12 and Agricultural Sector Objectives 176
21.3 Subsector-Specific M&E Indicators 177
21.3.1 Livestock Farming 177
21.3.2 Crop Production 177
21.4 Support Services 177
21.4.1 Irrigation & Water Management 177
21.4.2 Research and Innovation 177

21.4.3 Finance & Market Access 177
21.5 Cross-Cutting Themes 178

Policy Index

1. Social Policies (Section 5)

1.1 Youth Disengagement from Agriculture
1.2 Gender Inequality in Agriculture
1.3 Aging Farming Population
1.4 Low Farmer Education Levels
1.5 Rural-Urban Migration
1.6 Poor Health and Nutrition Among Farming Communities
1.7 Farmer Mental Health Challenges
1.8 Inequality in Access to Services
1.9 Lack of Agricultural Leadership and Advocacy
1.10 Erosion of Traditional Agricultural Knowledge

2. Technology Policies (Section 6)

2.1 Improving Livestock Breeding Systems
2.2 Seed Quality
2.3 Post-Harvest Technologies
2.4 Cold Chain Systems
2.5 Precision Agriculture
2.6 Agricultural Data and Decision-Making
2.7 Agricultural Extension Services Enhancement
2.8 Water Conservation and Management in Agriculture
2.9 R&D Policy Analytical Framework
2.10 Weak R&D Uptake
2.11 Underfunding of R&D
2.12 Skills and Capacity Erosion
2.13 Limited Data-Sharing Infrastructure
2.14 Disconnect from the Private Sector

3. Economic Policies (Section 7)

3.1 Holistic Economic Management of the Agriculture Sector
3.2 Enhancing Mechanization for Inclusive Productivity
3.3 Expanding Irrigation Access and Efficiency
3.4 Bridging the Digital Divide in Agriculture
3.5 Strengthening Agricultural Advisory Services
3.6 Early Warning Systems for Agricultural Risks
3.7 Risk Management through Agricultural Insurance
3.8 Dependence on Food Imports
3.9 Formalization of the Informal Agricultural Sector
3.10 Informal and Fragmented Agricultural Markets
3.11 Foreign Market Access (Exports)
3.12 Land and Tenure Insecurity
3.13 Lack of Agricultural Insurance and Risk Management

4. Environment Policies (Section 8)

4.1 Promotion of Climate-Smart Agriculture
4.2 Sustainable Land Management and Soil Fertility
4.3 Land Degradation and Soil Erosion
4.4 Unsustainable Tillage Practices
4.5 Inefficient Agricultural Water Use
4.6 Depletion of Groundwater Resources
4.7 Cutting of Trees for Land Clearing and Fuel
4.8 Invasion by Encroaching Bush Species
4.9 Loss of Indigenous Crop and Livestock Species
4.10 Livestock Methane Emissions
4.11 Emissions from Land Clearing and Burning
4.12 Habitat Loss Due to Expansion of Farming
4.13 Renewable Energy Use in Agriculture
4.14 Energy Transition in Farming

5. Governance Policies (Section 9)

5.1 Strengthening Agricultural Governance
5.2 Improving Land Tenure and Administration
5.3 Enforcement of Agricultural Standards
5.4 Farmer Participation in Policy Processes
5.5 Agricultural Data and Information Systems
5.6 Leveraging BOTSAT-1 for Agricultural Development
5.7 Local Government Capacity in Agricultural Development
5.8 Investment in Agricultural Research and Innovation
5.9 Accountability in Agricultural Subsidies
5.10 Climate Risk Governance
5.11 National Food Systems Governance Framework
5.12 National Plan for Agricultural Development (NPAD)
5.13 Enhancing Agricultural Shows and Trade Fairs
5.14 Support for Agro-Processing and Value Addition
5.15 Brand Botswana: Certification and Promotion of Local Products

6. Arable Farming (Section 10)

6.1 Improved Seeds and Biotechnology
6.2 Biotech Crops
6.3 Agri-Mechanization
6.4 Up-skilling for Mechanisation
6.5 Irrigation Technologies
6.6 Access to Affordable Financing
6.7 Consolidating Land for Viable Farming
6.8 Low Financial Inclusion in Rural Areas
6.9 Inadequate Risk Management Tools

7. Pastoral Farming (Section 11)

7.1 Upscaling Botswana's National Herd
7.2 Low Adoption of Improved Livestock Breeds

7.3 Climate-Resilient Cattle Production
7.4 Modernizing the Beef Value Chain
7.5 Enhancing Goat Production
7.6 Livestock Losses Due to Climate Change
7.7 Support Small-Scale Poultry Farming
7.8 Enhancing Domestic Pig Production
7.9 Apiculture and Honey Production
7.10 Game Farming
7.11 Animal Health Technologies
7.12 Veterinary Fencing and Controls
7.13 Improving Feeding Systems
7.14 Livestock Traceability Systems
7.15 Value Addition in Animal Products
7.16 Restructuring the Botswana Meat Commission
7.17 Access to Credit for Pastoralists
7.18 Improving Profitability and Cash Flow
7.19 Financial Products for Risk Mitigation
7.20 Emergency Funds for Livestock Farmers

8. Horticulture (Section 12)

8.1 Fruit Tree Crop Policy
8.2 Seedling and Plant Propagation Systems
8.3 Adoption of Protected Agriculture
8.4 Irrigation and Fertigation Systems
8.5 Phytosanitary Controls
8.6 High Capital Costs for Horticulture
8.7 Access to Insurance

9. Forestry (Section 13)

9.1 Adoption of Modern Forestry Techniques
9.2 Deforestation and Land Degradation
9.3 Forest Product Value Addition
9.4 Forest Health Management and Pest Control
9.5 Forest Data Collection and Monitoring Systems
9.6 Funding for Forest Conservation via Carbon Credits
9.7 Lack of Access to Credit for Forestry Businesses
9.8 Low Profitability in Forest-Based Industries

10. Aquaculture (Section 14)

10.1 Improving Water Quality Management
10.2 Promoting Sustainable Feed Practices
10.3 Enhancing Fish Breeding Systems
10.4 Improving Fish Health Management
10.5 Expanding Aquaculture Infrastructure
10.6 Improving Market Access for Small-Scale Farmers
10.7 Improving Competitiveness of Local Products

11. Hydroponics (Section 15)

11.1 High Initial Capital Costs
11.2 Knowledge and Training
11.3 Water and Nutrient Management
11.4 Market Access and Commercialization
11.5 Limited Research and Innovation

12. Cash Crops (Section 16)

12.1 Cash Crops in Low Rainfall Countries
12.2 Cash Crops vs Food Production
12.3 Difficulty in Obtaining Long-Term Capital
12.4 Cultivation and Processing of Industrial Hemp
12.5 Balancing Cash Crop Promotion with Food Security

6 Introduction

6.1 Why make a Policy for Agriculture

This document presents the draft final version of Botswana's Agricultural Policy, a comprehensive blueprint designed to address the evolving needs of the sector and position it for transformative growth. The policy has been developed through a detailed, multi-faceted approach that incorporates a thorough analysis of Botswana's agricultural landscape, stakeholder input, and alignment with national development goals.

6.2 Analytical Approach

The approach taken in drafting this policy is structured around the STEEP framework — encompassing Social, Technical, Economic, Environmental, Political dimensions — to ensure that the policy addresses the full range of challenges and opportunities facing the agricultural sector. This holistic framework allows for an inclusive, cross-cutting analysis of both traditional and emerging agricultural practices, ensuring that all major farming modalities, such as arable farming, pastoralism, horticulture, forestry, aquaculture, hydroponics, and strategic cash crops like hemp, cotton, tobacco, and coffee, are considered in depth.

This policy has been based on a systematic analysis structured to provide clear, actionable guidance across multiple layers of the agricultural sector. It included:

- A Policy Matrix: This outlines the general issues, specific problems, objectives, policy statements, implementation strategies, and timeframes for achieving the desired outcomes in agriculture.
- Subsector Analysis: A detailed examination of tailored interventions and opportunities within each agricultural branch, ensuring that policies are appropriate for the unique needs of different subsectors.
- A STEEP-based SWOT Analysis: This highlights the strengths, weaknesses, opportunities, and threats facing the sector, while also identifying mitigation strategies to address key challenges.
- A Monitoring and Evaluation (M&E) Framework: The framework provided a practical, measurable Key Performance Indicators (KPIs) to track the progress of implementation and ensure that outcomes are aligned with the policy's goals.

6.3 Sector wide and beyond

This draft policy represents a critical milestone in the participatory policy development process, which has actively engaged a wide range of stakeholders, including farmers, agribusinesses, financial institutions, extension workers, researchers, environmental groups, and development partners. Policy is not static but dynamic and they will continue to evolve in this rapidly changing world. However it is expected that most of the issues and concomitant polices will be robust and stand the test of time.

At the heart of this policy are key strategic priorities that include empowering youth and women in the agricultural sector, accelerating the adoption of climate-smart and precision agriculture technologies, expanding access to finance and value chains, promoting environmental sustainability, and strengthening governance and policy coherence. The overarching aim is to

ensure that Botswana's agricultural sector becomes a key pillar of national economic growth, resilience, and sustainable development.

Through this policy, Botswana has the opportunity to unlock the full potential of its agricultural sector, drive innovation, and create a thriving, inclusive, and sustainable industry that will contribute to the country's long-term development goals.

7 Situation Analysis: Agriculture Sector Performance in Botswana

7.1 From Local culture to Sophisticated Markets

The agricultural sector has not only been a cornerstone of Botswana's economy, but it lies at the very heart of our culture. However the role has evolved significantly over the past few decades. From providing a sustainable way of life for communities to contributing to global markets



This situation analysis provides an in-depth examination of the current state of agriculture in Botswana, highlighting key trends, challenges, and opportunities. It draws on the most recent data to establish a baseline for evaluating the progress of the agricultural sector and informing future policy development.

7.2 Agriculture and the Economy

At the time of Botswana's independence in 1966, agriculture was the dominant sector in the economy, contributing around 40% of Gross Domestic Product (GDP). However, over the last three decades, this contribution has steadily declined to approximately 1.58% of GDP as of 2023 (Stats Botswana, 2023). This decline reflects the sector's reduced significance in the overall economic structure as Botswana has diversified into mining, manufacturing, and services. Despite this diminishing share of GDP, agriculture remains critical for employment, food security, and rural livelihoods, particularly in less urbanized areas.

According to the Labour Force Survey (2023), approximately 20-25% of Botswana's total workforce is employed in the agricultural sector. The majority of this employment is in smallholder farming, which dominates rural employment. These smallholder farms often focus on subsistence farming or local market production, whereas commercial farming operations are more capital-intensive, mechanized, and integrated into formal value chains, particularly in livestock farming and high-value horticultural production.

7.3 Food Imports and Trade Balance

Botswana's reliance on food imports is a significant challenge for the country's agricultural sector. In 2023, food products represented approximately P10 billion in imports (Trade Statistics Bulletin, 2023). Botswana, food imports as a percentage of total imports were 16.21% in 2023 which represented 5% of GDP. Thus the value of imported to locally produced food is about 3 : 1,

The most significant import categories include cereals, such as maize and rice, and meat products, particularly beef and poultry. This dependency on food imports underscores Botswana's vulnerability to global market fluctuations, as well as to climate-related events that can disrupt local food production.



Although the 2022 ban on food imports was revoked in 2025, it is worth recording what they encompassed.

Banned Fruits and Vegetables:

- **Vegetables:** Tomatoes, carrots, beetroot, potatoes, cabbage, lettuce, garlic, onions, ginger, turmeric, chili peppers, butternut, watermelon, sweet peppers, green mealie, fresh herbs, rape, choumoellier, and strawberries.
- **Other:** Fresh herbs, butternut, watermelons, maize, and sweet peppers.
- **Citrus Fruits:** Oranges and lemons are under consideration for future additions to the ban list.

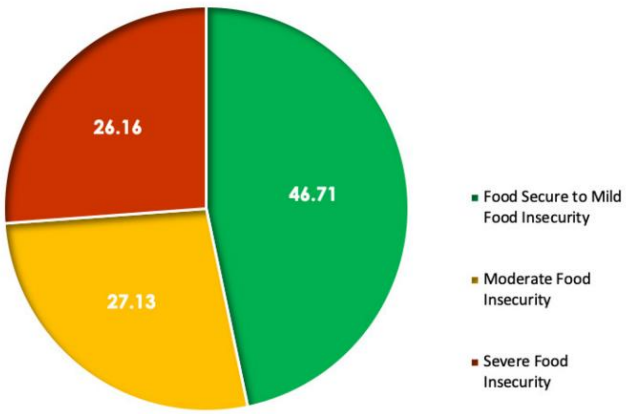
Other Prohibited Imports:

- **Meat:** Fresh pork and beef.
- **Dairy:** Some dairy products are also subject to bans.
- **Poultry:** Poultry imports are permitted only in rare cases of domestic market shortages.

7.4 Food Security

The main driver of this policy is food security. In terms of food security, the high reliance on imports raises concerns about the sustainability and resilience of Botswana's agricultural system. Given the unpredictability of climate events and the associated risks to local production, there is an urgent need to enhance domestic agricultural capacity, particularly in the production of staple foods such as maize and vegetables. According to STATS Botswana national food insecurity prevalence 2021/2022 show that at national level 53.29 percent of the population in Botswana was affected by moderate or severe food insecurity in 2021/22, and 26.16 percent was affected by severe food insecurity. This translates to about 46.71 percent of the population being food secure to mildly food insecure.

Figure 1: National Food Insecurity Prevalence (Percentage)



7.5 Agricultural Economy – Formal and Informal

Botswana's agricultural economy extends well beyond the formal sector typically captured in national statistics. While the formal segment contributes approximately **1.58% to GDP**, this vastly understates the sector's full socio-economic weight. When the **informal economy**—defined by subsistence farming, unrecorded trade, and communal livestock grazing—is included, agriculture's real contribution rises to an estimated **7–8% of GDP**. This corresponds to the information that roughly **450,000 people**—almost a fifth of the national population—participate in farming. Only about **100,000 are registered** under formal support programs like ISPAAD and RESET; the remaining **350,000 operate informally**, relying on traditional methods and unregulated local markets.

Crop production reaches around **220,000 tons per year**, with the informal sector producing over **120,000 tons**—more than half the national output. Similarly, the **national cattle herd is approximately 2.3 million**, of which about **1.8 million** are kept in communal systems. **Goats number 1.5 million**, with the vast majority raised informally by smallholders. **Poultry production**, formally reported at 40 million birds annually, is supplemented by an estimated **5 million birds** reared by households for local sale and consumption.

An estimated **600,000 hectares** are under cultivation, but only a third of this land is linked to commercial inputs or monitored yields. Informal trade in crops, livestock, and by-products (milk, hides, manure) contributes an estimated **BWP 14 to 16 billion annually**, which is not captured in national accounts. Most agricultural transactions are informal, foods being sold at

markets, road side and person to person. Botswana's agricultural economy, then, is deeply dualistic—**structured and supported in parts, but largely informal in scale, labour, and subsistence output**. Any transformative policy, particularly around livestock such as goats, must reckon with and integrate this broader, often invisible, rural economy.

Agriculture Sector Formal and Informal

Category	Formal Sector	Informal Sector (Estimates)	Total (Approximate)
Crop Production (All Types)	100,000 tons/year	120,000 tons/year	~220,000 tons/year
Goat Population	~200,000	~1.3 million	~1.5 million
Cattle Population	~500,000 (feedlots & ranches)	~1.8 million (communal grazing)	~2.3 million
Poultry (Layers & Broilers)	~40 million birds/year	~5 million birds/year (smallholders)	~45 million birds/year
Farmers Registered (ISPAAD etc.)	~100,000	~350,000 unregistered or informal	~450,000 total participants
Land Under Cultivation (Ha)	~200,000 ha	~400,000 ha (communal fields, gardens)	~600,000 ha
Food Supply Dependence (Staples)	Imports 80%+	Local informal fills seasonal gaps	Informal buffers chronic shortage
Value of Output (BWP)	~BWP 4.3 billion	~BWP 14 to 16 billion (unofficial trade)	~BWP 20 billion+
Contribution to GDP	1.6% (measured)	~5–6% (unmeasured, if included)	~7–8% total (with informal included)

7.6 Farm Support

As of the most recent consolidated data (2024–2025), the **total value of all agricultural sector support by the Government of Botswana** is estimated to be in the range of **BWP 1.2 to 1.5 billion** annually. This includes both direct subsidies and indirect support via parastatals, programs, and infrastructure investments.

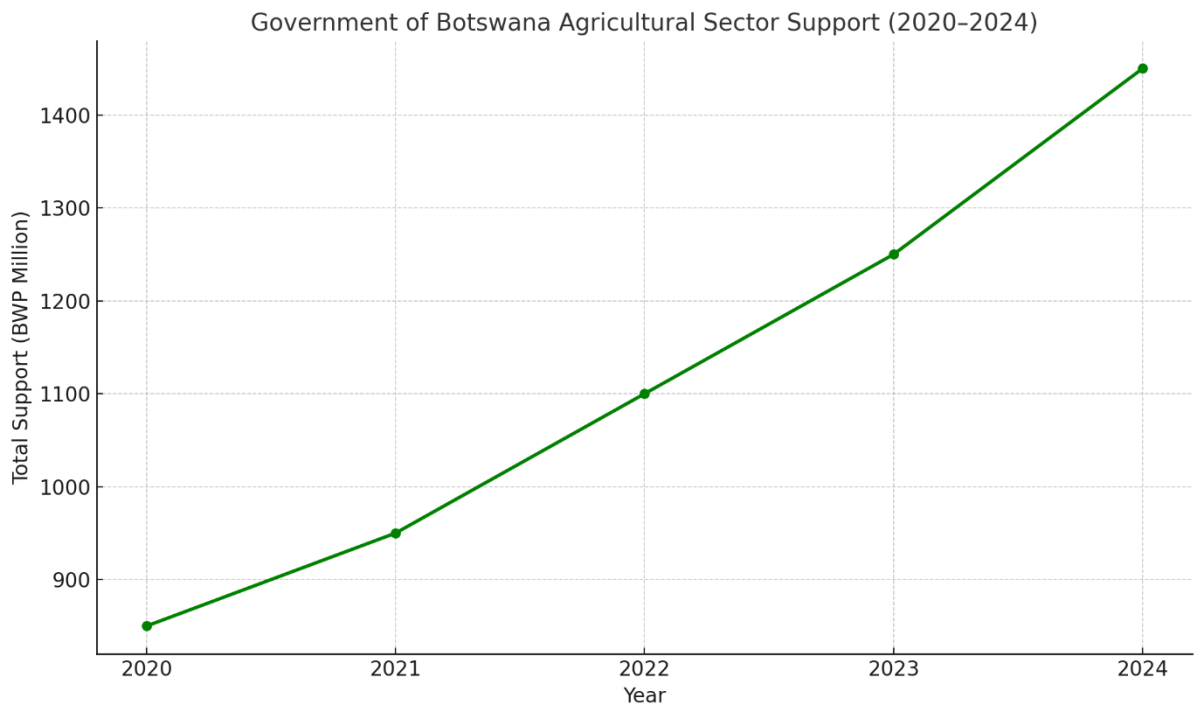
Here is a breakdown by major categories:

Program/Category	Estimated Annual Value (BWP)	Remarks
ISPAAD / Temo Letlotlo (Arable Inputs & Fencing)	BWP 400 million	Transitioning to Temo Letlotlo with expanded support.
Livestock Feed Subsidy & Drought Relief	BWP 200–250 million	Scales up significantly during droughts and El Niño years.
Seasonal Loan Repayment (NDB Support)	BWP 300 million	Targeted repayment of seasonal production loans.
Horticulture Impact Accelerator Subsidy (IAS)	BWP 70–100 million	Supports greenhouse & irrigation development.
Veterinary & Extension Services	BWP 150 million	Includes vaccines, disease surveillance, mobile clinics.
SOE Budget Transfers (e.g., BUAN, NARDI, BAMB)	BWP 150–200 million	Operational funding and program grants.

Program/Category	Estimated Annual Value (BWP)	Remarks
Infrastructure (dams, boreholes, roads, ICT)	BWP 100–200 million	Includes agricultural infrastructure investments.

Total Estimated Sector Support (2024–2025): BWP 1.2 to 1.5 billion

Support to farmers has increased significantly, here's a visual of Botswana's estimated total agricultural sector support from 2020 to 2024, illustrating a steady increase from BWP 850 million in 2020 to BWP 1.45 billion in 2024.



7.7 Livestock Farming Performance

7.7.1 The pillar of Botswana's agricultural sector

Livestock farming continues to be a pillar of Botswana's agricultural sector, particularly cattle farming. Botswana is known for its high-quality beef, which is a key export commodity, especially to the European Union. As of 2023, Botswana has an estimated 2.3 million cattle (Livestock Survey, 2023). Commercial cattle farming constitutes approximately 90% of the total cattle population, while smallholder farmers hold about 10-15% of the cattle. However, smallholder farmers generally own fewer cattle, typically using them for subsistence or local market sale rather than large-scale commercial production.

7.7.2 Cattle farming and beef production

Cattle farming remains a central pillar of Botswana's agricultural economy, heritage, and rural livelihoods. With an estimated national herd of over 2.3 million cattle (as of 2023), the sector provides income, food security, and cultural value to thousands of households, particularly in

communal areas. Beef is Botswana's largest and most structured agricultural export, underpinned by the country's longstanding reputation for disease-free status and traceability systems.

Beef production accounts for more than 80% of the agricultural GDP and has traditionally been a major source of foreign exchange. In recent years, Botswana has exported between 9,000 and 12,000 tonnes of beef annually, primarily to the European Union (EU), Norway, and emerging markets in the Middle East. The Botswana Meat Commission (BMC), a state-owned enterprise, serves as the primary buyer and exporter, operating abattoirs in Lobatse, Francistown, and Maun. However, challenges in pricing, operational inefficiencies, and delayed payments have raised concerns about BMC's monopoly and financial sustainability.



Domestic beef production varies annually, influenced by climate shocks, pasture conditions, and disease outbreaks. On average, the country slaughters around 250,000 to 300,000 cattle per year, producing roughly 60,000 to 75,000 tonnes of beef. Despite these outputs, the industry's potential remains underexploited. Carcass weights are low by international standards (averaging 150–170 kg per animal), and off-take rates remain stubbornly below 10% in communal areas—well below the Southern African Development Community (SADC) average of 15–20%.

Low off-take is partly driven by cultural attitudes that treat cattle as stores of wealth rather than productive assets. Additional structural constraints include poor range management, high prevalence of internal parasites, limited access to veterinary services, and inadequate infrastructure for water and livestock movement. The sector also remains highly vulnerable to drought and climate variability, with significant livestock losses recorded during major dry spells such as the 2018/19 season.

Women and youth participation in the cattle value chain remains limited, with access to land, finance, and extension services skewed toward older male farmers. Moreover, the dominance of extensive, low-input systems in communal areas continues to constrain productivity and environmental sustainability. Overgrazing in key regions is leading to land degradation and encroachment into wildlife corridors, heightening the risk of human-wildlife conflict and undermining conservation goals.

Nonetheless, there are emerging opportunities. Livestock identification and traceability systems (LITS) remain operational and could be leveraged to re-enter premium export markets

with high sanitary standards. The government has also piloted cluster farming models, AI (artificial insemination) technologies, and quarantine feedlots to improve quality and access to export channels. Moreover, regional demand for red meat is rising, offering scope for diversification beyond traditional EU markets.

In sum, cattle farming in Botswana is a critical but underperforming sector. With targeted reforms—such as modernizing the BMC, incentivizing commercialization, promoting climate-resilient rangeland management, and improving veterinary coverage—the industry could deliver greater value, sustainability, and equity for rural Botswana.

7.7.3 The vital role of Goat Farming

Goat farming in Botswana plays a vital role in the rural economy, particularly in arid and semi-arid regions. With a population of around 1.5 million goats, it is the second most common livestock species after cattle, contributing significantly to livelihoods, food security, and agricultural incomes. Goats are particularly valued for their resilience in harsh climatic conditions, their ability to thrive on low-quality feed, and their relatively low maintenance requirements.



Breeds and Distribution: The indigenous goat breeds in Botswana include the **Botswana Brown**, **Kalahari Red**, and **Boer goats**. The Botswana Brown is hardy, well-adapted to local environmental conditions, and primarily raised for meat production. The Kalahari Red is highly sought after for its adaptability and high-quality meat. Boer goats, a South African breed, are increasingly popular for meat production due to their superior growth rates and carcass quality.

Goat farming is spread across the country, with significant concentrations in the **Central, Kgatleng, Kweneng, and Southern districts**, where dryland and communal farming systems dominate. The farming sector is characterized by small-scale, subsistence farming, with goats often kept alongside other livestock for diversification and risk mitigation.

Economic Contribution: Goats contribute to rural incomes through meat, milk, and skin production. Goat meat is a valuable source of protein in Botswana, and it enjoys increasing demand in both local and international markets. Goat milk, though not widely consumed, is gaining recognition for its nutritional value. The contribution of goats to household income varies, but estimates suggest that goats can account for up to 30% of income for small-scale farmers, especially in areas where other livestock, such as cattle, are less productive due to water scarcity and land degradation.

Despite these contributions, goat farming faces challenges, including limited access to veterinary services, poor breeding practices, and inadequate market infrastructure, which affects profitability and growth potential.

7.7.4 Nascent Dairy Industry

The dairy industry in Botswana has been declining despite the high demand for milk and milk products. The main reason cited is that of lack of fodder. The per capita consumption of milk is estimated to be 25.2 litres per person per year. In 2008 Milk Production was 11 million litres in 2006 and in 2010 fell to 7.70 million litres and imports 38.6 million litres, (Moreki,2011) [1]. There were 109 dairy farmers in 2010 on 600,000 km land reduced drastically to just 58 in 2023 as shown. Milk production is 12.5 litres per km^2 which is very low indicating a very poor use of land. Dairy imports form part of the high import bill. Local production accounts for **11%** of the national demand (**65,000,000 L**), with the rest imported mainly from South Africa.

Dairy Farms 2023

District	Number
South East	9
Gaborone	5
Kweneng	6
Kgatleng	6
Good Hope	1
Jwaneng	1
Palapye	4
Serowe	13
Malahpye	1
Selbibe Phikwe	5
Francistown	1
Maun	3
Ganzi	3
Total	58

Feed forms about 60-70% of the dairy costs, and inadequacy and low quality remains a big challenge. Fodder production is still very low in the country as there are only five farmers who are practicing it at a commercial scale. Botswana is a water stressed country vulnerable to climate change hence low fodder production capacity. Average production is low, forage imports mainly from South Africa augment the deficit. By the end of quarter 2 of 2022/23, more than 30 000 tons was imported at a cost of P31,431,602.50. Therefore, it is imperative to look at alternative production methods including hydroponics to support fodder production and ultimately increase dairy production

7.7.5 Poultry and Egg Production

Poultry farming is a vital component of Botswana's food system, encompassing both commercial and village-based production. The country is home to approximately 23 million chickens—20 million in commercial operations and 3 million in village settings. Small-scale producers contribute significantly, accounting for 64% of chicken meat and 29% of egg production. However, the sector faces challenges including rising feed costs, limited veterinary support, and inadequate biosecurity measures. These issues hinder the ability of small-scale producers to scale operations sustainably, thereby reducing national self-sufficiency in eggs and chicken meat. Strengthening this sub-sector is essential for improving nutrition, supporting rural livelihoods, and reducing reliance on imports.

[1] http://www.lrrd.org/lrrd23/3/more23068.htm#:~:text=The%20dairy%20industry%20in%20Botswana%20is%20growing%20slowly%20despite%20the,for%20milk%20and%20milk%20products.&text=The%20per%20capita%20consumption%20of,and%20imports%2038.6%20million%20litres.

7.7.6 Pig Production in Botswana: Status and Outlook

Pig production in Botswana is a growing but underdeveloped sector with notable potential to contribute to food security and economic diversification. As of the latest data, there are approximately 1,742 pig holdings across the country, managing a pig population of about 11,104 animals. The sector is dominated by smallholder farmers, mostly concentrated in urban centres and larger villages where pork demand is higher. Most farmers maintain herds of fewer than 20 pigs, and only one large-scale operation exists, housing over 200 sow units.

In the 2022/2023 financial year, Botswana produced approximately 989.8 tonnes of pork, against a national demand of 1,500 tonnes—leaving a shortfall of over 500 tonnes that is met through imports. The tourism and hospitality sector is a key driver of pork consumption, offering a market opportunity for local producers.

The industry, however, faces persistent challenges. These include high feed costs, inadequate slaughter facilities, limited access to quality breeding stock, and unorganized marketing channels. These constraints have limited the expansion and modernization of pig farming.

To address this, the Ministry of Lands and Agriculture has introduced initiatives such as the Sebele Pig Multiplication Unit, which supplies weaners and breeding stock to farmers at subsidized prices. The government is also investing in improving feed production, upgrading abattoirs, and supporting structured market development.

With the right investment and policy support, Botswana's pig farming sector could significantly reduce pork imports, enhance rural livelihoods, and meet growing domestic demand.

7.7.7 Honey Production

Botswana has a small but growing commercial honey production scene, although the sector remains largely informal and underdeveloped compared to its potential.

Known commercial producers and initiatives:

1. **Ngamiland Honey:** A cooperative project involving community members in the Okavango region, supported by NGOs and conservation projects. It produces organic honey and promotes sustainable beekeeping practices in wildlife areas.
2. **Elephant-Human Coexistence Projects:** Some NGOs (e.g., Elephants Without Borders) have supported community apiaries as part of wildlife conflict mitigation efforts, especially in northern Botswana. These have led to the production of "Elephant-Friendly Honey," which is gaining niche market appeal.
3. **Women and Youth Projects:** Some government-supported and donor-funded projects have helped establish beekeeping operations in Central and Southern Botswana, though they are typically small-scale with room to expand commercially.
4. **Imports vs. Domestic Supply:** Botswana currently imports the majority of its honey. FAOSTAT and ITC data suggest that **domestic production may only cover 5–10% of national demand**, pointing to a clear market opportunity.

Opportunity:

The sector could expand with investment in training, processing infrastructure, organic certification, and market access. There's also a niche export opportunity, especially if linked to biodiversity protection, wildlife-friendly branding, or organic markets.

7.8 Crop Production Performance

7.8.1 Underdeveloped Arable Farming

Crop production in Botswana is largely rain-fed and vulnerable to the country's highly variable climate, particularly recurring droughts. The sector remains underdeveloped and largely subsistence-based, though it plays a vital role in food security, rural livelihoods, and employment. Nationally, the arable sub-sector contributes about 2% to Botswana's agricultural GDP, reflecting its underutilized potential.

7.8.2 Cereal Production

Cereals dominate Botswana's cropping system, especially **sorghum and maize**, followed by millet and wheat. In the 2022/23 season, national cereal production reached **70,000 tonnes**, a recovery from previous drought-affected years but still far below domestic demand, forcing heavy reliance on imports. Maize output was approximately **20,000 tonnes**, while sorghum—Botswana's traditional staple—accounted for about **32,000 tonnes**. Pearl millet (known locally as lebelebele) is grown in drier regions, especially in the North East and parts of the Central District, with average annual production under **4,000 tonnes**.

Legume production, notably **cowpeas, beans, and groundnuts**, is widely practiced by smallholder farmers, often in intercropping systems. Cowpeas are the most dominant pulse, with an annual yield of approximately **6,000 tonnes**. Groundnuts (peanuts), often cultivated in the sandy soils of Kweneng and Ngwaketse, total around **3,500 tonnes** per year. These legumes are critical for dietary protein, soil fertility, and cash income.

Sunflower cultivation has gained traction as a cash crop and source of edible oil, with a modest but growing output of **1,200–1,800 tonnes** per annum. It is promoted for crop rotation due to its drought tolerance and ability to improve soil structure.

The distinction between **traditional and commercial cropping** remains stark. Traditional smallholder farmers cultivate over **90% of planted land** but contribute a disproportionately small share of marketed produce due to low yields, input constraints, and erratic rainfall. Their average yields for cereals remain below **1 tonne per hectare**, compared to over **2 tonnes per hectare** in well-supported commercial farms during good seasons.

Traditional Farmers Cropping Statistics

Crop Type	Tons Output	Hectares Farmed	Yield Per Ha
Sorghum	32,000	60,000	0.53
Maize	20,000	45,000	0.44
Millet	4,000	13,000	0.31
Cowpeas	6,000	27,000	0.22

Traditional Farmers Cropping Statistics			
Crop Type	**Tons Output**	**Hectares Farmed**	**Yield Per Ha**
Beans	1,200	6,000	0.20
Groundnuts	4,000	18,000	0.22
Sunflower	1,600	1,500	1.10
Melons	1,200	3,500	0.34
Other Traditional Crops	800	2,500	0.32
Total	**70,800**	**176,500**	**0.39**

Commercial farming is concentrated on fenced farms with access to borehole irrigation, improved seed, fertilizers, and pesticides—mainly located in Pandamatenga, the Tuli Block, and parts of the Southern District. These farms focus on maize, sorghum, sunflower, and increasingly horticulture (vegetables and fruits). Pandamatenga alone produces over **60% of Botswana's total commercial grain output**, benefiting from mechanization, ploughing subsidies, and silo infrastructure. **Traditional crops** such as **melons, sweet reed (motoše), and indigenous legumes** are grown for household consumption and local sale, particularly in the Central and Kgalagadi Districts. These crops are culturally significant and adapted to low-input, drought-prone environments, but they receive limited extension support or research investment.

Commercial Farmers Cropping Statistics			
Crop Type	**Tons Output**	**Hectares Farmed**	**Yield Per Ha**
Sorghum	6,000	2,400	2.5
Maize	9,000	3,500	2.57
Millet	400	250	1.6
Cowpeas	600	500	1.2
Beans	250	200	1.25
Groundnuts	600	400	1.5
Sunflower	2,000	1,500	1.33
Total	**18,850**	**8,750**	**2.15**

Overall, **only 30–40% of the country's 650,000 hectares of arable land is planted annually**, primarily due to erratic rains, lack of draught power, and limited market access. Post-harvest losses and poor storage further undermine food self-sufficiency. Botswana imports over **70% of its cereal needs**, especially maize and wheat, from South Africa.

There is significant potential to **improve crop productivity, expand dryland farming, and develop niche markets for traditional crops**. However, this will require climate-resilient practices, investment in irrigation, mechanization, and market access to shift the sector from subsistence to semi-commercial and commercial production.

Sources are based on the latest available data and cross-referencing sources such as:

- Statistics Botswana – Agriculture Census Reports
- Ministry of Lands and Agriculture Annual Performance Reports

- National Agricultural Master Plan for Arable Agriculture and Dairy Development (NAMPAADD)
- FAO (Food and Agriculture Organization) Botswana profiles

7.8.3 Grain and Cereals Imports, Flour Milling, and Value-Added Production in Botswana

Botswana remains heavily reliant on imports for its grain and cereal needs, particularly maize and wheat—the two most consumed staples. On average, the country imports over 90% of its wheat requirements and between 60–80% of its maize, depending on the performance of the local harvest. In 2022, maize imports exceeded 150,000 metric tonnes, primarily from South Africa and Zambia. Wheat imports were estimated at 120,000 tonnes, used mainly in flour milling and bakery products.

The domestic flour milling industry consists of a small number of commercial millers, including Bolux Milling and Bokomo, which process imported wheat and maize into flour, pasta, and related products. Despite this, the local flour value chain is constrained by high input costs, inconsistent electricity supply, and import dependency. Botswana produces only 10–15% of the wheat needed for flour, leading to vulnerability to price shocks and exchange rate fluctuations.

Sorghum, a traditional staple, is produced domestically in larger volumes but is underutilized in the formal food industry. Despite producing an average of 30,000–40,000 tonnes annually, most sorghum is processed at small scale or used for household consumption. Opportunities exist to scale up processing of sorghum into composite flours, cereals, and snack foods—especially for school feeding and diabetic diets.

Value-added cereal production, including breakfast cereals, maize meal, and livestock feed, remains modest. The feed industry imports key ingredients, and local capacity is fragmented. There is growing interest in substituting imports with local grains, but this requires investment in improved storage, drying, grading, and milling facilities.

Overall, Botswana's grain and flour ecosystem is import-dependent, with untapped potential for value addition in sorghum and maize, if supported by improved local production, aggregation, and agro-processing infrastructure.

7.8.4 Commercial vs Smallholder Dynamics

Botswana's agricultural sector is characterized by a duality between large-scale commercial farming and smallholder farming. Commercial farms in Botswana are typically large, mechanized operations with access to modern farming technologies and input markets. These farms are predominantly engaged in livestock farming (beef, dairy) and high-value crop production for export, such as vegetables and fruits.

Commercial farms occupy significant tracts of land, and their operations are often integrated into formal value chains, benefiting from advanced agricultural techniques and systems. However, commercial farms are generally capital-intensive and face challenges related to market access and high production costs, particularly in a climate-affected environment.

In contrast, smallholder farming remains dominant in Botswana, particularly in rural areas. Smallholder farmers, who typically cultivate less than 5 hectares of land, are primarily subsistence-oriented, producing crops and livestock for family consumption and local

markets. Despite their significant contribution to employment and food security, smallholder farmers face numerous challenges, including insecure land tenure, limited access to finance and modern inputs, and insufficient market linkages.

The duality between commercial and smallholder farming creates challenges in terms of policy integration and resource allocation. While commercial farming is more efficient and capable of contributing to export revenue, smallholder farming remains critical for food security and rural development. Bridging the gap between these two sectors, enhancing the productivity of smallholder farms, and integrating smallholders into formal value chains will be essential for achieving inclusive agricultural growth.

7.9 Agriculture Research and Development

At the heart of any radical change to the performance of the Agriculture Sector must lie research and development and its importance cannot be overstated.









The National Agricultural Research and Development Institute (NARDI) and the Botswana University of Agriculture and Natural Resources (BUAN) have been at the forefront of agricultural innovation in Botswana, conducting extensive research and field trials to address the challenges faced by the sector.

NARDI's Small-stock Finishing Trials at Lobu

In collaboration with the Ministry of Agriculture, NARDI launched experimental infrastructure at Lobu Ranch in the Kgalagadi District to enhance small-stock production. This initiative aims to evaluate the growth performance of various goat genotypes under intensive feeding systems, focusing on improving meat quality and reducing input costs. The project seeks to increase the competitiveness of small-stock in the market through finisher diets based on locally available

feed resources. The trials are expected to provide valuable insights for farmers, enabling them to produce high-quality chevon and mutton for domestic and international markets, including the Middle East

DIVAGRI Project: Bio-Based Agricultural Innovations

NARDI, in partnership with BUAN, launched the DIVAGRI project at Impala Research Station in Francistown. Funded by the European Union's Horizon 2020 program, DIVAGRI aims to improve resilience, productivity, and income for smallholder farmers in arid and semi-arid regions of Sub-Saharan Africa. The project introduces integrated bio-based and circular innovations, including Self Regulating Low Energy Clay-based Irrigation (SLECI), Multi-functional Constructed Wetlands, Solar Supported Bio-gas Digesters, and Low-Tech Mobile Kilns for biochar production. These technologies are being piloted at NARDI stations and demonstrated in selected farmers' fields to promote sustainable agricultural practices and entrepreneurship .

NARDI's Research Mandate and Strategic Focus

Established in 2015, NARDI operates as a decentralized organization with specialized Research & Innovation Centres, Testing and Diagnostic Laboratories, Field Stations, and Experimental Sites across Botswana. Its mandate includes conducting high-quality, needs-based research and development across the agricultural value chain, promoting commercialization and technology transfer, and fostering innovation in areas such as field crops, horticulture, animal production, food science, and agricultural engineering .

Addressing Livestock Emissions and Sustainability

In collaboration with the Climate Smart Agriculture (CSA) program, NARDI has been involved in developing Botswana's first Tier 2 cattle inventory, linking it to the national greenhouse gas inventory process. This initiative aims to enhance government and industry awareness and collaboration on livestock emissions, contributing to sustainable livestock production practices in the country .

Through these initiatives, NARDI and BUAN are playing a pivotal role in transforming Botswana's agricultural sector by promoting sustainable practices, enhancing productivity, and fostering economic growth in rural communities.

This summary provides a broad view of the significant agricultural research initiatives conducted by NARDI and BUAN. These programs not only focus on improving productivity but also on sustainability, climate resilience, and incorporating modern technologies into Botswana. This policy fully endorses and enhances the R&D effort of its institutions.

Year	Title	Description	Results
2015	**Smallstock Finishing Trials at Lobu**	NARDI conducted trials to assess the growth and meat quality of goats under intensive feeding systems.	Improved meat quality and reduced input costs for smallstock farmers. Insights led to better market competitiveness.
2016	**DIVAGRI Bio-Based Innovations**	Partnership with BUAN to introduce circular bio-based technologies in agriculture.	Successful implementation of low-tech bio-based solutions like biochar production, constructed wetlands, and solar-supported biogas digesters.
2017	**Sustainable Crop Production for Drylands**	Research on drought-resistant crops and efficient water use in arid regions.	Developed drought-tolerant varieties that increased crop yields in dryland conditions.
2018	**Climate-Smart Livestock Systems**	Evaluating sustainable livestock practices in response to climate change.	Reduced livestock emissions, with practices adopted for sustainable grazing and improved livestock resilience in drought conditions.
2019	**Soil Fertility Enhancement Trials**	Trials aimed at enhancing soil fertility using organic fertilizers and compost.	Improved soil fertility and higher crop yields due to increased organic matter and nutrients in the soil.
2019	**Water Conservation in Horticulture**	Investigating drip irrigation techniques for water-efficient vegetable farming.	Significant reduction in water usage with higher vegetable yields due to efficient irrigation methods.
2020	**Genetically Modified Crops for Resilience**	Field trials of GM crops designed to withstand pests, diseases, and drought.	Positive results in pest resistance and higher yields in GM crops, contributing to food security.
2020	**Integration of ICT in Farming**	Using technology to improve agricultural practices through mobile apps and data collection.	Increased access to farming information and advisory services, leading to better decision-making and productivity for farmers.

Year	Title	Description	Results
2021	**Integrated Pest Management for Crops**	Research on non-chemical pest control methods to reduce pesticide dependency.	Successful reduction of pest damage using organic pest control methods, resulting in healthier crops and fewer chemicals in farming.
2021	**Improvement of Maize Varieties**	Development of improved maize varieties for better resistance to disease and pests.	Higher yields and disease resistance in newly developed maize varieties, ensuring better food security.
2022	**Sustainable Land Management**	Research on reducing land degradation through sustainable farming practices.	Successful restoration of degraded land and improved soil structure, leading to better land productivity and reduced erosion.
2022	**Organic Farming Systems**	Trials on the viability of organic farming in Botswana's agricultural landscape.	Increased interest in organic farming, with positive results for soil health and market demand for organic produce.
2022	**Aquaculture Development**	Investigating sustainable fish farming practices for improving local food production.	Enhanced fish farming techniques, improving fish yield and sustainability in freshwater systems.
2023	**Precision Agriculture and Satellite Tech**	Investigating the use of satellite and drone technology in crop monitoring.	Significant improvements in yield prediction and resource management through precise monitoring and data analysis.
2023	**Agroforestry Systems for Carbon Sequestration**	Research on integrating trees with crops to increase biodiversity and soil carbon.	Positive impact on carbon sequestration, soil fertility, and crop diversity, contributing to environmental sustainability.
2023	**Farming for Biodiversity**	Research focusing on enhancing biodiversity in farming systems for ecosystem services.	Increased biodiversity and healthier ecosystems, leading to improved pollination, pest control, and resilience in agricultural systems.

Year	Title	Description	Results
2024	**Sustainable Water Management in Agriculture**	Investigating sustainable water use techniques in agriculture under drought conditions.	Improved water use efficiency, with techniques like rainwater harvesting and optimized irrigation systems showing positive results.
2024	**Smart Farming Techniques**	Research on the use of artificial intelligence and robotics in agriculture.	Trials on smart farming technologies (robotics, AI) show promising results in improving labor efficiency and crop monitoring.
2024	**Soil Erosion Control Techniques**	Research focused on mitigating soil erosion in the face of increased rainfall variability.	Successful implementation of erosion control techniques such as terracing and cover cropping, improving soil retention and reducing losses.
2024	**Livestock Vaccination Programs**	Trials on effective vaccination programs to prevent livestock diseases.	Increased livestock health and productivity through successful vaccination campaigns, reducing disease-related losses.

7.9.1 Agriculture Sector Organisation

7.9.1.1 Ministry of Lands and Agriculture (MoA) – Botswana

The mandate of the ministry responsible for agriculture is to promote sustainable agricultural development, enhance food security, and contribute to economic diversification. Its current organisation comprises the following:

Key Departments:

- **Department of Crop Production:** Focuses on improving crop yields and promoting sustainable farming practices.
- **Department of Animal Production:** Aims to enhance livestock productivity and health.
- **Department of Veterinary Services:** Provides animal health services and disease control.
- **Department of Agribusiness Promotion:** Supports the development of agribusiness enterprises and market access.
- **Department of Corporate Services:** Offers administrative and support services to the ministry.
- **Division of Agricultural Information and Public Relations:** Manages communication and dissemination of agricultural information.Government of Botswana

7.9.1.2 Affiliated Parastatals:

- **Botswana University of Agriculture and Natural Resources (BUAN):** Provides education and training in agriculture and conducts research to support the sector. Now moved to Ministry Education but none the less vital in the Agriculture sector.
- **Botswana Meat Commission (BMC):** Engages in the processing and marketing of meat products.
- **Botswana Agricultural Marketing Board (BAMB):** Manages the marketing and distribution of agricultural produce.
- **Botswana Vaccine Institute (BVI):** Produces vaccines to support animal health.
- **National Agricultural Research and Development Institute (NARDI):** Established to consolidate agricultural research efforts, focusing on innovation and development in agriculture

7.9.2 Key Agricultural Sector Stakeholders

7.9.2.1 Farmer-Based Stakeholders

- **Botswana National Farmers Union (BNFU):** Umbrella body representing the interests of smallholder and commercial farmers.
- **Regional Farmers Associations** (e.g., Kweneng Farmers Association, Ghanzi Farmers Association).

- **Commercial Farmers (Individual Enterprises):** Operate on leased or freehold land, engage in intensive farming (e.g., horticulture, feedlots, dairy).
- **Smallholder/Subsistence Farmers:** Majority of traditional arable and pastoral farmers.

7.9.2.2 Private Sector and Agribusinesses

- **Agro-Input Suppliers:**
    - Seed producers and distributors (e.g., Agriseeds Botswana).
    - Agrochemicals and fertilizer suppliers (e.g., Gaborone Plant, Agritech).
    - Veterinary drug stockists.
- **Agricultural Machinery and Equipment Suppliers:**
    - Tractors, irrigation systems, ploughing equipment vendors.
- **Grain Millers and Processors:**
    - Maize and sorghum milling companies (e.g., Bokomo Botswana, Sebego Milling).
- **Horticultural Producers and Packhouses:** Focused on exports and supermarket supply chains.
- **Retail Chains and Buyers:** Sefalana, Choppies, Spar, and others sourcing local produce.

7.9.2.3 Financial Institutions

- **National Development Bank (NDB):** Major provider of agricultural loans.
- **Commercial Banks:** Offer agricultural finance products (e.g., Stanbic, FNB, Absa).
- **Botswana Savings Bank (BSB):** Serves rural and emerging farmers.
- **Microfinance Institutions:** Support small-scale agribusiness ventures.

7.9.2.4 Education and Research (Non-Parastatal)

- **Secondary Schools and Brigades with Agriculture Curricula.**
- **International Research Collaborators:**
    - International Livestock Research Institute (ILRI)
    - Centre for Coordination of Agricultural Research and Development for Southern Africa (CCARDESA – Gaborone-based).

7.9.2.5 Development Partners & NGOs

- **FAO (Food and Agriculture Organization)**
- **USAID Southern Africa Feed the Future**
- **GIZ (German Cooperation)**
- **World bank & IFAD-funded agricultural projects**

- **NGOs supporting food security and rural livelihoods** (e.g., Sentebale, Humana People to People, Botswana Red Cross).

7.9.2.6 Professional and Regulatory Bodies

- **Botswana Veterinary Association**
- **Botswana Society for Range Management**
- **Botswana Horticulture Council (under development)**
- **Botswana Bureau of Standards (BOBS):** Sets standards for agro-products.

7.9.3 International Agreements

7.9.3.1 Agriculture and Food Security

1. **Comprehensive Africa Agriculture Development Programme (CAADP)**
    - *Under NEPAD, African Union*
    - Botswana signed the CAADP Compact in 2009, committing to 10% of national budget to agriculture and 6% annual growth in the sector.
2. **Malabo Declaration on Accelerated Agricultural Growth and Transformation for Shared Prosperity and Improved Livelihoods (2014)**
    - Renewed commitment to CAADP goals, including ending hunger and halving poverty through agriculture.
3. **SADC Regional Agricultural Policy (RAP)**
    - Botswana participates in the implementation of RAP, aimed at improving regional food security, harmonizing standards, and supporting agri-trade.

7.9.3.2 Livestock and Animal Health

4. **World Organisation for Animal Health (WOAH, formerly OIE)**
    - Botswana is a member, complying with international standards for animal health and disease control (e.g., FMD, CBPP).
5. **Codex Alimentarius Commission (Joint FAO/WHO Food Standards Programme)**
    - Botswana participates in setting international food standards and safety protocols.

7.9.3.3 Biodiversity and Environmental Protection

6. **Convention on Biological Diversity (CBD)**
    - Signed in 1992, ratified in 1995. Includes commitments to protect agricultural biodiversity and promote sustainable farming.
7. **International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA)**
    - Ratified in 2004. Botswana supports the conservation and sustainable use of plant genetic resources and equitable benefit-sharing.
8. **UN Convention to Combat Desertification (UNCCD)**

- Ratified in 1996. Botswana implements sustainable land management practices, vital for dryland agriculture.

9. **United Nations Framework Convention on Climate Change (UNFCCC)**
    - Agriculture is a key sector in Botswana's NDCs for adaptation and mitigation actions.

7.9.3.4 Plant and Animal Protection

10. **International Plant Protection Convention (IPPC)**
    - Botswana is a contracting party and follows phytosanitary standards to protect against plant pests.
11. **Codex Committee on Residues of Veterinary Drugs in Foods**
    - Supports food safety in livestock-based production.

7.9.3.5 Trade-Related Agreements with Agricultural Impact

12. **World Trade Organization (WTO) – Agreement on Agriculture (AoA)**
    - Botswana is bound by trade disciplines and subsidies regulations under WTO rules.
13. **EU Economic Partnership Agreement (EPA)** with SADC Group
    - Provides preferential access for Botswana's beef exports under strict sanitary conditions.

7.10 Past Agricultural Policies: NDP 11 and Vision 2036

7.10.1 Key Agricultural Policies and Programs in Botswana (1980–Present)

7.10.1.1 Arable Lands Development Programme (ALDEP) – Initiated in 1979/1980

- **Objective**: Support resource-poor farmers by providing inputs such as seeds, fencing, and tools to enhance food security at the household level.
- **Impact**: Assisted small-scale farmers, representing about 70–75% of traditional arable farmers, though outcomes were mixed due to implementation challenges.

7.10.1.2 Tribal Grazing Land Policy (TGLP) – Launched in 1975

- **Objective**: Address overgrazing and promote sustainable livestock management by allocating exclusive grazing rights to individuals or groups.
- **Impact**: Aimed to improve rangeland management but faced criticism for benefiting wealthier farmers and marginalizing the poor.

7.10.1.3 National Food Strategy – Adopted in 1985

- **Objective**: Transition from food self-sufficiency to food security, ensuring adequate food availability and access at national and household levels.
- **Impact**: Introduced measures to promote food production where feasible and relied on imports to meet shortfalls.

7.10.1.4 Accelerated Rainfed Arable Programme (ARAP) – Implemented in 1985

- **Objective**: Enhance rain-fed arable agriculture through grants for ploughing, improved seeds, fertilizers, and water development initiatives.
- **Impact**: Led to notable increases in cultivated area, output, and yields but was discontinued in 1990 and later reintroduced in a modified format. BioMed Central

7.10.1.5 National Policy on Agricultural Development (NPAD) – Introduced in 1991

- **Objective**: Promote sustainable agricultural development, diversification, and commercialization to improve food security and rural incomes.
- **Impact**: Provided a framework for various agricultural programs and initiatives, though a review was initiated in 2020 to update the policy.

7.10.1.6 Agricultural Credit Guarantee Scheme – Established in 1986

- **Objective**: Assist dry-land crop farmers in meeting debt obligations in case of crop failure due to drought or other climatic events.
- **Impact**: Focused on drought-related crop failures but faced sustainability challenges due to financial burdens on the government.

7.10.1.7 Conservation Agriculture (CA) – Promoted in the 2000s

- **Objective**: Increase crop production in drylands through sustainable farming practices.
- **Impact**: Introduced as a strategy to enhance productivity, though smallholder systems continued to experience low crop yields.

7.10.1.8 National Agricultural Investment Plan (NAIP) – Developed in the 2020s

- **Objective**: Identify priority investment areas in agriculture to enable sustainable development, focusing on infrastructure, value chains, and industrialization.
- **Impact**: Aimed to reduce food imports and promote sustainable agricultural development through targeted investments. Sunday Standard

These policies and programs reflect Botswana's efforts to enhance agricultural productivity, ensure food security, and promote sustainable land management. If you require more detailed information on any specific policy or program, feel free to ask.

7.10.2 Farming in NDP11

Botswana has developed several policy frameworks over the years aimed at enhancing agricultural productivity and ensuring food security. National Development Plan (NDP) 11 (2017-2023) focused on promoting agricultural diversification, sustainability, and modernization. The plan sought to address key challenges such as climatic unpredictability, land degradation, and low agricultural productivity by promoting irrigation development, improved seed varieties, and better livestock management practices. NDP 11 also emphasized the importance of empowering smallholder farmers and improving rural livelihoods through better access to finance, training, and market opportunities. However, despite these efforts, NDP 11 faced significant implementation challenges, including limited financial resources, insufficient technical capacity, and weak coordination between various stakeholders. These limitations hindered the ability of the policy to achieve its agricultural growth targets.

7.10.3 Farming in 2036

Looking ahead, Vision 2036 outlines a broader, long-term strategy for transforming Botswana into a prosperous and food-secure nation. Vision 2036 recognizes agriculture as a key sector for economic diversification and aims to promote sustainable farming practices, technology adoption, and value addition. The vision also stresses the importance of addressing climate change, engaging youth in agriculture, and developing a vibrant agribusiness sector. While Vision 2036 presents an ambitious roadmap for agricultural transformation, its success will depend on overcoming existing challenges, particularly in terms of policy implementation and the integration of smallholder farmers into the formal economy.

7.10.4 Conclusion

The situation analysis of Botswana's agricultural sector highlights a number of challenges and opportunities. While livestock farming, particularly beef, remains a key driver of the sector, crop production is hindered by climate variability, low yields, and soil degradation. The reliance on food imports and the challenges faced by smallholder farmers presents significant obstacles to achieving food security and economic sustainability. Addressing these challenges will require increased investment in climate-resilient technologies, improved access to finance and markets, and enhanced policy coherence between smallholder and commercial farming sectors. Strengthening local production capacity, particularly in food staples and horticulture, should be a priority in future policy development to reduce the country's dependence on food imports and enhance food security.

8 Agriculture Sector Policy Rationale and Objectives

8.1 Importance of the Objectives and Their Role in Shaping the Agricultural Policy

8.1.1 Introduction

These objectives form the foundation of Botswana's agricultural policy framework. They fall naturally and logically from the situation analysis. They outline a clear and actionable path that will guide the sector towards sustainable growth, enhanced food security, and economic diversification.

8.1.2 Why a Top-Down Approach?

The structure of the objectives follows a "top-down" approach because it aligns with the broader vision for Botswana's long-term development, starting with national and global commitments and gradually zooming in on specific sector goals. This hierarchy helps ensure that every objective at the sector level is linked to our overarching goals like Vision 2036, the Sustainable Development Goals (SDGs), and the National Development Plan (NDP 12). It's a strategic framework that ensures no area is left behind, creating a clear roadmap for implementation.

8.1.3 From Vision to Action

By starting with national aspirations, the objectives create a solid connection between Botswana's global commitments and on-the-ground actions. They aren't just abstract goals—

they are a direct reflection of what needs to be done to meet our development targets. Whether it's promoting climate-smart agriculture or fostering inclusive value chains, these objectives inform the policies that will be developed in the future, ensuring that they reflect the values, needs, and aspirations of the nation.

8.1.4 Setting the Stage for Monitoring and Evaluation

Another critical role these objectives play is in setting up the framework for monitoring and evaluating progress. By clearly defining measurable goals—like increasing agricultural productivity or enhancing water management—they lay the groundwork for tracking success. This isn't just about ticking boxes; it's about ensuring that we can adjust and fine-tune policies as needed to stay on course. Each objective acts as a checkpoint, allowing us to measure the impact and effectiveness of the policies that are rolled out.

In summary, these objectives are not just a list of aspirations—they are the heart of a strategic framework that connects high-level vision with practical policy action, ensuring that Botswana's agricultural sector can meet current and future challenges while contributing to the country's overall development.

8.2 Hierarchy of Objectives for Botswana's Agricultural Sector

8.2.1 National Vision and Global Commitments

- **Vision 2036 (Botswana's Long-Term Development Vision):**
    - **Objective**: Transform Botswana into a high-income, diversified economy by ensuring sustainable agricultural growth, enhanced food security, and technological advancements within the agricultural sector. The focus will be on inclusive development that incorporates rural communities, smallholder farmers, and youth while ensuring environmental sustainability and resilience to climate change.
    - **Key Areas:**
        - Food security and self-sufficiency
        - Agricultural diversification and value addition
        - Technological integration and innovation
        - Climate-resilient practices and sustainable land management
        - Youth and gender empowerment in agriculture

8.2.2 Global Sustainable Development Goals (SDGs)

Botswana is a signatory to the United Nations' 2030 Agenda for Sustainable Development, with specific alignment to the following SDGs:

- **SDG 1 (No Poverty)**: Eradicate poverty in all its forms, especially in rural areas, by promoting agricultural livelihoods and diversifying income sources for smallholder farmers.

- **SDG 2 (Zero Hunger)**: End hunger, achieve food security, improve nutrition, and promote sustainable agriculture through the development of resilient agricultural practices and increasing local production.
- **SDG 8 (Decent Work and Economic Growth)**: Promote inclusive economic growth by boosting the agricultural sector's contribution to the national economy and creating sustainable job opportunities, particularly for youth and women.
- **SDG 13 (Climate Action)**: Take urgent action to combat climate change by promoting climate-smart agriculture, sustainable water use, and improving resilience in rural agricultural communities.
- **SDG 15 (Life on Land)**: Sustainably manage land, forests, and ecosystems, preventing land degradation and restoring soil fertility through improved agricultural practices.

8.2.3 National Development Plan (NDP 12 - 2023-2029)

- **Objective**: Build on the successes and challenges of NDP 11, focusing on agricultural diversification, sustainability, food security, and integration of modern technologies while promoting rural development and poverty reduction.
    - **Key Priorities for Agriculture:**
        - Promote agricultural productivity and sustainability, addressing climatic and environmental challenges.
        - Enhance value addition and processing capabilities to increase the economic benefits derived from agriculture.
        - Encourage private-sector involvement in agriculture and improve financing access for smallholder farmers.
        - Improve rural infrastructure to facilitate better market access, processing, and distribution.
        - Develop climate-resilient agriculture with enhanced irrigation infrastructure and water management practices.
        - Empower youth and women in agriculture through training, financing, and technology.

8.2.4 Agricultural Sector Objectives

Objective: **Achieve sustainable agricultural growth through diversification, innovation, and climate resilience, while ensuring food security, reducing reliance on food imports, and improving rural livelihoods.**

- **Key Areas:**
    - **Food Security**: Increase domestic production to meet food demand, reduce import dependency, and ensure a sustainable supply of staple foods.
    - **Economic Diversification**: Transition from a reliance on livestock to incorporating high-value crops, horticulture, and agro-processing, expanding the contribution of agriculture to GDP.

- **Sustainability and Climate Resilience**: Build climate-resilient agriculture practices, invest in sustainable land management, and promote sustainable water use and conservation practices.
- **Technology Integration**: Promote the use of modern farming techniques, including precision agriculture, mechanization, and biotechnology, to improve productivity and efficiency.
- **Smallholder Empowerment**: Integrate smallholder farmers into formal value chains, provide access to financing, markets, and technology, and improve land tenure security.
- **Agricultural Productivity and Sustainability**: Promote livestock development, arable agriculture, apiculture, and aquaculture, optimizing the use of land, labor, and capital to increase agricultural output.
- **Resilient Agriculture**: Foster climate-smart technologies, regenerative agriculture, and early warning systems for resilience to climate change and other challenges like pandemics and geopolitical instability.
- **Water Management**: Promote efficient irrigation, rainwater harvesting, and water conservation technologies.

8.2.5 Agricultural Subsector Objectives

8.2.5.1 Livestock Farming

Objective: Enhance livestock productivity, improve herd health, and expand the market for Botswana's high-quality beef while promoting sustainable livestock management practices.

- **Subsector Goals:**
  - Increase the productivity and quality of beef, goat, and dairy products.
  - Develop veterinary services and improve animal health management.
  - Expand market access for beef and dairy products, particularly in the European Union and other international markets.
  - Encourage sustainable grazing practices to prevent land degradation and ensure long-term sustainability of rangeland resources.
  - Support smallholder livestock farmers with better breeding and health services.

8.2.5.2 Crop Production (Arable Farming)

Objective: Increase the production of staple crops and high-value horticultural crops, ensuring food security and reducing reliance on imports.

- **Subsector Goals:**
  - Increase domestic maize and cereal production, improve irrigation systems to mitigate drought impacts.
  - Enhance productivity of vegetables and fruits, particularly those that can substitute food imports.

- Encourage the adoption of drought-resistant crop varieties and sustainable soil management practices.
- Expand the use of mechanized farming methods and precision agriculture for better crop yields.
- Promote agro-processing of local crops to add value and reduce post-harvest losses.

8.2.5.3 Irrigation and Water Management

Objective: Expand irrigation coverage and improve water management practices to enhance agricultural productivity in arid and semi-arid regions.

- **Subsector Goals:**
  - Increase the area under irrigated agriculture and improve water efficiency through modern irrigation systems.
  - Promote rainwater harvesting and water storage techniques to ensure water availability during dry spells.
  - Enhance water management infrastructure and technologies to optimize the use of available water resources.
  - Encourage sustainable practices to prevent soil salinization and groundwater depletion.

8.2.5.4 Agricultural Research and Innovation

Objective: Promote research and innovation in agricultural practices, technologies, and value chains to enhance productivity and climate resilience.

- **Subsector Goals:**
  - Increase investment in agricultural research and development to drive innovation in crop and livestock production.
  - Promote the development and dissemination of climate-smart agricultural technologies, including drought-resistant crops, precision farming, and bio-fortified varieties.
  - Foster partnerships with universities, private sector, and international organizations to improve research capacity.
  - Improve extension services to ensure the dissemination of new technologies to farmers, especially smallholders.

8.2.5.5 Agricultural Finance and Market Access

Objective: Improve access to financing, inputs, and markets for farmers, especially smallholders, to promote agricultural growth and sustainability.

- **Subsector Goals:**
  - Improve access to affordable financing for smallholder farmers through microfinance, credit facilities, and insurance products.

- Support the establishment of farmers' cooperatives and farmer groups to strengthen bargaining power and reduce costs.
- Expand market access both domestically and internationally by improving transport, infrastructure, and processing capacity.
- Strengthen market linkages and ensure equitable access to both domestic and international markets.

8.2.5.6 Cross-Cutting Objectives

Objective: Address critical social, economic, and environmental issues to ensure sustainable and inclusive agricultural growth.

- **Key Areas:**
  - **Youth and Gender Empowerment**: Engage youth and women in agriculture by providing training, resources, and market access.
  - **Environmental Sustainability**: Promote agroecological farming, reduce the carbon footprint of agriculture, and ensure the conservation of natural resources.
  - **Capacity Building**: Build institutional capacity to support agricultural development, including training for farmers, extension officers, and policymakers.
  - **Policy and Institutional Strengthening**: Improve governance structures within the agriculture sector to facilitate better implementation of policies and initiatives.

Part One

Agriculture Sector-Wide Policies







9 Agrisector Social Policies

"Promoting Inclusive Growth, Empowering Farmers, and Enhancing Rural Livelihoods"

9.1 Introduction

The agricultural sector's social policies aim to foster inclusive growth by ensuring equitable access to resources, opportunities, and support systems for all individuals in the farming communities, especially women, youth, and smallholder farmers. By addressing critical issues such as land tenure security, rural employment, skills development, and access to basic services, these policies seek to create a vibrant and resilient agricultural workforce. With a focus on poverty reduction, improved living standards, and enhanced food security, the goal is to uplift rural households while fostering sustainable agricultural practices. Through these policies, we are committed to strengthening social equity in the sector, promoting rural development, and ensuring that the benefits of agricultural growth are widely shared across communities.

9.2 Youth Disengagement from Agriculture

Issue: Farming is increasingly viewed by youth as a low-income, low-status occupation, leading to declining youth participation in agriculture.

Problem: There is a twofold challenge: firstly, the perception that agriculture is outdated and unprofitable; secondly, the absence of youth-targeted services and institutional support mechanisms that would enable young people to participate meaningfully in the sector.

Objective: To transform agriculture into an aspirational and profitable career path that attracts and retains young people.

Policy Statement: The government will reposition agriculture as a modern, entrepreneurial sector suitable for youth, by promoting positive narratives, providing access to resources, and creating opportunities for skill development and wealth creation.

Implementation Strategy:

- Launch a national 'AgriPreneur' campaign showcasing successful youth in agriculture through media, school visits, and national awards.
- Establish Youth Agribusiness Units in every district to provide dedicated support.
- Offer specialized grants, low-interest loans, and land access to youth-run enterprises.
- Incorporate agriculture into school curricula and support agri-clubs.

Time Frame: Short term (1–3 years)

9.3 Gender Inequality in Agriculture

Issue: Despite their critical role in agriculture, women face systemic inequality in access to land, financing, training, and decision-making structures.

Problem: Women's contributions remain largely unrecognized and uncompensated, particularly unpaid family labour. Legal and cultural constraints restrict access to productive resources.

Objective: To achieve gender parity in agricultural participation and leadership by addressing systemic and structural barriers.

Policy Statement: The government will actively promote equal access and rights for women in agriculture by amending discriminatory laws, prioritizing women in agricultural programming, and formally recognizing their contributions to food systems.



Implementation Strategy:

- Amend land laws to guarantee women equal rights to own, inherit, and lease land.
- Establish dedicated Women in Agriculture Funds to support training, mechanization, and access to finance.
- Integrate women's unpaid labour into agricultural GDP calculations and offer inclusion in social protection programs.
- Train women in cooperative formation, value addition, and leadership.

Time Frame: Medium term (2–5 years)

9.4 Aging Farming Population

Issue: A significant proportion of Botswana's farmers are over the age of 55, resulting in concerns about the sustainability and productivity of the sector.

Problem: As older farmers retire, there is both a demographic gap and a loss of indigenous agricultural knowledge. Younger generations are not taking up farming in sufficient numbers to ensure generational transition.

Objective: To renew the human capital of agriculture by facilitating knowledge transfer and attracting a new generation of farmers.

Policy Statement: Government will promote intergenerational exchange and make farming an attractive livelihood for young people, while capturing and preserving traditional farming wisdom.

Implementation Strategy

- Implement retirement handover schemes offering incentives for land transfer to young farmers.

- Establish mentor-apprentice programs that pair experienced farmers with youth.
- Document and preserve indigenous knowledge through the creation of National Agricultural Heritage Centres.

Time Frame: Medium term (3–7 years)

9.5 Low Farmer Education Levels

Issue: Many farmers lack basic and technical agricultural education, limiting their capacity to adopt modern techniques and manage their farms effectively.

Problem: Farmers are often not equipped with the knowledge required for sustainable and productive agriculture, particularly in areas such as climate resilience, record-keeping, and business planning.

Objective: To increase farmers' access to education and training that supports both production and farm enterprise management.

Policy Statement: Government will ensure universal access to agricultural training, integrating both technical and business education, while leveraging technology for rural delivery.

Implementation Strategy

- Expand the network of agricultural extension schools and create mobile training units.
- Launch free short courses on bookkeeping, budgeting, and marketing.
- Develop e-learning platforms and radio programs tailored to farmer literacy levels.

Time Frame: Short to medium term (2–5 years)

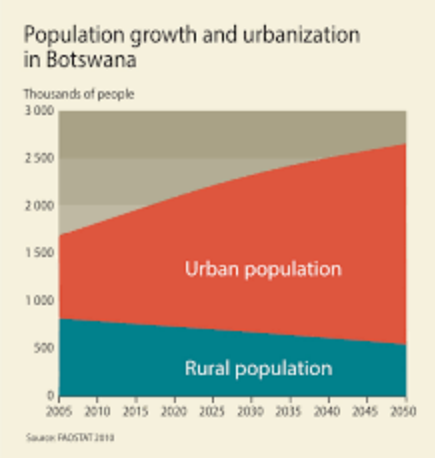
9.6 Rural-Urban Migration

Issue: A significant number of young people are leaving rural areas, leading to the abandonment of farmland and weakening rural economies and communities.

Problem: Agriculture is no longer viewed as a viable rural livelihood due to lack of infrastructure, services, and social amenities. This is contributing to a demographic and economic vacuum in rural Botswana.

Objective: To revitalize rural communities by improving the attractiveness and economic viability of farming.

Policy Statement: The government will stimulate rural agricultural economies through infrastructure development, improved service delivery, and community support initiatives.



Implementation Strategy

- Develop rural agri-parks that serve as innovation and value-addition hubs.
- Invest in rural health, education, and ICT services to enhance quality of life.
- Promote farmer associations and communal farming schemes.
- Fund rural sports, cultural activities, and cooperative societies.

Time Frame: Medium term (3–5 years)

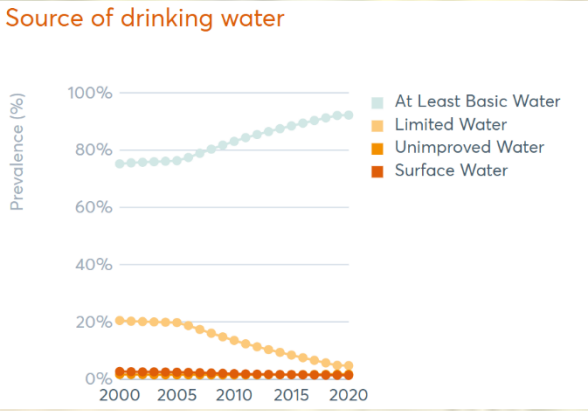
9.7 Poor Health and Nutrition Among Farming Communities

Issue: Malnutrition and lack of access to health services undermine productivity and quality of life among farming households.

Problem: Many farming families experience food insecurity despite being food producers. Health services are often too far, too costly, or inadequately equipped to serve them.

Objective: To enhance the health and nutrition of farming communities through integrated support programs.

Policy Statement: Government will implement community-based initiatives linking health, nutrition, and agriculture to foster healthy farming families.





Implementation Strategy:

- Launch ‘Healthy Farmer’ programs promoting diversified diets and household nutrition gardens.
- Integrate basic health services into agricultural extension delivery.
- Deploy mobile health clinics to underserved farming areas.

Time Frame: Short term (1–3 years)

9.8 Farmer Mental Health Challenges

Issue: Farmers face increasing levels of stress due to unpredictable weather patterns, fluctuating market prices, and financial instability, which negatively impacts their mental health.

Problem: There is limited recognition of the mental health needs of farmers, and services addressing mental wellbeing are often inaccessible or stigmatized in rural areas.

Objective: To provide mental health support for farmers and build emotional resilience in farming communities.

Policy Statement: The government will normalize conversations around mental health and establish services to support the psychological wellbeing of farmers.

Implementation Strategy

- Establish confidential farmer helplines staffed by trained counselors.
- Create peer support networks and farmer-to-farmer mentoring systems.
- Integrate mental health awareness into extension service outreach and community events.
- Partner with NGOs, churches, and traditional leaders to de-stigmatize mental health care.

Time Frame: Short term (1–3 years)

9.9 Inequality in Access to Services

Issue: In Botswana, a significant number of farmers, particularly those in rural areas, face challenges related to poor road access to markets, hindering their ability to efficiently transport produce and connect with buyers; 65% live more than 2Km from a paved road (SDG9.1.1), 87% have no electricity, 63% have no internet connectivity and 22% access to potable water. This limits the growth of the agricultural sector and affects the livelihoods of many farmers. Farmers in remote or marginalized communities often lack equal access to crucial services such as markets, financial services, extension advice, and infrastructure.

Problem: Geographic isolation and social exclusion create disparities that undermine equitable agricultural development and income distribution.

Objective: To close the rural-urban service gap and ensure inclusivity in agricultural support systems.

Policy Statement: Government will expand decentralized service delivery, adapt services for diverse needs, and promote inclusive participation in agriculture.



Implementation Strategy:

- Deploy mobile banking units and mobile extension service vans to remote areas.
- Roll out SMS-based market information systems in local languages.
- Conduct assessments to identify barriers faced by marginalized groups, including people with disabilities and ethnic minorities.
- Adapt training materials and support programs to address diverse needs.

Time Frame: Short to medium term (2–5 years)

9.10 Lack of Agricultural Leadership and Advocacy

Issue: Farmers often lack a collective voice in shaping agricultural policies and influencing national decision-making.

Problem: Without effective representation, farmer interests are underrepresented in governance processes, and critical feedback from the grassroots is often lost.

Objective: To build strong, inclusive agricultural leadership and advocacy structures that represent farmers' voices.

Policy Statement: Government will promote farmer representation and leadership development through democratic platforms and capacity-building initiatives.

Implementation Strategy:

- Strengthen BOFA to improve the scale and level of representation.
- Establish a National Farmers' Council with regional chapters to represent farmers in policy forums.
- Train youth and women farmers in leadership, negotiation, and policy advocacy.
- Offer scholarships, fellowships, and exchange programs to build leadership capacity.

Time Frame: Medium term (3–5 years)

9.11 Erosion of Traditional Agricultural Knowledge

Issue: Traditional agricultural knowledge, including indigenous seed varieties and farming systems, is at risk of being lost as older generations pass away.

Problem: The disconnect between young people and their cultural agricultural heritage threatens the continuity and resilience of local food systems.

Objective: To preserve and promote indigenous knowledge and ensure its transmission to future generations.

Policy Statement: Government will support the documentation, protection, and education of traditional agricultural practices, with a focus on youth engagement.



Implementation Strategy:

- Create community seed banks to safeguard indigenous seed varieties.
- Document traditional farming techniques and integrate them into school curricula.
- Host 'Farming Heritage Days' and facilitate intergenerational mentorship programs.
- Support research institutions to study and validate indigenous practices.

Time Frame: Medium to long term (3–7 years)

10 Agrisector Technology Policies

"Harnessing Innovation and Technology for a Modern, Resilient Agricultural Sector"

10.1 Introduction

The agricultural technical policies aim to transform Botswana's agricultural landscape by promoting the adoption of modern technologies, climate-smart practices, and innovation in farming techniques. These policies focus on enhancing the technical capabilities of both smallholder and commercial farmers through improved access to advanced agricultural inputs, machinery, and research-driven solutions. By fostering the development and adoption of precision agriculture, sustainable irrigation systems, and biotechnology, the policies aim to increase productivity, reduce environmental impact, and build resilience against climate change. The technical policies also emphasize capacity building, strengthening agricultural research and extension services, and ensuring that farmers are equipped with the knowledge and tools necessary to thrive in a rapidly evolving sector. Ultimately, these policies seek to establish a foundation for a highly efficient, technologically advanced agricultural sector that supports long-term sustainability and competitiveness in both local and global markets.

10.2 Improving Livestock Breeding Systems

Issue: Poor breed quality limits agricultural productivity and climate resilience. Improving seed quality and livestock breeding involves using genetic principles to enhance animal traits, resulting in higher yields, better quality, and improved overall health and resilience. For livestock, this includes selective breeding for specific traits like disease resistance or increased milk yield.
Problem: Many smallholder farmers in Botswana still use traditional seed varieties and livestock breeds, which are often less resistant to pests, diseases, and changing climatic conditions. This limits their ability to achieve higher yields and adapt to climate change.
Objective: To improve the availability and quality of climate-resilient seeds and livestock breeds through modern breeding programs.

Policy Statement:
To enhance agricultural productivity and climate resilience, the government will invest in the production of high-quality, climate-resilient seeds and improved livestock breeds. This will involve the establishment of seed multiplication centres and livestock breeding programs that focus on improving yield potential, pest and disease resistance, and climate adaptability.

Implementation Strategy:

- Support the establishment of seed multiplication centres and encourage the production of drought-tolerant and pest-resistant varieties of crops.
- Promote artificial insemination and the breeding of livestock with better disease resistance and productivity.
- Provide financial incentives for farmers to access improved seeds and livestock breeds.
  Timeline: Medium term (3–5 years)

These efforts will help increase food security, enhance farmers' resilience to climate change, and boost overall agricultural productivity in Botswana.

10.3 Seed Quality

Issue: Limited availability of high-quality, climate-resilient plants and seeds Improving seed quality involves ensuring seeds are healthy, have high germination rates, and are free from contaminants. This can be achieved through various methods, including proper seed storage, seed treatments, and ensuring genetic purity.

Problem: Farmers struggle to access quality seeds and livestock breeds that are suited to Botswana's changing climate, which impacts productivity and sustainability.

Objective: Improve the quality and availability of seeds and livestock breeds.

Policy Statement: **The government will work to enhance seed systems by increasing the production of certified seeds that can thrive in Botswana's climate.**

Implementation Strategy

- Expand certified seed production and distribution through partnerships with seed growers and private stakeholders.
- Strengthen certification bodies to ensure that seeds meet quality standards.
- Encourage research and development into drought-resistant and pest-resistant crop varieties.
- Provide subsidies to farmers for purchasing high-quality seeds and livestock breeds.
- Promote artificial insemination centres to improve livestock genetics and breed resilience.
- Set up national breeding programs in collaboration with universities and research bodies.
- Establish demonstration farms to showcase the benefits of improved seeds and breeds.

Time Frame: Medium term (3-5 years)

10.4 Post-Harvest Technologies

Issue: High post-harvest losses due to inadequate storage and processing technologies. Post-harvest technology encompasses the techniques and processes applied to agricultural produce after it's harvested, aiming to preserve quality, reduce losses, and ensure food safety. This field focuses on maintaining freshness, extending shelf life, and improving the overall value of crops from harvest to consumption. Key areas include handling, storage, processing, packaging, distribution, and marketing.

Problem: Significant crop and livestock losses occur after harvest, especially during periods of surplus production, limiting food security and market opportunities.

Objective: Reduce post-harvest losses through affordable storage, drying, and preservation technologies.

Policy Statement: **The government will promote the development and adoption of affordable storage and processing technologies to reduce post-harvest losses and improve food security.**

Implementation Strategy:

- Set up communal storage facilities and drying centres to minimize losses during peak harvest periods.
- Distribute hermetic storage bags and other simple preservation technologies to smallholder farmers.
- Provide training for farmers on the use of modern storage techniques and preservation methods.
- Facilitate access to financing for smallholder farmers to purchase storage equipment.
- Partner with private enterprises to develop cost-effective cold storage solutions for perishables.

Time Frame: Short term (1-3 years)

10.5 Cold Chain Systems

Issue: Insufficient cold chain infrastructure for perishable products, such as fruits, vegetables, and livestock products. A cold chain system is a network that maintains a controlled temperature environment for storing, handling, and transporting temperature-sensitive goods, such as vaccines and perishable food products. This is crucial because fluctuations in temperature can degrade the quality, safety, and efficacy of these products.

Problem: Lack of cold storage, transport, and processing facilities results in the loss of perishable goods, limiting the profitability and sustainability of the agricultural sector.

Objective: Strengthen cold chain systems to preserve the quality and shelf life of perishable agricultural products.

Policy Statement: **The government will invest in cold storage, transportation, and processing infrastructure to improve the value chain for perishable agricultural goods.**

Implementation Strategy

- Build rural cold rooms, reefer trucks, and cooling centres to store and transport perishable products.
- Partner with the private sector to develop mobile cold storage units that can be deployed to remote areas.
- Provide subsidies to agro-processors to install cold storage facilities.
- Launch awareness campaigns on the importance of cold chain systems to reduce post-harvest losses.
- Encourage smallholder farmers and cooperatives to invest in cold chain infrastructure.

Time Frame: Medium term (3-5 years)

10.6 Precision Agriculture

Issue: Lack of modern precision technologies like drones, sensors, and GPS in Botswana's agriculture. Precision farming is a data-driven approach to managing crops and livestock that aims to optimize inputs and practices based on specific field conditions and individual needs. This involves using technologies like GPS, sensors, and data analytics to monitor and adjust things like fertilizer application, irrigation, and pest control. The goal is to increase productivity, reduce environmental impact, and improve sustainability.

Problem: Traditional farming practices result in inefficiencies and lower productivity. The adoption of precision farming technologies is crucial for improving crop yields and reducing resource wastage.

Objective: Modernize farming practices through the adoption of precision agriculture tools.

Policy Statement: **The government will support the integration of precision technologies in farming to increase efficiency, reduce costs, and improve yields.**



Implementation Strategy

- Pilot precision farming models in key agricultural zones to demonstrate the benefits of technologies like drones, sensors, and GPS systems.
- Develop partnerships with technology firms to bring precision tools and equipment to farmers at affordable rates.
- Offer training programs for farmers to improve their skills in using precision agriculture technologies.
- Establish demonstration farms where farmers can interact with and learn about precision farming techniques.
- Work with research institutions to develop locally adapted precision tools and solutions.

Time Frame: Medium to long term (5-8 years)

10.7 Agricultural Data and Decision-Making

Issue: Lack of access to real-time farm and market data for informed decision-making. Data-driven decision making in agriculture refers to the systematic collection, analysis, and application of data to optimize farming operations and improve outcomes. This approach

marks a significant departure from traditional farming methods that relied heavily on intuition, experience, and generational knowledge.

Problem: Farmers often face challenges in obtaining accurate, timely data about weather patterns, market prices, and other critical factors that affect production and sales.

Objective: Improve access to real-time agricultural data for better decision-making.

Policy Statement: **The government will establish agricultural data platforms and mobile applications that provide real-time weather, market price, and farming information.**

Implementation Strategy

- Develop Agricultural Data Centres to collect and disseminate real-time information on weather, pests, and market prices.
- Launch mobile applications that provide farmers with easy access to the latest data, such as crop prices, weather forecasts, and pest warnings.
- Partner with telecom and tech companies to enhance internet connectivity in rural areas for better data access.
- Train farmers on how to use mobile and web-based platforms to improve decision-making and productivity.
- Encourage the private sector to invest in agri-tech innovations and data-driven solutions for agriculture.

Time Frame: Medium term (3-5 years)

10.8 Agricultural Extension Services Enhancement

Issue: Inadequate access to timely and relevant agricultural extension services for farmers, particularly those in rural areas. Enhancing agricultural extension services involves strengthening various components to improve the delivery of information and support to farmers. This includes improving the quality of extension agents, upgrading infrastructure, and utilizing modern communication technologies. Additionally, fostering partnerships with universities and research institutions is crucial for access to expertise and knowledge.

Problem: Farmers often lack access to modern farming techniques, climate-resilient practices, and timely advice on managing pests, diseases, and other agricultural challenges. This results in suboptimal production and poor resilience to climate change.

Objective: Strengthen agricultural extension services to provide farmers with access to up-to-date information, training, and advisory services.

Policy Statement: **The government will prioritize the expansion and modernization of agricultural extension services, ensuring that farmers have access to high-quality advisory support to enhance productivity and sustainability.**

Implementation Strategy:

- Expand the network of agricultural extension officers, especially in rural and remote areas, ensuring that all farmers have access to advice and information.

- Equip extension officers with mobile technology (smartphones or tablets) to access real-time data and best practices for climate-smart farming.
- Partner with universities, research institutions, and NGOs to offer farmers training programs on modern farming techniques, pest management, soil health, and irrigation.
- Develop an online platform where farmers can easily access resources, such as guides, instructional videos, and webinars on sustainable agriculture.
- Implement a peer-to-peer extension model, where experienced farmers are trained to become community leaders and share their knowledge with others.
- Ensure that extension officers are well-trained in climate resilience, so they can offer advice that helps farmers adapt to changing weather patterns.

Time Frame: Short term (1-3 years)

10.9 Water Conservation and Management in Agriculture

Issue: Increasing pressure on water resources due to climate change and inefficient water use in agriculture. The water accounts2 show that the Botswana situation is currently different. While the agricultural sector is the leading water using sector (41% of water consumption and 35% of water abstraction over the period 2010-2014, the livestock subsector accounts for around 75% agricultural water use (around 50 Mm3). Water conservation and management in agriculture involve optimizing water use to maximize crop yields while minimizing environmental impact and ensuring long-term sustainability. This includes employing efficient irrigation techniques like drip irrigation and water harvesting, improving soil health through practices like conservation tillage and crop rotation, and using drought-tolerant crop varieties.

Problem: Botswana faces frequent droughts, and the agriculture sector heavily depends on water for crop irrigation and livestock. However, water resources are limited, and inefficient irrigation methods lead to water wastage.

Objective: Promote water-efficient agricultural practices and improve water resource management to ensure sustainable use in the sector.

Policy Statement: **The government will encourage the adoption of water-efficient technologies and sustainable water management practices in agriculture.**



Implementation Strategy

- Promote the use of drip irrigation systems, which use water more efficiently by delivering it directly to the plant roots.
- Offer financial incentives to farmers who invest in rainwater harvesting systems to collect and store water for use during dry periods.
- Provide training and technical support to farmers on soil moisture management, water conservation techniques, and efficient irrigation methods.
- Invest in the development of water-efficient farming technologies, such as drought-resistant crops and water-conserving agricultural equipment.
- Improve the management of water sources, such as dams and boreholes, to ensure equitable distribution and reduce water wastage.
- Collaborate with local water authorities and communities to establish water-sharing agreements and promote the sustainable use of shared water resources.
- Create awareness campaigns to educate farmers and the public on the importance of water conservation in agriculture.

Time Frame: Medium term (3-5 years)

10.10 R&D Policy Analytical Framework

Issue: Botswana's agricultural research and development (R&D) system faces challenges such as fragmentation, underfunding, lack of alignment with national priorities, and weak linkages with the private sector.

Problem: The R&D system lacks coordination between key institutions such as BUAN (Botswana University of Agriculture and Natural Resources), NARDI (National Agricultural Research and Development Institute), and the Ministry of Agriculture. Research outcomes are not widely disseminated or adopted by farmers, and there is insufficient focus on addressing climate change and local agricultural needs.

Objective: Strengthen the agricultural R&D system to support sustainable, climate-resilient agricultural development.

Policy Statement: **The government will strengthen coordination among key agricultural R&D institutions, increase funding for R&D, and ensure that research outcomes align with national agricultural priorities. Efforts will also focus on enhancing collaboration with the private sector and regional partners to increase the impact of agricultural innovations.**

Implementation Strategy:

- Awesome Establish a National Agricultural R&D Council to foster coordination among BUAN, NARDI, and the Ministry of Agriculture.
- Allocate at least 2% of agricultural GDP to R&D funding and introduce a dedicated agri-innovation fund.
- Support the integration of research outputs into national agricultural policy and Vision 2036 targets.

- Promote the commercialization of research through innovation hubs, incubators, and agri-SMEs.
- Enhance collaboration with regional and pan-African research networks to address shared agricultural challenges.

Time Frame: Short–medium term (1–3 years) for establishing R&D governance, medium term (2–5 years) for funding, commercialization, and regional collaboration.

10.11 Weak R&D Uptake

Issue: Despite the presence of valuable agricultural research, farmers in Botswana are not effectively utilizing improved varieties or practices developed by BUAN and NARDI, resulting in inefficiencies in agricultural productivity.

Problem: The gap between research outputs and practical application on the farm is a significant barrier to improving agricultural practices. The research often fails to translate into accessible, scalable solutions for farmers, especially those in rural areas who may have limited access to information and resources.

Objective: To bridge the research-extension-farmer gap and promote the widespread adoption of research findings.

Policy Statement: **The government will enhance the uptake of research findings by ensuring that agricultural innovations are translated into accessible and practical solutions tailored to the needs of all farmer types, especially smallholder farmers. This will be achieved through the development of farmer-targeted toolkits, demonstration plots, and research-extension partnerships.**

Implementation Strategy:

- Create farmer-targeted toolkits that simplify complex research findings and make them easy to understand and implement.
- Establish demonstration plots in key agricultural regions where farmers can see the practical benefits of research-driven practices.
- Strengthen partnerships between research institutions and extension services to facilitate knowledge transfer and provide on-the-ground support for farmers.
- Develop an online platform or mobile app to make research outputs and farming advice readily available to farmers.

Time Frame: Medium term (2–4 years) for developing accessible solutions and implementing farmer outreach strategies.

10.12 Underfunding of R&D

Issue: Insufficient and unpredictable funding for agricultural research hampers the development of innovations and technologies that could enhance productivity, resilience, and sustainability in agriculture.

Problem: The lack of stable and adequate funding for agricultural R&D limits the capacity of research institutions to carry out essential studies, especially in areas like climate resilience,

drought-tolerant crops, and soil regeneration. Without proper funding, long-term agricultural improvements are stifled.

Objective: To increase sustainable financing for agricultural R&D and ensure that research institutions have the necessary resources to advance agricultural innovations.

Policy Statement: **The government will allocate a minimum of 2% of agricultural GDP to fund agricultural research. This will support the development of innovations that are specifically aligned with the national agricultural strategy and climate resilience goals.**

Implementation Strategy:

- Introduce a dedicated agricultural innovation fund to ensure long-term sustainability of R&D efforts.
- Attract donor and private sector co-financing to supplement government funding for agricultural research projects.
- Develop funding mechanisms that allow for flexible financial support for emerging research areas, such as climate-smart agriculture.
- Ensure that R&D funding is predictable and accessible to research institutions, facilitating long-term planning and project continuity.

Time Frame: Medium term (2–5 years) for establishing stable funding mechanisms and increasing investment in R&D.

10.13 Skills and Capacity Erosion

Issue: The agricultural research sector in Botswana is experiencing an erosion of skills, due to an ageing researcher base and a weak pipeline of young agricultural scientists.

Problem: The lack of young talent entering the agricultural research field and the retirement of experienced researchers without adequate succession planning creates a skills gap that could undermine the effectiveness of Botswana's agricultural R&D system.

Objective: To strengthen human capital in agricultural research by investing in the training and retention of agricultural scientists.

Policy Statement: **The government will invest in postgraduate training for young agricultural scientists and create incentives to retain talented researchers in the agricultural sector. This will ensure that Botswana has the skilled workforce needed to drive agricultural innovation and research.**

Implementation Strategy:

- Fund MSc and PhD studentships in agricultural sciences to build a pipeline of young talent.
- Create joint faculty-research positions at BUAN to provide hands-on experience and career development opportunities for young researchers.
- Develop incentive schemes to retain experienced researchers and encourage knowledge transfer between generations of scientists.

- Establish mentorship programs to support the development of early-career researchers.

Time Frame: Long term (3–6 years) for establishing a strong and sustainable pipeline of agricultural research talent.

10.14 Limited Data-Sharing Infrastructure

Issue: Research findings are often siloed and difficult for farmers, policymakers, and other stakeholders to access, hindering the effective use of agricultural knowledge.

Problem: The lack of centralized data-sharing systems makes it difficult for farmers to access valuable research outputs and real-time information that could enhance their productivity and decision-making.

Objective: To improve agricultural knowledge systems by creating a national open-access research platform for agricultural data.

Policy Statement: **The government will promote data-sharing and open-access platforms for agricultural research, making findings from BUAN, NARDI, and other research institutions widely accessible to farmers and stakeholders.**

Implementation Strategy:

- Digitize research findings and make them available through open-access platforms, allowing easy access to data on crops, livestock, soil, and climate.
- Develop real-time dashboards that provide updated information on weather patterns, market prices, and other critical agricultural data.
- Promote the creation of BUAN/NARDI data libraries to store and share research results across all sectors of the agriculture industry.

Time Frame: Medium term (2–4 years) for creating digital platforms and improving data-sharing infrastructure.

10.15 Disconnect from the Private Sector

Issue: Agricultural innovations are often not aligned with the needs of the agribusiness sector, which limits the commercialization and market adoption of new technologies.

Problem: There is a gap between research outputs and market needs, making it difficult for agricultural innovations to be adopted by the private sector and scaled for commercial use.

Objective: To enhance innovation-commercialization linkages by involving the private sector more actively in the research and development process.

Policy Statement: **The government will promote partnerships between research institutions, private sector actors, and agribusinesses to ensure that innovations align with market needs and are scalable.**

Implementation Strategy:

- Create agri-accelerators and incubators to support the commercialization of research outputs.

- Encourage the private sector to engage in the research design process to ensure that innovations meet commercial and market needs.
- Establish platforms for regular dialogue between researchers and agribusinesses to identify market gaps and opportunities for innovation.

Time Frame: Short to medium term (1–3 years) for establishing commercialization pipelines and engaging the private sector.

11 Agrisector Economic Policies

"Driving Sustainable Economic Growth, Enhancing Productivity, and Securing Food Systems"



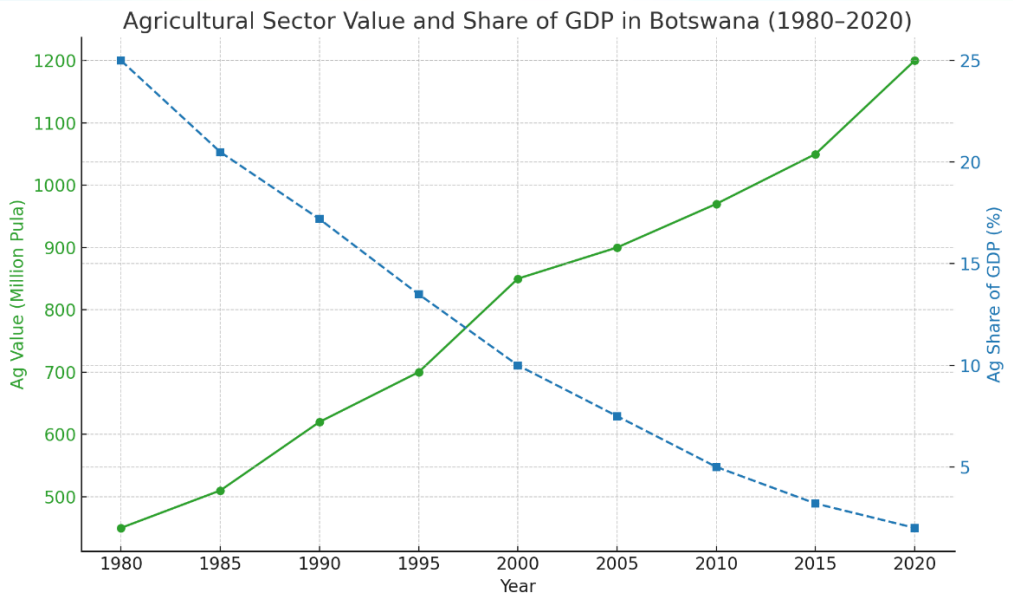
11.1 Introduction

The agricultural economic policies are designed to catalyse sustainable economic growth within the sector by focusing on enhancing productivity, improving value chains, and creating market access for both smallholder and commercial farmers. These policies aim to stimulate investment in agriculture, increase the efficiency of farming practices, and boost the contribution of agriculture to Botswana's GDP. By promoting innovative technologies, strengthening financial systems, and fostering private sector partnerships, the policies will create a more resilient agricultural economy capable of withstanding external shocks and ensuring food security. These policies prioritize economic diversification within the sector, driving the transformation of agriculture from subsistence to a commercially competitive and export-oriented industry. Ultimately, the focus is on building a prosperous, economically sustainable agricultural sector that contributes to broader national development goals.

11.2 Holistic Economic Management of the Agriculture Sector in Botswana

Issue: Botswana needs a holistic approach to managing its agriculture sector to address challenges and harness its potential for economic growth and food security. This involves instigating a more systematic approach to integrating various aspects like technology, infrastructure, policies, and farmer support to create a more resilient and productive agricultural sector.

Problem: Botswana's agriculture sector has experienced long-term stagnation, with a GDP share of less than 2% over recent decades and no overarching economic management framework to reverse the trend. Despite its potential for food security, employment, export diversification, and rural development, the sector lacks a unifying management strategy with GDP targets, performance goals, and structured coordination between public, private, and community stakeholders.



Objective: To institutionalize holistic economic management of the agriculture sector with the Ministry of Lands and Agriculture mandated to lead, coordinate, and drive sector-wide growth, productivity, investment, and formalization—targeting a 10% share of GDP by 2035.

Policy Statement: The Ministry of Lands and Agriculture shall develop and implement a Sector-Wide Agriculture Management Framework (SWAMF), integrating public programs, private initiatives, and climate-smart investments into a unified economic strategy with measurable targets for output, value addition, formalization, and GDP growth.

Implementation Strategy:

- Establish a **Sector Coordination and Performance Unit** within the Ministry of Agriculture.
- Develop and launch a **5-Year National Plan for Agriculture Development NPAD** with rolling annual reviews and sectoral targets.
- Align subsidies, extension, education, and infrastructure with GDP growth and employment generation metrics.
- Integrate formalization of informal actors and inclusion of smallholders into planning.
- Mandate SOEs like BMC, NARDI, and BUAN to align their strategic plans with national output and value targets.
- Coordinate with Statistics Botswana to publish quarterly agriculture performance reports.

Timeline:

- Economic Framework design: 6 months
- Unit establishment and pilot: Year 1
- Manage first full NPAD cycle: Years 2–6
- Midterm review: Year 3
- Target GDP share: 10% by 2035

11.3 Enhancing Mechanization for Inclusive Agricultural Productivity

Issue: Low mechanization levels continue to constrain agricultural productivity in Botswana. Agricultural mechanization, including tools and equipment like tractors and irrigation systems, can significantly enhance productivity, reduce labor intensity, and improve crop quality, contributing to more inclusive and sustainable agricultural product development. This approach allows farmers, including women and youth, to cultivate larger areas, increase yields, and potentially generate more income, while also reducing drudgery and freeing up time for other activities.
Problem: Smallholder farmers face limited access to appropriate and affordable machinery, and most equipment available is unsuitable for small plots.
Objective: To increase access to affordable and appropriately scaled mechanization for smallholder farmers.
Policy Statement:
The government will facilitate the establishment of machinery leasing hubs and promote the availability of small- and medium-scale equipment suitable for Botswana's farming conditions through partnerships and local innovation.

Implementation Strategy:

- Establish farm machinery leasing hubs in all districts through public-private partnerships.
- Promote the importation and local assembly of smallholder-suited machinery.
- Engage local entrepreneurs and cooperatives in equipment leasing schemes.
- Provide training on machinery operation and maintenance.

11.4 Expanding Irrigation Access and Efficiency

Issue: Poor irrigation technology adoption continues to expose farmers to climate variability.
Problem: A heavy reliance on rain-fed agriculture and inefficient traditional irrigation practices limit productivity and resilience.
Objective: To increase uptake of efficient irrigation systems and improve water-use efficiency across farming communities.
Policy Statement:
The government will promote smallholder-friendly irrigation technologies such as drip and sprinkler systems and improve water-use efficiency through targeted support, infrastructure development, and farmer training.

Implementation Strategy:

- Provide subsidies for drip and sprinkler irrigation kits tailored to smallholder needs.
- Support the development of community micro-dam projects for water harvesting.
- Conduct farmer training programs on efficient irrigation practices and water conservation.
- Facilitate access to credit and technical support for irrigation adoption.
  Timeline: Short to medium term (2–5 years)
-

11.5 Bridging the Digital Divide in Agriculture

Issue: Limited digitalization in farming hampers productivity and access to modern farming tools.

Problem: Despite advances in digital agriculture worldwide, many smallholder farmers in Botswana still lack access to mobile-based farm management tools and reliable ICT infrastructure. This digital divide restricts their ability to track farm performance, access real-time data, and make informed decisions that could boost productivity and sustainability.
Objective: To enhance the adoption of digital farm management tools and expand ICT infrastructure for rural farmers, enabling them to increase productivity and resilience to climate change.
Policy Statement:
To address the digital gap in agriculture, the government will roll out mobile-based farm management tools tailored to Botswana's agricultural sector, especially targeting smallholder farmers. These tools will enable farmers to monitor crop health, track input usage, and access weather forecasts and market prices, directly improving their decision-making. In addition, the government will invest in expanding ICT infrastructure to improve connectivity in rural areas, including the installation of mobile networks and provision of affordable internet access.

Implementation Strategy:

- Develop and distribute mobile apps that help farmers with tracking production, managing inputs, and accessing real-time weather and market information.
- Collaborate with mobile network providers to ensure widespread coverage in rural farming areas.
- Offer ICT training programs to ensure that farmers are equipped with the skills to use these digital tools effectively.

Timeline: Short to medium term (2–4 years)
This initiative will empower farmers with the tools and knowledge needed to adapt to changing climatic conditions, reduce costs, and improve yields, fostering a more competitive and sustainable agricultural sector in Botswana.

11.6 Strengthening Agricultural Advisory Services

Issue: Weak extension service capacity limits the effectiveness of agricultural advisory programs.

Problem: Botswana's extension services are underfunded, and the current ratio of extension officers to farmers is far from ideal, leading to limited support and advice for smallholder farmers, particularly in remote areas. Furthermore, many extension officers lack up-to-date knowledge of emerging agricultural techniques and climate change adaptation strategies, reducing their effectiveness.

Objective: To improve the capacity and effectiveness of agricultural advisory services through the introduction of digital platforms and continuous professional development for extension officers.

Policy Statement:
To enhance the effectiveness of extension services, the government will introduce digital advisory platforms, including mobile apps, SMS-based services, and radio broadcasts, to provide farmers with timely information on best practices, pest management, and climate-smart techniques. Additionally, the government will implement a continuous professional development program for extension officers to ensure they are equipped with the latest agricultural knowledge and skills.

Implementation Strategy:

- Develop and distribute mobile-based platforms that deliver tailored advice on crop management, pest control, and sustainable farming practices.
- Establish a certification program for extension officers, with ongoing training in areas such as climate resilience, soil health, and new agricultural technologies.
- Invest in expanding the network of extension officers, especially in underserved rural areas, to improve coverage.
  Timeline: Short to medium term (1–3 years)
  These actions will modernize Botswana's agricultural extension services, ensuring that farmers receive up-to-date, relevant information and support to improve productivity, climate resilience, and overall sustainability.

11.7 Early Warning Systems for Agricultural Risks

Issue: Lack of early warning systems for climate and pest risks undermines farmers' preparedness. Early warning systems for farmers provide timely information about potential risks like droughts, floods, and heatwaves, allowing them to take proactive measures to protect their crops and livelihoods. These systems help farmers make informed decisions about planting, harvesting, and managing their resources, ultimately enhancing food security and resilience.

Problem: Many smallholder farmers in Botswana face unpredictable weather events, such as droughts or heavy rainfall, which can severely impact crop yields. Additionally, pests and diseases often arrive unexpectedly, leading to significant crop losses. Without proper early warning systems, farmers are left unprepared and unable to take preventive measures in a timely manner.

Objective: To strengthen early warning systems for agricultural risks, providing farmers with real-time alerts about climate events, pest outbreaks, and other critical risks.

Policy Statement:
To improve farmers' resilience to climate and pest-related risks, the government will develop and deploy national agro-climatic and pest early warning systems. These systems will provide real-time alerts via mobile apps, radio broadcasts, and community boards. This will allow farmers to make informed decisions, such as adjusting planting times, using appropriate pest control measures, or altering irrigation schedules.



Implementation Strategy

- Collaborate with meteorological and agricultural agencies to develop reliable weather and pest prediction models tailored to Botswana's unique climate and farming conditions.
- Launch mobile-based alert systems that send notifications about upcoming weather events, such as heavy rainfall, drought, or extreme temperatures, as well as pest infestations.
- Expand the use of community radio stations and village information boards to ensure alerts reach remote farming communities.
  Timeline: Short term (1–2 years)
  By providing farmers with early warnings, this initiative will reduce the impact of climate risks and pests, helping to stabilize production and ensure food security.

11.8 Risk Management through Agricultural Insurance

Issue: Poor uptake of insurance products leaves farmers vulnerable to climate risks.

Problem: Climate change is increasing the frequency and intensity of extreme weather events, yet many farmers in Botswana remain uninsured due to the high costs and limited availability of insurance products. This leaves them vulnerable to the financial losses caused by crop failure, drought, and pest infestations.

Objective: To increase the uptake of agricultural insurance, particularly weather-indexed and livestock insurance, and to provide affordable risk management solutions for farmers.

Policy Statement:
To mitigate the financial risks posed by climate change and other agricultural hazards, the government will collaborate with insurance companies to design affordable insurance products tailored to Botswana's smallholder farmers. These products will include weather-indexed insurance, which provides payouts based on weather parameters such as rainfall, and livestock insurance, to protect against losses from disease or natural disasters.

Implementation Strategy

- Partner with local and international insurance companies to develop weather-indexed and livestock insurance products specifically for the agricultural sector.
- Subsidize insurance premiums for smallholder farmers, particularly in vulnerable areas, to make the coverage more affordable.
- Launch awareness campaigns to educate farmers about the benefits of insurance and how it can protect their livelihoods.
  Timeline: Medium term (2–5 years)

11.9 Dependence on Food Imports

Issue: Botswana's heavy reliance on food imports has placed a significant strain on its national budget, making the country vulnerable to global price fluctuations and supply chain disruptions.

Problem: A large portion of food consumed in Botswana is imported, contributing to a substantial trade deficit in the agricultural sector. This over-dependence on imports also exposes the economy to external economic shocks, such as price hikes or supply chain disruptions caused by global events.

Objective: To reduce Botswana's dependency on food imports and increase local food production to ensure food security and economic resilience.

Policy Statement: The government will foster increased domestic production of key staples and strategic foods to minimize food imports, support rural development, and enhance food security.

Implementation Strategy:

- Launch the "Grow Botswana" food security program with clear production targets and support for staple crops.
- Provide grants and incentives to farmers focused on boosting the production of essential food items like maize, sorghum, and beans.
- Promote investment in agricultural technologies and infrastructure to improve local production capacity.
- Establish storage facilities and distribution networks to ensure consistent supply and reduce post-harvest losses.

Time Frame: Medium term (3–5 years)

11.10 Formalization and Support of the Informal Agricultural Sector

Issue: The informal agricultural economy in Botswana plays a critical role in rural livelihoods and food systems, yet remains largely invisible in national planning and policy frameworks. The informal agriculture sector in Botswana is a major livelihood source and safety net, especially for rural households, but remains undervalued and under-supported in national accounts. Integrating this sector into national development frameworks—without formalizing it out of viability—is a key policy opportunity.

Problem: Informal agricultural producers—including smallholder crop farmers, livestock keepers, and market traders—face limited access to finance, extension services, markets, and infrastructure. Their economic contributions are underreported, and they are excluded from formal support programs, reducing their productivity and resilience.

Objective: To progressively integrate informal agricultural actors into formal value chains and support systems without undermining their economic viability or autonomy.

Policy Statement: Government will recognize, support, and formalize the informal agriculture sector by creating enabling environments that improve productivity, enhance market access, and provide legal, financial, and technical inclusion.

Implementation Strategy:

1. **Mapping and Data Collection:**
    - Conduct a national survey of informal agriculture (including urban and peri-urban producers).
    - Digitize and register smallholder farmers on an inclusive national database.
2. **Access to Services and Inputs:**
    - Extend subsidized inputs, veterinary services, and climate-smart extension to informal producers.
    - Support farmer cooperatives and bulk purchasing schemes.
3. **Market Integration:**
    - Establish informal market hubs with sanitation, grading, and storage facilities.
    - Facilitate buyer-seller linkages and mobile trading platforms.
4. **Legal and Financial Inclusion:**
    - Simplify registration and licensing for micro-farmers and traders.
    - Promote micro-insurance, village savings groups, and mobile finance solutions.

Time Frame:

- **Short Term (0–2 years):** Mapping, pilot support schemes, informal markets upgrade.
- **Medium Term (3–5 years):** Full integration into subsidy programs and formal value chains.
- **Long Term (6–10 years):** Comprehensive transformation into a recognized economic subsector.

11.11 Informal and Fragmented Agricultural Markets

Issue: Botswana's agricultural markets are characterized by a strong informal sector and fragmentation, particularly among smallholder farmers who rely heavily on informal channels for selling their produce. This informal nature often leads to information asymmetry and a lack of access to formal market infrastructure, hindering the growth and development of the agricultural sector.

Problem: The informal and fragmented nature of agricultural markets in Botswana reduces transparency, creates inefficiencies in price setting, and limits farmers' bargaining power in trade negotiations. The dominance of informal markets in Botswana's agricultural sector limits farmers' access to formal market systems, hindering their ability to secure fair prices and access better trading opportunities.

Objective: To formalize and streamline agricultural trade processes by improving market infrastructure, facilitating access to formal markets, and providing farmers with better market linkages.

Policy Statement: The government will strengthen rural agricultural markets by developing physical infrastructure, enforcing market standards, and fostering the establishment of cooperatives and formal trade networks.

Implementation Strategy

- Invest in rural market infrastructure, such as storage facilities, aggregation centres, and transport systems.
- Enforce uniform grading and quality standards for agricultural products to ensure fair market access.
- Support the formation of farmer cooperatives to increase collective bargaining power.
- Establish training programs to educate farmers on market linkages and formal trade practices.

Time Frame: Medium term (2–5 years)

11.12 Foreign Market Access (Exports)

Issue: Botswana's agricultural products face difficulties in accessing international markets due to non-compliance with export standards, lack of marketing efforts, and limited brand recognition abroad. Botswana has limited food export access to foreign markets, with beef being the primary agricultural export. The country's food exports represent a small percentage of total merchandise exports, at 1.8% in 2023. While Botswana benefits from duty-free access within the Southern African Customs Union (SACU), it also has preferential market access through the Southern African Customs Union-UK Economic Partnership Agreement (SACUM-UK EPA).

Problem: Due to insufficient support for export compliance and branding, Botswana's agricultural sector struggles to break into competitive international markets, limiting potential export revenue and economic growth.

Objective: To enhance export opportunities for Botswana's agricultural products by supporting export readiness and creating a strong national agricultural brand.

Policy Statement: The government will facilitate the compliance of local farmers with international standards, provide support for product certification, and promote Botswana's agricultural products under a unified national brand.

Implementation Strategy:

- Create certification programs to assist farmers in meeting international export standards for food safety, quality, and phytosanitary requirements.
- Launch a national branding initiative, such as the "Botswana Best" label, to distinguish Botswana's products in global markets.
- Facilitate participation in international trade fairs, expos, and market visits to connect local producers with foreign buyers.
- Provide export financing options to support the expansion of agricultural exports.

Time Frame: Medium to long term (4–6 years)

11.13 Land and Tenure Insecurity Affecting Investment

Issue: The lack of secure land tenure, short lease periods, and delays in land allocation discourage agricultural investments, thus limiting the long-term growth and productivity of Botswana's agricultural sector.

Problem: Investors and farmers are hesitant to make long-term investments in land and agricultural development due to uncertainty surrounding land tenure and the bureaucratic challenges in securing land rights.

Objective: To secure land tenure systems, promote long-term agricultural investments, and ensure faster access to land for productive agricultural use.

Policy Statement: The government will reform agricultural land tenure policies to ensure secure, bankable, and long-term land rights, while digitizing land allocation and titling systems for efficiency.

Implementation Strategy:

- Introduce longer-term agricultural land leases to encourage investment.
- Establish a digital land titling and allocation system to streamline the process and reduce delays.
- Create a clear legal framework for land ownership, with land certificates that can be used as collateral for financing.
- Educate farmers and investors on their land rights and provide legal support.

Time Frame: Medium term (3–5 years)

11.14 Lack of Agricultural Insurance and Risk Management

Issue: Farmers in Botswana are highly vulnerable to climate-related risks and other shocks due to the lack of accessible, affordable agricultural insurance products and inadequate disaster risk management systems.

Problem: Without insurance or risk management mechanisms, farmers are left exposed to unpredictable weather events, such as droughts or floods, which can severely impact their productivity and income.

Objective: To strengthen agricultural risk management systems and provide farmers with tools and products that help mitigate financial losses from risks.

Policy Statement: The government will expand the availability of agricultural insurance products and disaster relief systems, focusing on affordable weather-indexed insurance and livestock coverage.

Implementation Strategy:

- Develop and roll out weather-indexed insurance products to cover risks like drought and floods.
- Establish livestock insurance schemes to protect farmers against animal disease outbreaks.
- Set up a National Agricultural Emergency Relief Fund to provide financial support during disasters.
- Conduct training for farmers on managing risk through insurance and other tools.

Time Frame: Medium term (3–5 years)

12AgriSector Environment Policy

"Promoting Sustainable Practices for a Resilient and Eco-friendly Agricultural Sector"



12.1 Introduction

The agricultural environmental policies are designed to foster a balance between agricultural productivity and environmental sustainability. These policies emphasize the adoption of eco-friendly farming practices that mitigate soil degradation, water scarcity, and biodiversity loss, while also reducing agriculture's carbon footprint. By encouraging sustainable land and water management techniques, such as soil conservation, agroforestry, and efficient irrigation systems, the policies aim to enhance the sector's resilience to climate change. The integration of climate-smart agriculture is a core objective, promoting practices that improve both environmental and economic outcomes. These policies also focus on enhancing biodiversity conservation, promoting organic farming, and encouraging the use of renewable energy in agriculture. Ultimately, the environmental policies aim to safeguard Botswana's natural resources, ensuring that the agricultural sector can thrive in harmony with the environment for future generations.

12.2 Promotion of Climate-Smart Agriculture

Issue: The threat of climate change to agricultural productivity, especially given Botswana's vulnerability to droughts, extreme heat, and unpredictable rainfall patterns. Climate-smart

agriculture (CSA) is an approach to farming that aims to increase agricultural productivity and incomes, build resilience to climate change, and reduce greenhouse gas emissions. It's a framework that guides actions to make agri-food systems more resilient to climate change and to reduce their environmental impact. Since 1966, Botswana has experienced numerous declared drought years, with some droughts extending for multiple years. Between 1980 and 2013/14, more than half (18 years) were considered drought years, with some droughts extending over several consecutive years. Notable drought periods include 1981-1987, 1991-1999, 2001-2005, 2007-2008, 2011-2013, and 2014-2015. The recent 2023/24 drought is expected to continue into 2025.

Problem: Climate change poses a serious risk to Botswana's agriculture sector. Without significant adaptation and mitigation strategies, farmers will face declining yields, particularly in rain-fed agricultural areas. The adoption of climate-smart practices is crucial to ensuring long-term agricultural productivity and resilience.

Objective: Promote the adoption of climate-smart agricultural practices to mitigate the effects of climate change and improve the resilience of farmers.

Policy Statement: **The government will actively promote climate-smart agricultural practices that help farmers adapt to changing weather patterns, increase productivity, and reduce greenhouse gas emissions.**



Implementation Strategy

- Provide training for farmers on climate-smart techniques such as soil conservation, agroforestry, conservation tillage, and integrated pest management.
- Subsidize the cost of drought-resistant crop varieties and water-efficient irrigation technologies to make them more accessible to smallholder farmers.
- Facilitate access to meteorological data and early warning systems to help farmers plan their activities around forecasted weather conditions.
- Partner with research institutions to develop and disseminate locally appropriate climate-smart solutions, including improved seed varieties and farming techniques.
- Encourage the use of organic fertilizers and compost to improve soil health, reduce dependency on chemical fertilizers, and increase soil moisture retention.

- Support agroecology as a sustainable approach, integrating biodiversity, ecological processes, and local knowledge into farming practices.
- Develop a certification system for farms that adopt climate-smart practices, giving farmers access to premium markets for sustainably produced goods.

Time Frame: Medium term (3-5 years)

12.3 Sustainable Land Management and Soil Fertility

Issue: Land degradation and loss of soil fertility are major challenges, particularly as droughts and unsustainable farming practices reduce the land's capacity to support agriculture. Sustainable Land Management (SLM) and soil fertility are crucial for long-term agricultural productivity and environmental health. SLM involves managing soil, water, vegetation, and animal resources sustainably, while soil fertility refers to the soil's ability to support plant growth and productivity. Effective SLM practices can enhance soil fertility, improve agricultural production, and reduce environmental degradation. According to the Land Degradation Neutrality Target Setting Report 2022, 46% of land is degraded – see map.

Problem: Overuse of land, inadequate soil management, and climate change-related droughts are contributing to declining soil fertility, eroding the agricultural foundation. This reduces farmers' yields and the long-term sustainability of farming.

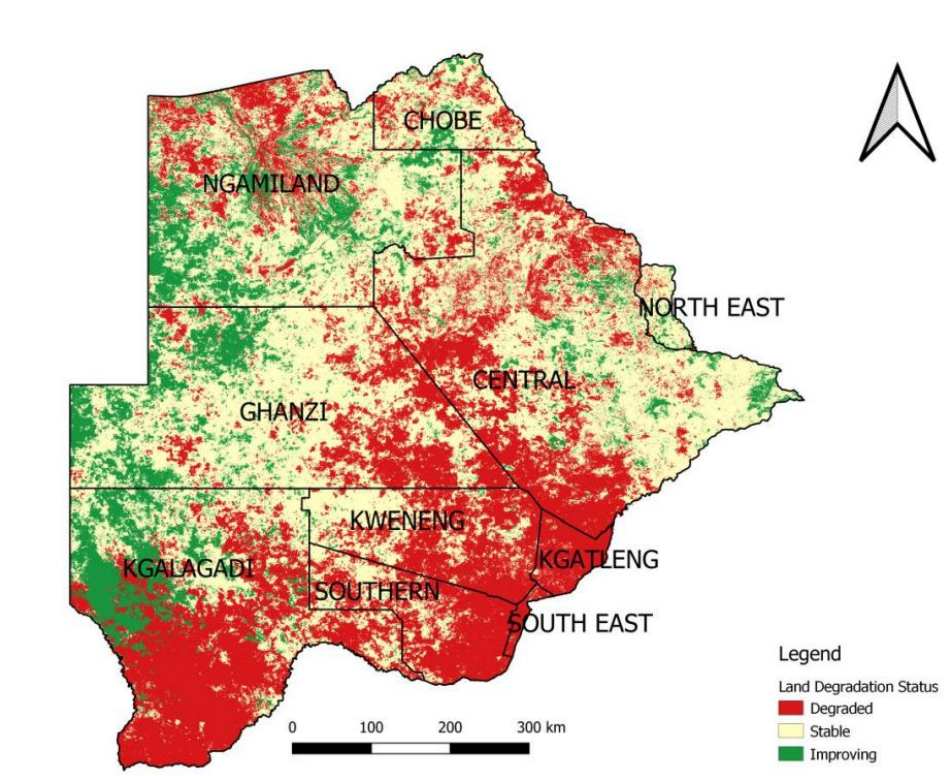


Figure 3: Land degradation status in Botswana from 2000 to 2015 (Baseline period)

Objective: Promote sustainable land management practices and soil fertility improvement to ensure the long-term productivity of agricultural land.

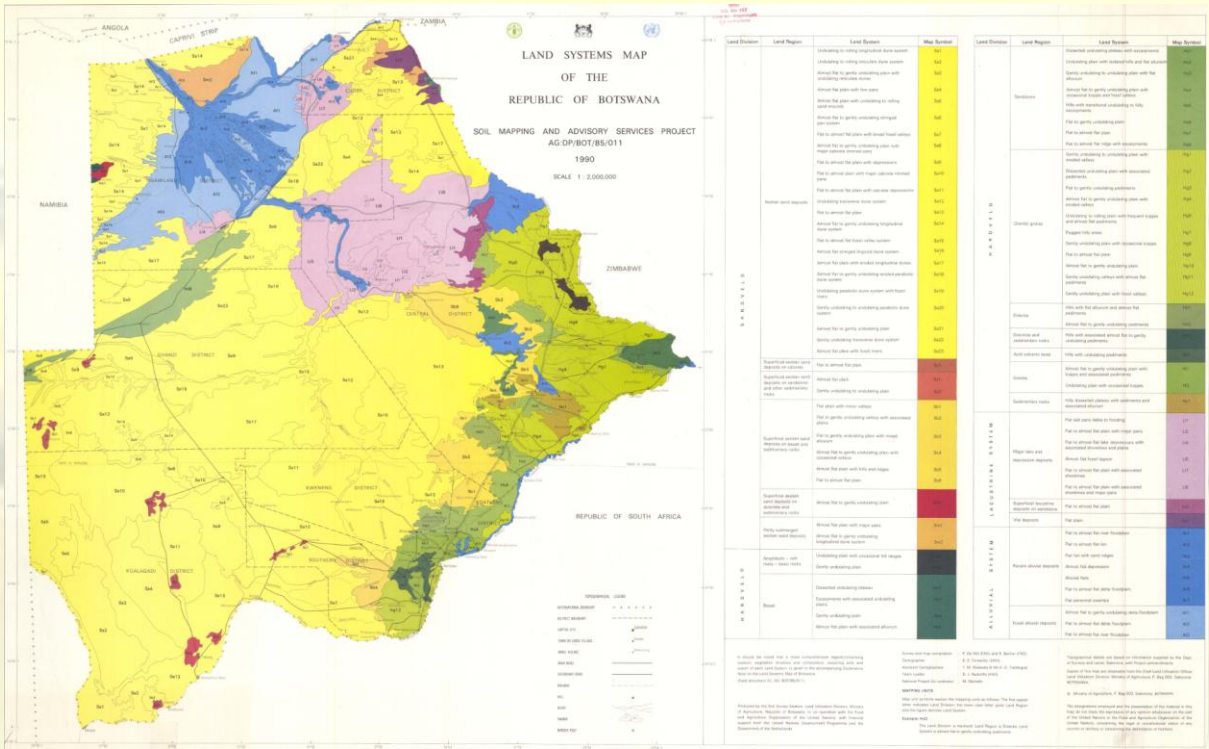
Policy Statement: **The government will promote practices that restore and maintain soil fertility, prevent erosion, and ensure that agricultural land remains productive for future generations.**

Implementation Strategy:

- Encourage farmers to adopt agroecological approaches, such as crop rotation, intercropping, and mulching, to maintain soil health and prevent nutrient depletion.
- Offer financial incentives for farmers who implement soil conservation techniques, such as terracing, contour farming, and planting cover crops to reduce soil erosion.
- Provide training on composting, organic farming, and the use of natural fertilizers to restore soil health and reduce reliance on chemical inputs.
- Promote the restoration of degraded lands through reforestation and afforestation initiatives that help stabilize the soil and increase biodiversity.
- Establish soil health monitoring systems to track soil fertility levels and guide interventions.
- Facilitate partnerships with research institutions and extension services to develop and disseminate effective soil management practices tailored to local conditions.

Time Frame: Long term (5-10 years)

Botswana Soil Mapping circa 1990



12.4 Land Degradation and Soil Erosion: Overgrazing and Poor Farming Practices

Issue: Extensive land degradation in Botswana is driven by overgrazing and unsustainable farming practices. These activities reduce soil fertility, increase erosion, and undermine long-term agricultural productivity.

Problem: The carrying capacity of rangelands is frequently exceeded, especially in communal areas where livestock roam freely. Lack of pasture management and the absence of incentives for land stewardship exacerbate the degradation. Over time, this leads to soil compaction, loss of topsoil, and desertification.

Objective: To restore soil health and rehabilitate degraded lands by encouraging sustainable land use and responsible livestock management.

Policy Statement: The government will introduce a national soil rehabilitation and sustainable grazing initiative aimed at promoting conservation agriculture, controlled grazing, and improved rangeland management practices.

Implementation Strategy:

- Promote rotational and deferred grazing systems tailored to different ecological zones.
- Provide training and extension services to farmers and herders on soil conservation and range management.
- Establish demonstration sites showcasing successful conservation farming practices.
- Incentivize adoption of conservation farming techniques through subsidies, inputs, or technical support.
- Strengthen community-based natural resource management (CBNRM) structures to co-manage rangelands.
- Develop partnerships with NGOs and research institutions to pilot soil regeneration projects.
- Integrate soil conservation targets into local development plans and land use policies.

Time Frame: Short to medium term (2–5 years)

12.5 Unsustainable Tillage Practices

Issue: Conventional tillage methods continue to degrade the soil structure in Botswana's arable regions. Excessive soil turning exposes topsoil to erosion, disrupts organic matter, and reduces water retention capacity.

Problem: Traditional tillage contributes significantly to the decline in soil fertility, increased runoff, and sedimentation of nearby water bodies. As climate variability increases, reliance on such practices undermines the long-term sustainability of agriculture.

Objective: To reduce soil erosion and enhance soil structure by encouraging conservation-oriented tillage techniques.

Policy Statement: The government will promote minimum tillage and cover cropping to maintain soil integrity, conserve moisture, and boost soil fertility.

Implementation Strategy:

- Provide extension services and demonstrations on minimum and zero tillage practices.
- Support the procurement and dissemination of no-till planting equipment through subsidies or equipment-sharing programs.
- Develop and distribute cover crop seed packages tailored to local agro-ecological conditions.
- Partner with local research institutions to test and promote soil-conserving technologies.
- Introduce incentive schemes for farmers who adopt soil conservation measures and maintain soil cover year-round.

Time Frame: Medium term (3–5 years)

12.6 Inefficient Agricultural Water Use

Issue: Agricultural water use in Botswana remains largely inefficient, with high levels of waste through evaporation and runoff, especially in flood irrigation systems.

Problem: Poor water-use efficiency undermines both crop yields and national water security. In a semi-arid country facing recurring droughts, unsustainable irrigation practices threaten long-term food production.

Objective: To improve water-use efficiency in the agricultural sector and reduce the water footprint per unit of production.

Policy Statement: The government will promote the adoption of water-saving technologies, including drip irrigation, rainwater harvesting, and recycling of greywater for agricultural purposes.

Implementation Strategy:

- Provide subsidies and technical support for the installation of drip and micro-sprinkler irrigation systems.
- Promote water harvesting structures such as tanks, ponds, and swales through training and cost-sharing programs.
- Introduce demonstration farms showcasing high-efficiency water management techniques.
- Develop guidelines and incentives for recycling wastewater in appropriate agricultural contexts.
- Encourage public-private partnerships to manufacture or import affordable irrigation technologies.

Time Frame: Short to medium term (2–4 years)

12.7 Depletion of Groundwater Resources

Issue: Excessive and unregulated borehole drilling has placed pressure on Botswana's underground aquifers, many of which recharge slowly in arid climates.

Problem: Depletion of groundwater reduces the resilience of agriculture to drought and affects water availability for both irrigation and livestock use. Unmonitored abstraction could lead to irreversible aquifer damage.

Objective: To conserve groundwater resources and ensure their sustainable use for agricultural purposes.

Policy Statement: The government will regulate borehole drilling and promote practices that enhance aquifer recharge.

Implementation Strategy:

- Introduce a permit and monitoring system for all agricultural boreholes.
- Enforce abstraction limits based on hydrological assessments.
- Provide technical support and incentives for the construction of recharge dams and infiltration ponds.
- Promote contour bunding and terracing to enhance rainwater infiltration.
- Raise awareness on groundwater conservation among farmers through campaigns and workshops.

Time Frame: Medium term (3–5 years)

12.8 Cutting of Trees for Land Clearing and Fuel

Issue: The widespread cutting of indigenous trees for land clearing and firewood has accelerated deforestation and ecosystem degradation.

Problem: The loss of tree cover leads to soil erosion, loss of biodiversity, and reduced resilience to climate variability. It also undermines carbon sequestration efforts.

Objective: To reduce deforestation rates and promote sustainable land and energy practices.

Policy Statement: The government will promote agroforestry systems and encourage the adoption of alternative energy sources for rural households.

Implementation Strategy:

- Establish community nurseries and distribute tree seedlings for agroforestry and reforestation.
- Train farmers on intercropping trees with crops for soil and climate benefits.
- Promote solar cookers, improved stoves, and biogas technologies.
- Implement tree-planting campaigns and afforestation programs in degraded lands.
- Introduce woodlot schemes for sustainable fuelwood production.

Time Frame: Medium to long term (4–6 years)

12.9 Invasion by Encroaching Bush Species

Issue: The spread of encroaching bush species like Dichrostachys cinerea has reduced the productivity of rangelands in many parts of Botswana.

Problem: Bush encroachment diminishes grazing capacity, displaces native species, and increases the risk of wildfires, undermining both livestock and ecosystem health.

Objective: To restore degraded rangelands and control invasive woody species.

Policy Statement: The government will support community-based bush thinning and land rehabilitation initiatives, including biomass utilization for energy or commercial products.

Implementation Strategy:

- Provide training and equipment for bush-clearing cooperatives.
- Support the development of bush-to-feed and bush-to-biochar value chains.
- Introduce incentives for rehabilitating encroached rangelands.
- Collaborate with research institutions to identify priority areas and effective techniques.
- Promote public-private partnerships for investing in biomass-based enterprises.

Time Frame: Medium term (3–5 years)

12.10 Habitat Loss Due to Expansion of Farming

Issue: Agricultural expansion into natural ecosystems is causing significant habitat fragmentation and biodiversity loss in Botswana.

Problem: As farmland encroaches into forests, wetlands, and savannahs, habitats critical for wildlife are destroyed. This not only threatens endangered species but also destabilizes ecosystem services such as pollination and pest control.

Objective: To protect biodiversity while allowing for sustainable agricultural development.

Policy Statement: The government will promote biodiversity-friendly farming systems and integrated land use planning to balance conservation and production needs.

Implementation Strategy:

- Develop and enforce land use zoning regulations that safeguard high-biodiversity areas.
- Establish ecological buffer zones between farmland and protected ecosystems.
- Promote agroecological farming methods that support biodiversity.
- Provide incentives to farmers who maintain habitat corridors and engage in conservation-friendly practices.
- Collaborate with conservation NGOs to support integrated landscape management.

Time Frame: Medium term (3–5 years)

12.11 Loss of Indigenous Crop and Livestock Species

Issue: Modern agriculture is displacing traditional crop varieties and indigenous livestock breeds adapted to local climates.

Problem: Genetic erosion reduces resilience to pests, diseases, and climate change, and undermines cultural heritage and food sovereignty.

Objective: To preserve and promote the use of indigenous genetic resources in agriculture.

Policy Statement: The government will support the conservation, improvement, and commercial utilization of indigenous crops and livestock breeds.

Implementation Strategy:

- Establish national gene banks for indigenous seeds and livestock germplasm.
- Support farmer seed networks and community-based breeding programs.
- Promote value chains for indigenous products (e.g. sorghum, Tswana goats).
- Incorporate traditional knowledge into research and extension.
- Offer branding and certification support for local breeds and varieties.

Time Frame: Medium to long term (4–6 years)

12.12 Livestock Methane Emissions

Issue: Ruminant livestock in Botswana are a major source of methane emissions, a potent greenhouse gas contributing to climate change.

Problem: Traditional livestock feeding and herd management systems are inefficient and poorly adapted to mitigating emissions, despite livestock being central to rural livelihoods.

Objective: To reduce greenhouse gas emissions from the livestock sector without compromising productivity.

Policy Statement: The government will promote climate-smart livestock practices including improved feeding, breeding, and rangeland management.

Implementation Strategy:

- Support feed trials and extension on low-methane additives and forage crops.
- Promote rotational grazing and better pasture management.
- Develop climate-smart breeding programs for resilient and efficient animals.
- Offer training for farmers on sustainable livestock practices.
- Integrate livestock into national climate change mitigation plans.

Time Frame: Medium term (3–5 years)

12.13 Emissions from Land Clearing and Burning

Issue: Widespread use of fire to clear land and manage residues contributes to air pollution and greenhouse gas emissions.

Problem: Uncontrolled burning leads to the loss of soil carbon, biodiversity, and increases in atmospheric CO_2 and other pollutants.

Objective: To discourage open burning and promote climate-smart land management.

Policy Statement: The government will ban uncontrolled agricultural burning and support carbon-smart agriculture through incentives and regulation.

Implementation Strategy:

- Enact and enforce legislation against open burning.
- Provide training and equipment for mulching and residue incorporation.
- Promote biochar production and use.
- Offer incentives for carbon farming and soil health improvement.
- Collaborate with carbon credit programs to reward sustainable practices.

Time Frame: Medium term (3–5 years)

12.14 Renewable Energy Use in Agriculture

Issue: High dependence on diesel generators for energy needs in agriculture. Renewable energy is becoming increasingly important in farming in Botswana, particularly in off-grid areas, to reduce reliance on diesel generators and combat climate change. Solar energy, specifically solar water pumps and photovoltaic systems, is a key focus, along with biogas and bioenergy for other farm needs. Initiatives like the Green Energy Transition for Sustainable Agriculture project, supported by the Botswana National Development Bank (NDB) and Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ), are promoting these technologies.

Problem: The cost and environmental impact of diesel generators are significant barriers to sustainable agricultural development, especially in remote areas with limited access to the national grid.

Objective: Promote the adoption of renewable energy sources, such as solar and biogas, to power agricultural activities.

Policy Statement: **The government will incentivize the use of solar and biogas technologies to reduce reliance on fossil fuels in agriculture, aiming for a greener and more cost-effective energy system.**



Implementation Strategy

- Expand solar-powered irrigation systems for small and medium-scale farms.
- Encourage the installation of biogas systems on livestock farms to generate renewable energy from waste.
- Provide subsidies or low-interest loans for farmers to adopt renewable energy technologies.
- Collaborate with renewable energy companies to develop solar mini-grids for rural agro-processing centres.
- Set up demonstration projects to showcase the effectiveness of renewable energy solutions in agriculture.

Time Frame: Medium term (3-5 years)

12.15 Energy Transition in Farming

Issue. Agriculture is responsible for nearly 10 percent of global greenhouse gas emissions, with a significant portion attributed to diesel-powered machinery. Transitioning to electric tractors could reduce emissions by approximately 40 percent, according to a study by the Food and Agriculture Organisation (FAO) in 2021.

Problem: Fossil fuel dependency is a constrain to farming operations. Diesel motors are complex requiring a lot of maintenance as well as fuel to be imported often to remote farms.

Objective: Transition from fossil fuels to electric equipment and reduce carbon emissions.

Policy Statement: **The government will support the energy transition in the agriculture sector to lower costs, increase competitiveness and reduce caron emissions. This will be done throughout the food chain from farm to shop.**



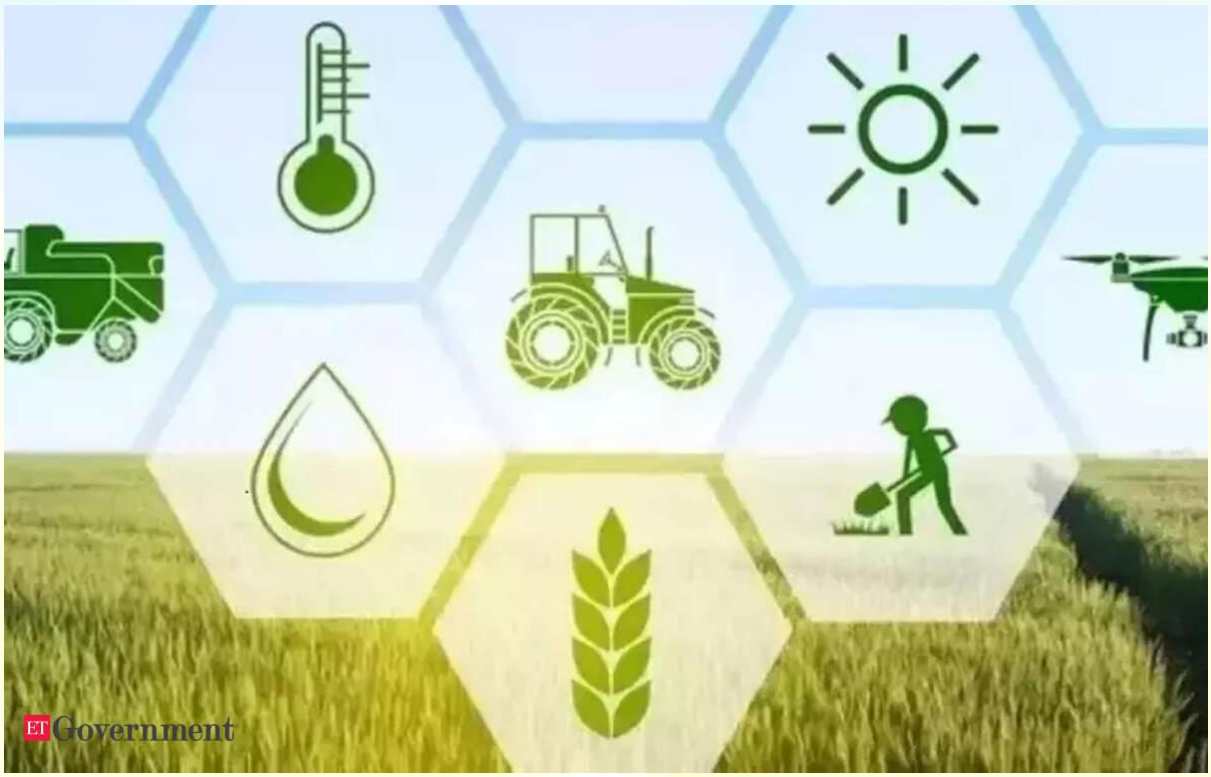
Implementation Strategy:

- Demonstrate electric farm equipment at agricultural shows.
- Facilitate the development of rural solar mini-grids to power multiple agro-processing units.
- Provide financial incentives for farmers and cooperatives to invest in renewable energy and electric vehicles and equipment.

Time Frame: Medium term (3-5 years)

13 Agrisector Governance Policy

"Strengthening Governance for Effective, Transparent, and Inclusive Agricultural Development"



13.1 Introduction

The governance policies in the agricultural sector aim to establish a robust framework for transparency, accountability, and effective management. By strengthening institutional frameworks, enhancing policy coherence, and ensuring better coordination between public and private sector stakeholders, these policies seek to improve decision-making processes and the delivery of services across the agricultural value chain. A key focus is on empowering local communities, enhancing stakeholder participation, and ensuring that agricultural policies are inclusive and reflective of the needs of farmers, agribusinesses, and rural communities. Additionally, the governance policies advocate for strengthening legal frameworks, ensuring better access to information, and fostering collaborative partnerships to drive sectoral reforms. The ultimate goal is to create a more efficient and responsive agricultural system that can adapt to emerging challenges, boost productivity, and foster long-term sustainable growth.

13.2 Strengthening Agricultural Governance

Issue: Agricultural governance in Botswana is fragmented, with overlapping mandates, inconsistent planning, and limited cross-sector collaboration. Agricultural governance involves the rules, processes, and institutions that guide the agricultural sector, ensuring its efficient and sustainable development. It encompasses policies, regulations, and practices that shape agricultural production, trade, and resource management. Good agricultural governance is crucial for ensuring food security, promoting rural development, and protecting the environment.

Problem: Multiple agencies and ministries pursue agricultural policies and programs independently, leading to duplication, inefficiencies, and incoherent strategies. This weakens the sector's ability to respond effectively to emerging challenges such as climate change, market volatility, and food insecurity. Cross-cutting issues like land, water, and environmental sustainability often fall through governance gaps, stalling holistic development.

Objective: To create a coherent, integrated framework for agricultural governance that promotes inter-ministerial collaboration and effective policy implementation.

Policy Statement: The government will develop a unified National Agricultural Policy and establish institutional mechanisms for inter-sectoral coordination to enhance coherence, efficiency, and responsiveness in agricultural governance.

Implementation Strategies

- Undertake a comprehensive review of all existing agricultural policies and programs.
- Consolidate fragmented initiatives into a unified National Agricultural Policy.
- Establish inter-sectoral agricultural councils with representatives from agriculture, environment, land, and water sectors.
- Legally mandate regular inter-ministerial coordination meetings.
- Create a digital coordination platform to track progress and facilitate real-time collaboration.
- Develop monitoring and evaluation tools to assess the coherence and impact of cross-sectoral initiatives.

Time Frame: Short term (1–2 years)

13.3 Improving Land Tenure and Administration

Issue: Inefficiencies in Botswana's land tenure and administration system are constraining agricultural development. Improving land tenure and administration in Botswana involves strengthening systems and processes, building capacity, securing finances, and developing policies that promote equitable access to land and its resources. This includes streamlining administrative procedures, updating land information systems, and ensuring effective participation of all stakeholders in decision-making.

Problem: Complex and opaque land allocation processes result in long delays, corruption, and uncertainty, discouraging investment and sustainable land use. Additionally, unclear or insecure property rights undermine farmer confidence and hinder access to finance, particularly for smallholders and women.

Objective: To simplify land tenure systems and ensure secure, bankable land rights to stimulate agricultural productivity and investment.

Policy Statement: The government will reform land tenure and administration processes to enable efficient land access and provide long-term, secure agricultural leases with clear investment value.

Implementation Strategies:

- Digitize land records and develop a user-friendly land information system.
- Decentralize land allocation processes to district-level land boards with clear guidelines.
- Simplify and standardize procedures for acquiring agricultural land.
- Introduce long-term, renewable agricultural leases that can be used as collateral.
- Provide legal and technical support for land users to formalize tenure.
- Implement a gender-sensitive approach to ensure equitable land rights.

Time Frame: Short to medium term (2–4 years)

13.4 Enforcement of Agricultural Standards

Issue: Weak regulation and enforcement mechanisms have resulted in substandard agricultural inputs and poor compliance with food safety requirements. Enforcement of agricultural standards in Botswana likely involves a mix of government regulations, agricultural marketing boards, and potentially certification programs. The Ministry of Lands and Agriculture plays a role in promoting a competitive and sustainable agricultural sector. There are also agricultural resources boards and committees that oversee conservation and improvement of agricultural resources. Additionally, the Botswana Agricultural Marketing Board ensures fair distribution and stable markets for agricultural produce.

Problem: Farmers often use counterfeit or poor-quality seeds, fertilizers, and pesticides due to weak inspection systems. Inadequate enforcement of food safety and phytosanitary standards undermines domestic food quality and hinders access to export markets.

Objective: To ensure high standards in agricultural inputs and products through stronger regulation, enforcement, and capacity building.

Policy Statement: The government will strengthen regulatory systems for agricultural inputs and enforce national food safety and trade standards to protect public health and enhance market competitiveness.

Implementation Strategies:

- Establish a national certification and inspection authority for agricultural inputs.
- Regularly test and monitor seeds, fertilizers, and pesticides in the market.
- Train and equip inspectors to conduct effective field surveillance.
- Harmonize national food safety standards with international norms.
- Build capacity in food laboratories and quarantine services.
- Impose penalties for non-compliance and incentivize adherence to standards.

Time Frame: Short to medium term (1–3 years)

13.5 Farmer Participation in Policy Processes

Issue: Agricultural policymaking in Botswana is largely top-down, excluding farmers from meaningful participation. Farmer participation in policy processes is crucial for creating effective, sustainable, and responsive agricultural policies. It involves actively incorporating farmers' knowledge, experiences, and perspectives into the decision-making process, ensuring that policies are aligned with their needs and concerns. This approach helps to address potential barriers to participation, fosters trust, and promotes more equitable and successful outcomes.

Problem: Policies are often designed without adequate consultation, resulting in poor alignment with farmer realities and limited ownership. This erodes trust and weakens implementation outcomes, especially among smallholders who feel marginalised.

Objective: To promote inclusive, participatory policymaking that reflects the voices and needs of farmers.

Policy Statement: The government will institutionalize farmer representation in agricultural policy formulation and decision-making to enhance responsiveness, transparency, and accountability.

Implementation Strategies:

- Establish national and district-level Farmer Councils with decision-making authority.
- Make public consultation mandatory for all major agricultural reforms.
- Organize regular stakeholder dialogues and community policy workshops.
- Provide capacity-building for farmer organizations to participate effectively.
- Create participatory policy platforms using digital tools and social media.
- Integrate feedback from consultations into policy design and implementation.

Time Frame: Short term (1–2 years)

13.6 Agricultural Data and Information Systems

Issue: Botswana lacks reliable, timely, and disaggregated agricultural data to inform evidence-based policymaking and investment decisions. Agricultural Data and Information Systems (ADIS) are essential tools for modern agriculture, providing real-time data and insights to help farmers and policymakers make informed decisions. These systems use technologies like remote sensing, IoT sensors, and GIS to collect, analyse, and disseminate agricultural data, improving production efficiency and sustainability.

Problem: Weak data collection, analysis, and dissemination systems limit the government's ability to track trends, respond to shocks, and target support. Farmers and agribusinesses also struggle to access weather forecasts, market prices, and extension advice, reducing productivity and resilience.

Objective: To establish a comprehensive, digital agricultural information system that supports real-time decision-making for both policymakers and producers.

Policy Statement: The government will strengthen agricultural data systems to provide accurate, accessible, and timely information for planning, risk management, and productivity enhancement.

Implementation Strategies:

- Establish a National Agricultural Data Observatory (NADO) to collect, analyse, and disseminate sector data.
- Digitize agricultural surveys and ensure regular updates of key indicators.
- Integrate weather, market, and extension information into a mobile-friendly platform for farmers.
- Partner with research institutions, telecom companies, and international agencies to improve data coverage and quality.
- Train local officials and farmer leaders in data collection and utilization.
- Develop open-access agricultural dashboards for transparency and innovation.

Time Frame: Medium term (2–4 years)

13.7 Leveraging BOTSAT-1 for Agricultural Development and Resilience

Issue:
Botswana's agriculture sector faces persistent challenges including erratic rainfall, drought, poor soil health monitoring, and inefficient land use planning. Timely, accurate, and high-resolution data to guide decision-making in agriculture remains limited. Botswana's first satellite, **BOTSAT-1**, was successfully launched aboard SpaceX's Falcon 9—Transporter 13 rideshare mission on March 15, 2025. It provides an opportunity for a new level of technology driven sector management.

Problem:
Traditional monitoring systems lack the spatial and temporal precision required for effective agricultural planning and climate adaptation. Farmers and extension services often operate with outdated information, leading to poor crop yields, inefficient input use, and slow response to pest and disease outbreaks.

Objective:
To utilize the full potential of BOTSAT-1 satellite technology to improve agricultural productivity, climate resilience, and evidence-based planning and extension services.

Policy Statement:
The government will integrate satellite data from BOTSAT-1 into national agricultural planning, research, and advisory systems to enhance land use efficiency, crop monitoring, early warning systems, and resource management.



Implementation Strategies:

- Partner with NARDI, BUAN, and the Department of Crop Production to interpret satellite imagery for real-time crop and rangeland monitoring.
- Build capacity within the Ministry of Lands and Agriculture to process and use remote sensing data.
- Develop mobile and web-based platforms for farmers and extension officers to access weather, pest, and soil moisture data.
- Use satellite data to identify and map suitable areas for irrigation, conservation agriculture, and afforestation.
- Establish data-sharing protocols between the Botswana Space Agency, Ministry of Agriculture, and regional institutions.
- Support AI-driven analytics to predict yield forecasts and detect stress signals in crops.

Time Frame:
Short to medium term (1–4 years), with initial pilot projects in selected high-risk districts and gradual national scale-up.

13.8 Local Government Capacity in Agricultural Development

Issue: Local authorities lack the technical, financial, and institutional capacity to implement agricultural programs effectively. Initiatives like the Integrated Smallholder, Pastoral and Agricultural Development Program (ISPAAD) are implemented at the local level to support smallholder farmers and help them improve their productivity.

Problem: Devolution of responsibilities to districts is not matched by adequate support, resulting in poor service delivery, low adoption of innovations, and missed opportunities for locally tailored solutions.

Objective: To empower local governments with the skills, resources, and authority to lead agricultural development in their jurisdictions.

Policy Statement: The government will strengthen decentralised agricultural governance through capacity building, resource allocation, and accountability mechanisms.

Implementation Strategies:

- Provide targeted training for district agriculture officers and extension staff.
- Increase budget allocations and grant autonomy to local councils for agriculture programs.
- Develop performance-based funding models to incentivize results at the local level.
- Establish local agricultural advisory committees to guide priorities and actions.
- Integrate local development plans with national agricultural strategies.
- Monitor and evaluate local government performance in agricultural delivery.

Time Frame: Medium term (3–5 years)

13.9 Investment in Agricultural Research and Innovation

Issue: Agricultural research systems in Botswana are underfunded, fragmented, and poorly aligned with farmer needs. Botswana primarily relies on government funding for agricultural research and innovation. While the government provides the majority of funding, the Department of Agricultural Research (DAR) faces challenges like budget cuts and a shortage of skilled researchers, impacting its ability to conduct and maintain research. Diversifying funding sources and attracting more qualified personnel are key areas for improvement.

In the 2024/2025 budget, Botswana proposed P1.02 billion for Research and Development (R&D) programs, including research in food and agriculture, livestock, and veterinary research. This is a significant increase from the P267.80 million allocated in the 2023/2024 financial year, representing a rise of P752.20 million or 280.9 percent. This investment aims to build capacity for novel knowledge and bridge the gap between research and practical application for economic benefit.

Problem: Limited research output and weak linkages with extension services hamper technology adoption, adaptation to climate change, and productivity gains. Indigenous knowledge and farmer-led innovations are rarely captured or scaled.

Objective: To boost agricultural innovation through well-resourced, demand-driven research and knowledge systems.

Policy Statement: The government will revitalize the agricultural research sector and promote inclusive innovation systems that bridge science, policy, and practice.

Implementation Strategies:

- Increase public investment in agricultural research and innovation hubs.
- Strengthen linkages between research institutions, universities, and extension services.

- Develop priority research agendas co-designed with farmers and agribusinesses.
- Fund participatory research projects involving local knowledge holders.
- Establish innovation grants and challenge funds for youth, women, and farmer groups.
- Facilitate regional and international research partnerships.

Time Frame: Medium to long term (3–6 years)

13.10 Accountability and Transparency in Agricultural Subsidies

Issue: Botswana's agricultural subsidy programs face recurring challenges of misallocation, elite capture, and weak monitoring. In Botswana, accountability and transparency in agricultural subsidies are promoted through various mechanisms, including the Public Expenditure and Financial Accountability (PEFA) assessments, the National Development Bank's programs like the Agricultural Credit Guaranteed Scheme (ACGS) and ISPAAD, and initiatives by the Ministry of Lands and Agriculture and Food Security. These efforts aim to ensure that subsidies are used effectively and fairly, with mechanisms in place to monitor their impact and address any issues of corruption or mismanagement.

Problem: Inefficient targeting and lack of transparency in subsidy distribution diminish program impact, create dependency, and erode public trust. Genuine smallholders often miss out, while well-connected individuals benefit disproportionately.

Objective: To reform subsidy systems to be transparent, equitable, and performance-oriented.

Policy Statement: The government will enhance the transparency and accountability of agricultural subsidies to ensure efficient resource use and equitable access.

Agriculture Sector Support 2025

Government of Botswana Agricultural Subsidies (2024–2025)				
Subsidy Program	**Description**	**Subsidy Rate / Amount**	**Eligibility / Notes**	**Source**
ISPAAD – Inputs for Commercial Farmers	Subsidies on seeds, fertilizers, and herbicides for commercial farmers cultivating over 150 hectares.	30% subsidy on inputs up to 500 hectares.	Applicable to sorghum, maize, and cowpeas; maximum area of 500 hectares.	Government of Botswana
ISPAAD – Individual Fencing	Assistance for individual farmers to fence newly established farms or strengthen existing fences.	50% subsidy up to BWP 70,000.	Applicants must have proof of land ownership or leasehold.	Government of Botswana
ISPAAD – Cluster Fencing	Provision of fencing materials for groups of farmers to collectively fence arable fields.	100% subsidy on fencing materials.	Requires formation of a cluster committee and land accessibility proof.	Government of Botswana
Livestock Feed Subsidy	Support for livestock farmers during drought periods.	30% subsidy on animal feed.	Applies to beef cattle, small stock, and non-traditional	Sunday Standard

Government of Botswana Agricultural Subsidies (2024–2025)				
Subsidy Program	**Description**	**Subsidy Rate / Amount**	**Eligibility / Notes**	**Source**
			commodities like dairy and poultry.	
Seasonal Loan Repayment Assistance	Government assistance in repaying seasonal loans for farmers affected by drought.	85% repayment of seasonal loans.	Targeted at farmers impacted by El Niño-induced drought conditions.	Bloomberg
Horticulture Impact Accelerator Subsidy (IAS)	Financial support for horticulture projects, including infrastructure and inputs.	Up to BWP 250,000 per project; 50% government contribution.	Covers items like greenhouses, irrigation systems, and packaging equipment.	National Development Bank
Temo Letlotlo Program	Successor to ISPAAD, focusing on both household and national food security.	100% subsidy for micro-scale farmers; seasonal loans up to BWP 8,300/ha for others.	Includes components like input provision, credit access, and extension services.	National Development Bank

Implementation Strategies

- Digitize subsidy application, approval, and delivery processes using e-voucher systems.
- Establish public subsidy registries and grievance redress mechanisms.
- Use GIS and farmer registries to verify eligibility and track impact.
- Conduct regular audits and publish results to ensure accountability.
- Link subsidies to performance benchmarks such as productivity gains or adoption of sustainable practices.
- Involve civil society in subsidy monitoring and evaluation.

Time Frame: Short to medium term (2–3 years)

13.11 Climate Risk Governance in Agriculture

Issue: Climate change poses increasing risks to agriculture, but governance structures to manage these risks are weak or absent. Climate risk governance in Botswana's agriculture sector involves several key aspects. It addresses the vulnerabilities stemming from climate change, including unpredictable rainfall and increasing temperatures, which negatively impact rain-fed agriculture and water resources. Botswana is highly vulnerable to these impacts due to its reliance on agriculture, natural resources, and the high proportion of its population living in rural areas. To address these risks, Botswana has implemented policies, including the National Climate Change Response Policy, which focuses on climate smart agriculture, poverty

alleviation, and building resilience. Furthermore, the government is actively involved in adaptation and mitigation efforts, including the development of a long-term low-carbon development strategy.

Problem: Without dedicated institutions and planning tools, the agricultural sector remains highly vulnerable to droughts, floods, and temperature extremes. Reactive responses prevail over proactive adaptation strategies.

Objective: To mainstream climate risk management into agricultural governance at all levels.

Policy Statement: The government will integrate climate risk governance into agricultural policies, planning, and budgeting processes.

Implementation Strategies:

- Establish a Climate Risk Unit within the Ministry of Agriculture.
- Develop climate-smart agriculture frameworks for all agro-ecological zones.
- Institutionalize climate risk assessments in agricultural planning and investment appraisals.
- Promote climate information services tailored for farmers and decision-makers.
- Build early warning systems and contingency financing mechanisms.
- Ensure coordination between agriculture, environment, and disaster risk agencies.

Time Frame: Medium term (3–5 years)

13.12 National Food Systems Governance Framework

Issue: Botswana lacks an integrated governance approach to food systems that considers nutrition, sustainability, trade, and social equity. Botswana's National Food Systems Governance Framework aims to transform the country's food systems into resilient, sustainable, and equitable systems. This framework is built upon a multi-sectoral and multi-stakeholder approach, involving the government, UN agencies, CSOs, farmers' organizations, county governments, researchers, and the private sector. The framework emphasizes value chain development, nutrition-sensitive agriculture, climate-smart agriculture, and technological development.

Problem: Fragmented policies across agriculture, health, environment, and trade result in inefficiencies, missed synergies, and policy contradictions. Key challenges like malnutrition, food waste, and carbon intensity remain inadequately addressed.

Objective: To establish a holistic governance framework for sustainable and resilient food systems.

Policy Statement: The government will adopt a National Food Systems Strategy and coordination mechanism to align sectoral policies and promote healthy, inclusive, and sustainable food systems.

Implementation Strategies:

- Convene a National Food Systems Council with cross-sector representation.

- Develop a unified food systems strategy based on multi-stakeholder consultations.
- Align agriculture, nutrition, trade, and environmental goals under one framework.
- Promote policy coherence through joint planning and budgeting.
- Monitor progress using food systems indicators (e.g. diet quality, food loss, GHG emissions).
- Mobilize private sector and civil society for inclusive food governance.

Time Frame: Medium to long term (4–6 years)

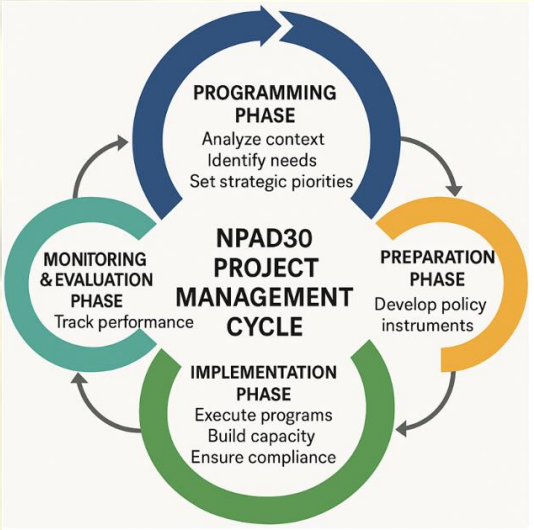
13.13 National Plan for Agricultural Development (NPAD)

Issue: Botswana lacks an integrated and structured mechanism to operationalize its agricultural policy in a programmatic and time-bound manner across all subsectors.

Problem: Agricultural initiatives are fragmented, poorly coordinated, and lack continuity due to the absence of a central planning and implementation framework. This results in inefficiencies, duplication of effort, and suboptimal impact.

Objective: To institutionalize a Five-Year National Plan for Agricultural Development, renewable annually, that aligns policy goals with investment programs, sectoral reforms, and measurable outcomes using contemporary project cycle management tools.

Policy Statement: Government shall develop and implement a National Plan for Agricultural Development (NPAD) every five years, structured into thematic pillars and programs, with annual operational updates. The NPAD process to be fully inclusive and will serve as the national reference document for investment, coordination, and monitoring of the agriculture sector.



Implementation Strategy:

- Rename NPAD to National Plan for Agriculture Development (Because there will be an overarching sector policy)
- Establish a multi-stakeholder **NPAD Secretariat** under the Ministry of Agriculture.

- Anchor NPAD in **thematic pillars** aligned to NDP for example

- Theme 1. Regenerative Agriculture & Climate Resilience
- Theme 2 Agro-Industrialisation & Value Chains
- Theme 3 Smart Agriculture, Tech & Data
- Theme 4 Water-Smart Farming & Horticulture
- Theme 5 Finance, Investment & Risk Mitigation
- Theme 6 Inclusion, Equity & Employment
- Theme 7. Food Security & Trade
- Theme 8. Monitoring Research and Development

- Support evidence-based sector policy planning research and development with accurate data and analysis.
- Use **project cycle management** tools for project identification, appraisal, budgeting, and evaluation.
- Link NPAD to **national and district development plans**, public investment programs, and donor financing.
- Integrate **real-time M&E systems** to track performance and guide adaptive management.
- Engage **farmers, SOEs (e.g., BUAN, NARDI), private sector, youth, and civil society** in design and review.

Timeline:

- Year 1: NPAD framework design, stakeholder consultation, and pilot projects.
- Year 2–5: Full implementation with annual reviews and resource alignment.
- Rolling: Annual renewal and course correction based on results and emerging priorities.

13.14 Enhancing Agricultural Shows and Trade Fairs for Innovation, Market Access, and Sector Visibility

Issue: Botswana's agricultural shows and trade fairs have significant potential to promote innovation, knowledge exchange, and market linkages but remain underfunded, unevenly supported, and poorly integrated into broader sector development strategies.

Problem: Agricultural events are often underutilized, with limited private sector participation, inadequate youth involvement, weak coordination, and poor post-event follow-through. This undermines their potential as platforms for showcasing best practices, facilitating agribusiness deals, and promoting sector growth.

Objective: To transform Botswana's agricultural shows and trade fairs into dynamic, inclusive, and results-driven platforms that accelerate sector transformation, technology adoption, and farmer-market linkages.

Policy Statement: The Government will support the modernization and strategic repositioning of agricultural shows and trade fairs as key instruments for agricultural extension, innovation diffusion, entrepreneurship promotion, and investment attraction.



Implementation Strategy:

- Institutionalize a **national framework** for agricultural shows with clear roles for districts, NGOs, academia, and private sector.
- Allocate **dedicated funding** through the Ministry of Lands and Agriculture for regional and national shows.
- Introduce **competitive categories** for innovation, climate-smart farming, youth agribusiness, and women-led enterprises.
- Develop **partnerships** with BUAN, NARDI, and private sponsors for knowledge-sharing exhibitions.
- Promote **cross-border trade fairs** under SADC and AU platforms to enhance export visibility.
- Establish an **online platform** for post-show marketing, awards, and follow-up networking.

Timeline:

- **Year 1:** Evaluation of existing shows and development of coordination framework.
- **Years 2–3:** Rollout of modernized shows and digital platform integration.
- **Years 4–5:** Regional integration, M&E systems, and international participation expansion.

13.15 Support for Agro-Processing and Value Addition

Issue: Lack of adequate infrastructure and support for agro-processing limits the value-added potential of Botswana's agricultural products.

Problem: While Botswana has a vibrant agricultural sector, a significant portion of the produce is sold raw, which limits the potential for higher incomes, job creation, and export opportunities. Agro-processing and value addition offer an opportunity to boost the agricultural economy.

Objective: Promote agro-processing and value addition to agricultural products to increase their market value, create jobs, and stimulate economic growth.

Policy Statement: The government will support the development of agro-processing industries and create an enabling environment for farmers to process and add value to their products.

Implementation Strategy:

- Provide incentives, including tax breaks or subsidies, for businesses that invest in agro-processing infrastructure, such as milling, canning, or packaging.
- Offer technical assistance and training to farmers and entrepreneurs interested in agro-processing, helping them to develop value-added products.
- Promote the establishment of agro-processing hubs in rural areas to create local jobs and reduce post-harvest losses.
- Develop export markets for value-added agricultural products, ensuring that Botswana's processed foods, textiles, and bio-products reach international markets.
- Encourage collaborations between smallholder farmers and agro-processing companies to establish contract farming arrangements that guarantee a market for processed products.
- Build cold storage and food preservation facilities to extend the shelf life of perishable agricultural products.
- Ensure that agro-processing initiatives focus on sustainability, using renewable energy sources, waste minimization, and environmentally friendly practices.

Time Frame: Medium term (3-5 years)

13.16 Brand Botswana: A Policy on the Certification and Promotion of Locally Grown Agricultural Products

Issue: Botswana's agricultural products are undervalued in domestic and export markets due to a lack of visibility, certification, and quality assurance systems.

Problem: Consumers often cannot distinguish food grown in Botswana from imports, and there is no national food brand identity to promote local produce. This undermines farmer incomes, national food security, and value chain development.

Objective: To develop and implement a nationally recognised certification and branding scheme for agricultural products grown in Botswana, enhancing visibility, market access, and consumer trust.

Policy Statement: The Government will establish a comprehensive food branding and certification system under the theme "Grown in Botswana," to build market recognition, stimulate local demand, and open new export opportunities.

Implementation Strategy:

- Develop quality and origin standards for certification of crops, livestock products, and processed foods.
- Establish a "Grown in Botswana" logo with strict usage protocols.

- Mandate Botswana Agricultural Marketing Board (BAMB) or a dedicated unit within the Ministry of Lands and Agriculture to manage the scheme.
- Link the brand with sustainability, traceability, and food safety standards.
- Partner with retailers, exporters, and trade fair organizers to promote branded goods.
- Provide incentives for farmers and agro-processors to become certified and comply with standards.
- Launch public awareness campaigns encouraging consumers to buy local.

Timeline:

- Year 1: Policy rollout, standard development, and logo design.
- Year 2–3: Pilots in horticulture, grains, and goat meat.
- Year 4–5: Scale-up to national level and regional export alignment.

Part Two
Agriculture Sub-Sector Policies







14 Agrisector Arable



14.1 Introduction

Agriculture remains central to Botswana's rural livelihoods, food security, and economic diversification efforts. Within this sector, arable farming plays a pivotal role by contributing to national food production, household nutrition, and the resilience of communities in the face of climate change. However, Botswana's arable subsector faces a unique set of challenges—chiefly, erratic and declining rainfall, recurrent droughts, poor soils, limited mechanisation, low yields, fragmented support services, and limited market integration. As a result, domestic production of staple crops such as sorghum and maize remain insufficient, leading to high levels of food imports and increasing vulnerability to global price shocks.

Despite these constraints, Botswana possesses significant potential for arable development through climate-smart technologies, expanded irrigation, conservation agriculture, and the promotion of drought-tolerant cash crops such as pulses, oilseeds, and cotton. The informal nature of much of the arable economy also masks the true scale of activity and opportunity in the sector. Moreover, national food self-sufficiency remains a strategic goal that must be balanced against rural income generation and export potential.

This policy provides a coherent framework to revitalise and manage Botswana's arable subsector. It seeks to increase crop productivity, improve resilience to climate variability, formalise production systems, and boost the contribution of arable farming to GDP. Central to this vision is the adoption of a programmatic, results-oriented approach to planning and implementation, backed by a five-year renewable National Plan for Agricultural Development. The policy emphasises inclusivity, targeting smallholders, women, and youth, and promoting

commercial and subsistence farming alike. It also positions the Ministry of Lands and Agriculture as the lead agency for sector-wide coordination, regulation, and performance monitoring.

14.2 Improved Seeds and Biotechnology

Issue: Improved seeds, often through biotechnology, offer a powerful pathway to boost crop productivity and production, particularly in regions facing challenges like Africa. Biotechnology provides tools to develop and supply higher quality seeds and planting materials, while addressing issues like limited access to inputs and low-yielding varieties, which are especially common among smallholder farmers.

Specific Problem:
In many regions, farmers have limited access to certified seeds, which are essential for improving crop yields, resistance to pests, and climate resilience. This results in lower productivity and vulnerability to climate change.

Policy Objective:
Improve farmers' access to high-yielding and climate-resilient seeds.

Policy Statement:
The government will promote the widespread adoption of certified and improved seed systems to increase agricultural productivity and resilience. This will involve strengthening the seed distribution system, ensuring access to quality seeds for all farmers, and supporting the development of resilient, high-yielding seed varieties.



Implementation Strategy:

- **Establish National Seed Banks:** Develop and maintain seed banks to store and distribute certified seeds to farmers. These banks will ensure a steady supply of high-quality seeds for both traditional and improved varieties.

- **Private Sector Seed Distribution Partnerships:** Partner with private seed companies to expand the distribution network, making certified seeds readily available in rural and underserved areas.
- **Research and Development:** Collaborate with agricultural research institutions to develop and improve high-yielding and drought-resistant seed varieties.
- **Subsidies and Incentives:** Provide subsidies to farmers for purchasing certified seeds, particularly for smallholder farmers who may face financial barriers to accessing quality seeds.
- **Farmer Education and Training:** Conduct awareness campaigns and training programs to educate farmers on the benefits of using certified seeds and how to handle them properly.

Time Frame: Short to medium term (2–4 years)

14.3 Biotech Crops

Issue: Botswana faces challenges in agriculture, including drought and the need for increased crop yields and food security. Biotechnology, particularly the development and adoption of genetically modified (GM) crops, is seen as a potential solution. These crops offer advantages such as improved drought resistance, pest resistance, and increased yields. Botswana is actively exploring the use of biotech crops, including drought-resistant maize and pest-resistant cotton, to address these challenges.

Misinformation, particularly in the media and on social media, plays a significant role in fostering public resistance to genetically modified (GM) or biotech crops. Claims about health risks, such as allergies and cancer, often circulate despite lacking scientific support. This can lead to consumer distrust and resistance, despite the potential benefits of biotech crops like increased yields and pest resistance.

Specific Problem:
Despite the potential benefits, there is significant resistance to biotech crops, often due to misinformation, lack of understanding, and fear of new technologies.

Policy Objective:
Increase public acceptance of safe biotechnologies.

Policy Statement:
The government will promote the adoption of biotech crops by addressing misconceptions, ensuring safety, and enhancing public knowledge through education campaigns and robust regulatory frameworks.

Implementation Strategy:

- **National Biotech Education Campaigns:** Launch national education campaigns to inform the public about the safety, benefits, and potential of biotech crops. These campaigns will target farmers, policymakers, and consumers.
- **Regulatory Frameworks for Safe GM Crops:** Establish clear and transparent regulations to ensure that biotech crops are safe for consumption and the environment. This will include rigorous safety assessments and monitoring systems.

- **Collaborations with Scientific Institutions:** Work with universities, research organizations, and international bodies to promote research on the benefits and risks of biotech crops, ensuring that the information provided is scientifically sound.
- **Public Engagement and Dialogue:** Foster an open dialogue between the government, farmers, and the public to address concerns, answer questions, and build trust in biotechnology.

Time Frame: Medium term (3–5 years)

14.4 Agri-Mechanization

Issue: Agricultural mechanization in Botswana is a mix of traditional draught animal power (DAP) and increasingly, tractor technology. While DAP is well-established, particularly among smallholder farmers, tractor use is growing, influenced by government support, import dependence, and the semi-arid climate. Botswana relies heavily on imported machinery, with South Africa and other countries being major suppliers. Agricultural mechanization in Botswana faces challenges despite government subsidies, with low yields and reliance on animal power hindering progress. The government's support for machinery acquisition and ploughing, while initially beneficial, creates unsustainable reliance once subsidies are removed. A more comprehensive approach, including national planning and private sector involvement, is needed to achieve sustainable agricultural growth.

Specific Problem:
The high initial cost of purchasing machinery is a major barrier for small and medium-scale farmers, limiting their ability to mechanize farming operations, improve productivity, and reduce labor dependency.

Policy Objective:
Enhance access to affordable mechanization.

Policy Statement:
The government will support the establishment of machinery rental and cooperative ownership models, enabling farmers to access mechanization without the need for large capital investments.

Implementation Strategy:

- **Establish Machinery Rental and Cooperative Ownership Models:** Create regional machinery hubs where farmers can rent or share agricultural equipment. Cooperative models can allow farmers to pool resources to purchase machinery collectively.
- **Subsidized Financing for Machinery:** Partner with financial institutions to provide subsidized loans or grants for farmers to purchase or lease machinery, particularly for smallholder and rural farmers.
- **Public-Private Partnerships for Equipment Availability:** Collaborate with machinery manufacturers to establish local equipment supply chains, ensuring that farmers can access machinery at affordable rates.
- **Training on Equipment Use and Maintenance:** Offer training programs to farmers on the proper use and maintenance of agricultural machinery to ensure it is used efficiently and remains in good working condition.

Time Frame: Short to medium term (2–4 years)

14.5 Up-skilling for Mechanisation

Issue: Up-skilling for farm mechanization in Botswana focuses on enhancing the skills of farmers and technicians to effectively utilize and maintain agricultural machinery, including tractors, harvesters, and other equipment. This involves training in areas like engine maintenance, repairs, and operation of various farm machines. The goal is to improve agricultural productivity, reduce reliance on manual labor, and contribute to food security. There is a need to upskill to Operate and Maintain Machinery

Specific Problem:
Many farmers lack the skills to operate and maintain modern agricultural machinery, which leads to inefficiencies and breakdowns, reducing the effectiveness of mechanization efforts.

Policy Objective:
Build capacity in machinery use.

Policy Statement:
The government will establish agricultural mechanization training centres and vocational courses in rural areas to equip farmers with the necessary skills to operate and maintain modern machinery effectively.

Implementation Strategy:

- **Create Agricultural Mechanization Training Centres:** Set up specialized training centres in key agricultural regions to offer hands-on learning experiences for farmers, focusing on machinery operation, troubleshooting, and maintenance.
- **Vocational Courses for Rural Areas:** Partner with local educational institutions and vocational training centres to offer affordable, accessible courses for rural farmers on using agricultural machinery.
- **Community-Based Training Programs:** Implement mobile training units that can travel to remote areas, offering training on basic mechanization skills and maintenance.
- **Collaborations with Equipment Manufacturers:** Partner with machinery manufacturers to provide practical training and workshops on the latest machinery technologies and their use in local contexts.

Time Frame: Short term (1–2 years)

14.6 Irrigation Technologies

Issue: There is Overdependence on Rainfed Farming. In Botswana, the area under irrigation is small, estimated at around 1,200 hectares. While approximately 200,000 hectares are planted annually, the majority is rain-fed, with irrigation used on a much smaller scale. Where irrigation is used cropping is more than doubled. This irrigated area represents less than 10% of the country's total water use.

Specific Problem:
Many farmers rely on rainfed agriculture, which makes them vulnerable to climate variability

such as droughts. This dependency limits productivity, especially in regions with inconsistent rainfall patterns.

Policy Objective:
Expand efficient irrigation systems.

Policy Statement:
The government will promote the adoption of efficient irrigation systems, such as drip and pivot irrigation, to reduce reliance on rainfall, enhance water-use efficiency, and ensure consistent agricultural production.

Implementation Strategy:

- **Promotion of Drip and Pivot Irrigation Technologies:** Introduce subsidies for farmers to install drip and pivot irrigation systems, which are water-efficient and suitable for both small-scale and large-scale farming.
- **Technical Support Services:** Provide farmers with the necessary technical support to install and maintain these irrigation systems, including training on water management and crop-water requirements.
- **Incentives for Water Conservation:** Offer financial incentives, such as tax breaks or grants, to farmers who adopt water-efficient irrigation systems.
- **Public-Private Partnerships:** Partner with irrigation equipment suppliers and technology companies to ensure the availability and affordability of irrigation technologies.
- **Awareness Campaigns:** Conduct national campaigns to educate farmers about the benefits of efficient irrigation technologies, particularly in water-scarce areas.

Time Frame: Medium term (3–5 years)

14.7 Access to Affordable Financing (Financial)

Issue:
Access to affordable financing is a major barrier to agricultural growth, particularly for smallholder farmers. Many farmers face high interest rates and limited loan options, which restrict their ability to invest in improved technologies, seeds, and equipment. This lack of access to affordable credit prevents them from scaling up production or adopting more sustainable farming practices. Furthermore, smallholder farmers often have difficulty securing loans due to the lack of formal collateral, which exacerbates their financial vulnerability.

Specific Problem:
High interest rates and limited loan availability hinder farmers from accessing capital. Moreover, smallholder farmers often struggle to secure loans due to the absence of collateral, making it difficult for them to invest in agricultural improvements.

Policy Objective:
The policy aims to improve access to affordable credit for arable farmers by introducing tailored financing options and facilitating collateral-free loans, thereby enabling farmers to invest in productivity-enhancing practices.

Policy Statement:
The government will promote low-interest loans and micro-financing options to arable farmers, focusing on removing barriers to credit access and introducing loan guarantee programs for smallholders.

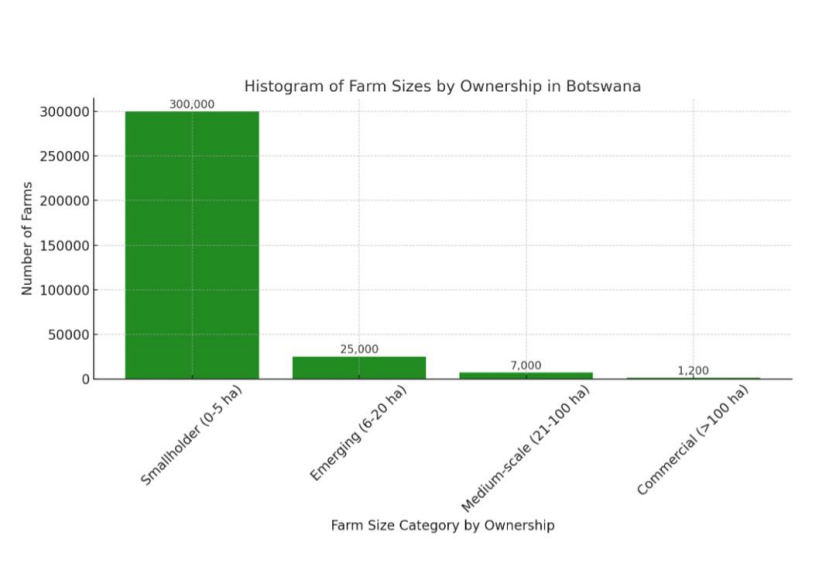
Implementation Strategy:

- Partner with commercial and development banks to offer low-interest loans tailored to arable farmers.
- Introduce government-backed micro-loans and loan guarantee schemes for smallholders.
- Develop targeted financing packages that cater to the specific needs of farmers.
- Expand financial products to include seasonal loans and flexible repayment options.
- Launch awareness campaigns on available financing options and loan application processes.

Time Frame: Short to medium term (2–4 years)

14.8 Consolidating Land for Viable Farming

Issue:
Botswana's agricultural land is dominated by small, fragmented holdings, especially in communal areas. This structure hampers investment, mechanization, and scale—undermining productivity and competitiveness in the sector.



Problem:
Most farmers operate on plots under 5 hectares, which are economically unviable for commercial agriculture. Fragmentation, insecure tenure, and limited land-use planning—especially under Land Boards—contribute to underutilization and low returns.

Objective:
To increase farm viability through voluntary land consolidation and aggregation mechanisms,

while ensuring secure tenure, inclusivity, and institutional support—particularly from Land Boards.

Policy Statement:
The Government of Botswana shall introduce a land consolidation policy aimed at enabling voluntary aggregation of agricultural land into viable farming units. This policy shall involve Land Boards as key custodians and facilitators of secure land rights, enabling long-term leases, pooled ownership models, and efficient land-use zoning.

Implementation:

- Mandate Land Boards to identify and map fragmented agricultural holdings.
- Establish a Land Consolidation Coordination Unit (LCCU) within the Ministry, co-chaired by Land Boards.
- Enable Land Boards to issue long-term, transferable agricultural leases on consolidated plots.
- Digitize land records to support transparent aggregation and leasing.
- Develop legal frameworks allowing cooperatives or investors to lease pooled land from multiple smallholders.
- Prioritize consolidated farms in extension support, financing, and water infrastructure.
- Train Land Board members on agribusiness, tenure security, and land-use planning.

Timeline:
Draft policy by December 2025. Land Board pilot programmes in 5 districts by June 2026. National rollout by 2028.

14.9 Low Financial Inclusion in Rural Areas (Financial)

Issue
In many rural areas, especially those reliant on agriculture, financial services are either inadequate or completely unavailable. This lack of access to banking services further isolates farmers from formal financial systems, limiting their ability to save, invest, or access credit. As a result, rural communities are left with few options for managing their finances or planning for future growth. Furthermore, limited financial literacy in these areas exacerbates the situation, preventing farmers from taking advantage of financial products that could support their agricultural activities.

Specific Problem:
Limited access to banking services and a lack of financial education restricts rural farmers' ability to participate in the formal economy. This affects their capacity to save, invest, and manage financial risks effectively.

Policy Objective:
The policy seeks to expand financial inclusion in rural farming communities by establishing mobile banking systems and providing financial literacy programs to improve access to financial services.

Policy Statement:
The government will foster the inclusion of rural farmers in the formal financial system by promoting mobile banking solutions and financial literacy programs tailored to their needs.

Implementation Strategy

- Partner with mobile financial service providers to offer banking services in rural areas.
- Launch mobile-based platforms that enable farmers to access banking, savings, and insurance products.
- Offer training programs on budgeting, credit management, and savings.
- Expand partnerships with rural banks to provide customized financial products for farmers.
- Promote awareness campaigns to inform rural communities about financial inclusion opportunities.

Time Frame: Short to medium term (2–3 years)

14.10 Inadequate Risk Management Tools

Issue:
Farmers are increasingly vulnerable to various risks, including climatic shocks, pest outbreaks, and price volatility. Despite the availability of risk management tools, such as crop insurance, many farmers fail to adopt them due to affordability, lack of awareness, or limited availability. As a result, farmers are left unprotected in the event of a disaster, which can significantly impact their livelihoods and long-term sustainability. The lack of tailored insurance products for specific agricultural risks exacerbates this issue, particularly for smallholder farmers who face greater financial challenges.

Specific Problem:
The limited adoption of agricultural insurance and lack of tailored risk management products leave farmers exposed to significant financial risks, including those related to climate change and natural disasters.

Policy Objective:
The policy aims to promote the adoption of agricultural insurance and introduce financial products specifically designed to mitigate climate-related risks and other agricultural challenges.

Policy Statement:
The government will collaborate with insurance companies and financial institutions to develop affordable and accessible risk management tools, including crop insurance and climate resilience funds, to help farmers mitigate risks and protect their livelihoods.

Implementation Strategy:

- Develop affordable insurance products that cater to the specific risks faced by farmers.
- Partner with insurers to create tailored crop insurance policies for different types of agriculture.

- Introduce climate risk mitigation funds that provide financial assistance in the event of climate-related disasters.
- Launch education and outreach campaigns to raise awareness about the benefits of agricultural insurance.
- Create government subsidies or incentives to make insurance more accessible for smallholder farmers.

Time Frame: Medium term (3–5 years)

15 PASTORAL FARMING POLICIES

"Becoming a world leader in quality beef production"



15.1 Introduction

Pastoral farming has long been a cornerstone of Botswana's rural economy, cultural heritage, and food systems. Livestock—especially cattle, goats, and sheep—accounts for the majority of agricultural GDP, provides income to hundreds of thousands of households, and remains a key export through the Botswana Meat Commission (BMC). However, the subsector is under increasing stress due to recurrent droughts, rangeland degradation, animal disease outbreaks, and weak market integration. These challenges are exacerbated by climate change, fragmented services, and the high levels of informality in the sector, which obscure its true economic value and limit development planning.

Despite these constraints, the livestock subsector holds considerable potential for climate-resilient economic growth. Cattle are a national asset, but small stock—particularly goats and sheep—are increasingly recognized for their adaptability, rapid reproduction, and suitability for smallholders, women, and youth. Moreover, Botswana's globally recognized animal disease-free status provides an opportunity for premium meat exports, especially if value chains are better structured, traceability systems improved, and commercialization deepened.

This policy provides a unified and transformative approach to the pastoral subsector. It sets clear goals to improve animal health, expand access to veterinary services and fodder, support improved breeding, and formalize marketing systems to ensure fair returns for producers. At the heart of the policy is a strategic push to formalize the sector, modernize its institutions, and align production with market and environmental realities. The goal is to sustainably grow the livestock GDP contribution, build climate resilience, and enhance rural livelihoods.

The Ministry of Lands and Agriculture will serve as the lead agency for coordination, monitoring, and driving a National Livestock Development Plan to implement the policy over five-year cycles.

15.2 Upscaling Botswana's National Herd to 5 Million Head by 2036

Issue: Botswana's national cattle herd has declined due to recurrent droughts, disease outbreaks, weak breeding systems, and poor rangeland management. This undermines national food security, rural incomes, and meat export potential.

Problem: The national herd remains below its optimal ecological and economic carrying capacity. Current estimates suggest a herd of just over 2.5 million, down from historical highs, with poor recovery due to climate volatility and low calving rates.

Objective: To double the national cattle herd to 5 million by 2036 through integrated breeding, rangeland management, drought resilience, disease control, and commercialization strategies.

Policy Statement: The Ministry of Lands and Agriculture shall lead a national herd recovery and growth programme aimed at reaching 5 million head of cattle by 2036, contributing significantly to GDP, rural livelihoods, and national resilience.

Implementation Plan:

- **Improve Calving Rates:** Scale up artificial insemination services, access to improved bulls, and reproductive health programs.
- **Rangeland Management:** Implement rotational grazing, reseeding, and veld fire control in collaboration with communities.
- **Drought Preparedness:** Expand fodder banks, rainwater harvesting, and early warning systems for farmers.
- **Veterinary Services:** Enhance vaccine access, branding, and disease surveillance including FMD and tick-borne diseases.
- **Restocking Support:** Provide subsidized loans and grants for herd rebuilding in drought-affected areas.
- **Monitoring & Data:** Establish digital cattle tracking and national herd census every 2 years.
- **Private Sector Involvement:** Attract investment in feedlots, breeding farms, and veterinary supplies.

Time Frame:

- Phase 1 (2025–2028): Herd restoration and productivity boost.
- Phase 2 (2029–2032): Herd scaling and

15.3 Low Adoption of Improved Livestock Breeds

Issue:
The livestock sector in pastoral farming often suffers from a shortage of high-quality breeding stock and inadequate knowledge about breed improvement. This limits the potential for increased productivity, resilience, and profitability in the sector. The shortage of quality breeding stock hampers efforts to enhance livestock genetics, and the lack of expertise on breed management compounds the issue, preventing farmers from adopting improved breeds that could lead to better growth rates, disease resistance, and overall animal health.

Specific Problem:
The shortage of quality breeding stock and the lack of knowledge about breed improvement hinder the capacity of pastoral farmers to optimize livestock productivity.

Policy Objective:
The policy seeks to upgrade livestock genetics by developing national breeding programs and building capacity for better breed management practices.

Policy Statement:
The government will establish national livestock breeding programs and capacity-building initiatives focused on promoting improved livestock genetics and breed management.

Implementation Strategy

- Establish breeding centres and artificial insemination (AI) programs for livestock improvement.
- Partner with research institutions to develop improved breeding stock for different regions.
- Promote training programs on livestock genetics through field demonstrations and media campaigns.
- Support farmers with access to modern breed management tools and knowledge.
- Develop educational materials and workshops to increase awareness about breed improvement.

Time Frame: Short to medium term (2–4 years)

15.4 Climate-Resilient Cattle Production

Issue: Botswana's cattle farming sector is increasingly vulnerable to drought, extreme heat, and shifting rainfall patterns linked to climate change**.** Climate-resilient cattle production involves strategies that help livestock systems adapt to and mitigate the impacts of climate change, particularly in areas like Botswana and Namibia, where a significant portion of livestock is affected. This includes practices like increasing livestock mobility, managing rangelands, and reducing grazing pressure to improve soil health and enhance water retention, ultimately making the grazing system more resilient to climate variability.

Problem: Traditional cattle management practices, including open grazing and dependence on rain-fed water sources, are no longer sustainable. Heat stress reduces productivity and fertility, while limited pasture availability leads to overgrazing and land degradation. Farmers face increasing livestock losses and reduced profitability.

Objective: To promote climate-resilient cattle farming practices that enhance productivity, protect ecosystems, and ensure long-term viability of the sector.

Policy Statement: The government will support sustainable, climate-smart cattle farming systems through innovation, extension support, and infrastructure development.

Implementation Strategies:

- Promote rotational grazing and pasture rehabilitation.
- Develop water harvesting and borehole infrastructure in key grazing areas.
- Introduce climate-resilient cattle breeds through selective breeding programs.
- Provide training on animal nutrition, shade provision, and health under climate stress.
- Invest in early warning systems and drought response plans for livestock.

Time Frame: Medium term (2–5 years)

15.5 Modernizing the Beef Value Chain

Issue: Botswana's beef industry faces declining competitiveness due to outdated processing infrastructure, inconsistent supply, and weak market linkages. Modernizing the beef value chain involves streamlining processes, improving efficiency, and enhancing competitiveness within the beef industry. This includes strengthening communal farming, improving veterinary services, developing export capacity, and boosting regional cooperation. Key aspects of modernization include commercializing livestock management, promoting clustering of small farmers, improving access to financing, and restructuring export structures.

Problem: Slaughterhouses and cold chains are poorly maintained or insufficient, reducing beef quality and increasing spoilage. Farmers lack incentives to produce high-grade beef due to limited access to feedlots, veterinary services, and structured markets. Export growth is constrained by failure to meet evolving international standards.

Objective: To modernize and commercialize Botswana's beef value chain to increase efficiency, quality, and global competitiveness.

Policy Statement: The government will invest in beef processing infrastructure, improve regulatory oversight, and promote public-private partnerships across the beef value chain.

Implementation Strategies:

- Upgrade and expand abattoirs and cold chain facilities.
- Support the development of feedlots and outgrower schemes.
- Strengthen veterinary services and livestock traceability systems.
- Facilitate export certifications and compliance with international standards.
- Provide market intelligence and price information to producers.

Time Frame: Medium to long term (3–7 years)

15.5.1 Enhancing Goat Production for Economic Growth and Livelihoods

Issue: Goat farming is an essential component of Botswana's agricultural sector, providing a source of income, food security, and resilience in arid and semi-arid regions. However, the sector faces challenges such as inadequate market access, limited veterinary services, low-quality breeding stock, and inadequate infrastructure for value-added products.

Problem: While goat farming has significant potential to enhance rural livelihoods, the sector remains underdeveloped. Farmers face difficulties accessing high-quality breeding stock and veterinary services, and the infrastructure for marketing goat products is insufficient. Additionally, there is limited knowledge and training on modern goat farming techniques, which restricts productivity and profitability.

Objective: To promote sustainable, commercialized, and climate-resilient goat farming that improves productivity, enhances incomes, and strengthens market linkages for both local and export markets.

Policy Statement: The government will prioritize the development of the goat farming sector through investments in infrastructure, capacity-building, breeding programs, and market access to enhance goat production and contribute to rural economic development.

Implementation Strategies:

- Improvement of Breeding Stock and Genetic Diversity:
    - Promote selective breeding programs to enhance meat and milk production through the introduction of superior indigenous and commercial goat breeds, such as Boer goats, Kalahari Reds, and Botswana Browns.
    - Support the establishment of goat breeding centres and facilitate access to quality breeding stock for smallholder farmers.
- Veterinary Services and Health Management:
    - Strengthen veterinary extension services to improve disease management, vaccination programs, and parasite control.
    - Facilitate training for goat farmers on animal health, hygiene, and biosecurity practices.
- Capacity-Building and Knowledge Transfer:
    - Invest in farmer training programs on modern goat farming practices, including nutrition, breeding, and farm management.
    - Promote the use of digital tools and extension services to disseminate agricultural knowledge.
- Market Access and Value Chain Development:

- Develop and strengthen market linkages for goat products, particularly meat and skins, both domestically and internationally.
- Support the development of goat processing infrastructure, such as abattoirs and meat-packing facilities, to improve product quality and reduce post-harvest losses.
- Facilitate access to external markets by ensuring compliance with international standards for goat meat exports.

- Climate-Resilient Practices:
  - Promote climate-smart goat farming practices, such as rotational grazing, water conservation techniques, and the use of drought-tolerant forage species.
  - Encourage the use of technology for water harvesting and supplementary feeding during dry periods.
- Access to Finance and Investment:
  - Develop financing mechanisms, including grants and affordable loans, specifically tailored to goat farmers, especially smallholders and women farmers.
  - Promote public-private partnerships to invest in the goat farming value chain and provide support for farmers' cooperatives.

Time Frame:

- Short to Medium Term (1–5 years): Focus on improving breeding programs, enhancing veterinary services, and building infrastructure for market access.
- Medium to Long Term (5–10 years): Develop sustainable value chains, expand market access, and strengthen the regulatory framework for goat farming.

Herd losses due to drought in Botswana are a significant and recurring challenge, especially in the **communal livestock sector**. Here's what we know based on available data and reports.

15.6 Livestock Losses due to climate change

Issue:
Climate change is increasing the frequency and severity of droughts in Botswana, resulting in significant livestock losses and threatening rural livelihoods.

Historical Mortality Rates:

- During the **2015–2016 drought**, cattle mortality in some districts exceeded **15–20%**.
- Goats, being more drought-resilient, had lower loss rates, typically between **5–10%**, depending on feed availability and water access.

National Loss Estimates:

- The Ministry of Lands and Agriculture has in past drought years reported **national livestock losses of over 200,000 animals**, predominantly cattle.
- Goats and sheep fared better but still experienced tens of thousands of deaths, especially in the **Kgalagadi and Ghanzi districts**.

Contributing Factors:

- **Dehydration and poor nutrition** due to dried-up boreholes and overgrazed rangelands.
- **Weak veterinary outreach** and absence of drought fodder supplementation, especially for small stock.
- **Market collapse** during droughts, leading to distressed sales and non-saleable emaciated animals.

Indirect Losses:

- Reduced conception rates and longer inter-kidding periods post-drought.
- Higher kid/lamb mortality due to weakened mothers.
- Erosion of household wealth and food security, especially in goat-dependent households.

Estimates by Type:

Livestock Type	Drought Loss Estimate (%)	Impact Level
Cattle	15–25%	High
Goats	5–10%	Moderate
Sheep	8–12%	Moderate

Problem:
Recurring droughts have led to cattle mortality rates exceeding 15–25% in affected years, particularly in the communal sector. These losses erode household assets, reduce food security, and undermine national herd recovery efforts. There is currently no coordinated policy response to prevent or mitigate drought-induced herd losses.

Estimated Economic Costs of Herd Losses (Botswana)

Drought Year	Estimated Cattle Losses	Market Value per Head (P)	Total Direct Loss (BWP)	USD Equivalent
2015/16	120,000	4,000	BWP 480 million	~$35 million
2018/19	150,000	4,200	BWP 630 million	~$46 million
2021/22	100,000	5,000	BWP 500 million	~$37 million

Drought Year	Estimated Cattle Losses	Market Value per Head (P)	Total Direct Loss (BWP)	USD Equivalent
Average (Annual)	~123,000	~4,400	BWP 540 million	~$40 million

Objective:
To minimize livestock mortality due to climate shocks through early warning, strategic fodder reserves, adaptive grazing practices, and emergency response mechanisms.

Policy Statement:
Government shall implement a proactive and integrated approach to reducing climate-related herd losses by strengthening early warning systems, investing in feed resilience, supporting destocking/re-stocking schemes, and building climate-adaptive livestock systems.

Implementation Strategy:

- Establish a national **Livestock Early Warning and Response Unit** integrating BOTSAT1 satellite data.
- Develop **district-level fodder banks** with strategic reserves for emergency feed distribution.
- Launch a **climate-indexed livestock insurance scheme** targeting vulnerable farmers.
- Promote **voluntary destocking and market offloading** at early drought indicators.
- Expand **water harvesting infrastructure** at communal grazing points.
- Support **pasture improvement and rotational grazing systems** to reduce pressure on rangelands.
- Train farmers on **climate-smart livestock management** including mixed herding and drought-tolerant breeds.
- Establish post-drought **re-stocking support programs** with improved genetics.

Timeline:
Short- to medium-term (1–3 years for system rollout); long-term (5–10 years) for resilience-building and sustained herd recovery.

15.7 Support Small-Scale Poultry Farming

Issue: Botswana's poultry industry plays a vital role in ensuring food security, creating employment and supporting livelihoods. However, the sector faces a range of challenges, including rising feed costs, limited access to advanced technology and fluctuating market demand. Small-scale poultry farming in Botswana lacks sufficient support, despite its central role in food security and rural livelihoods.

Problem: Although small-scale producers account for 64% of chicken meat and 29% of egg production nationally, they face systemic challenges. These include rising feed costs, limited

veterinary services, poor access to finance, and inadequate biosecurity measures. As a result, productivity remains low, and the country remains reliant on poultry imports, undermining national food self-sufficiency.



Objective: To enhance the viability and sustainability of small-scale poultry farming through targeted support, infrastructure development, and institutional capacity.

Policy Statement: The government will prioritize small-scale poultry farming by strengthening veterinary services, subsidizing key inputs, improving market access, and supporting cooperative models to scale production and reduce import dependence.

Implementation Strategies:

- Expand extension and veterinary services tailored to poultry producers.
- Provide subsidized feed and vaccination programs to lower input costs.
- Support the formation of poultry cooperatives for shared input purchasing and marketing.
- Develop small-scale poultry infrastructure including hatcheries and cold storage.
- Facilitate access to credit and insurance products designed for poultry enterprises.
- Introduce training programs on biosecurity, feed formulation, and financial management.

Time Frame: Short to medium term (2–4 years)

15.8 Enhancing Domestic Pork Production in Botswana

Issue:
Botswana's pork industry is underdeveloped, with domestic production meeting only a portion of national demand. In 2023, local pork production was approximately 990 tonnes, against a national demand of 1,500 tonnes, necessitating imports to bridge the gap.

Problem:
The pig industry faces challenges including high feed costs, inadequate slaughter facilities, limited access to quality breeding stock, and unorganized marketing structures. These issues hinder the industry's growth and its ability to meet domestic demand.

Objective:
To develop a sustainable and competitive pig industry that meets national pork demand, reduces reliance on imports, and contributes to food security and economic diversification.

Policy Statement:
The Government of Botswana commits to revitalizing the pig industry through strategic investments, capacity building, and supportive policies aimed at increasing domestic pork production and value addition.

Implementation Strategy:

- Establish regional pig breeding centres to supply quality breeding stock.
- Provide subsidies or financial incentives for feed production and procurement.
- Construct and upgrade slaughter facilities to meet sanitary and capacity standards.
- Develop organized marketing systems, including cooperatives and market information platforms.
- Offer training programs on best practices in pig farming and disease management.
- Implement import regulations that protect and promote local pork production.

Timeline:
The policy will be implemented over a five-year period, with annual reviews to assess progress and make necessary adjustments.

15.9 Apiculture and Honey Production

Issue:
Botswana’s beekeeping sector remains underdeveloped despite its ecological suitability and potential for income generation, biodiversity conservation, and food security enhancement.

Problem:
Lack of investment, low public awareness, minimal technical support, and an absence of structured market access constrain the growth of the apiculture industry. Indigenous bee populations are underutilized, and current honey production (estimated under 50 tonnes/year) meets less than 10% of domestic demand, resulting in high imports and missed export opportunities.

Objective:
To catalyse a sustainable, climate-smart, and commercially viable beekeeping industry in

Botswana by improving productivity, enhancing pollination services, and supporting livelihoods through structured training, research, and market development.

Policy Statement:
The government shall support the development of the apiculture sector as a strategic component of the agricultural economy. The policy will promote sustainable beekeeping practices, protect indigenous bee species, and incentivize youth and women participation. The sector will be integrated into climate resilience strategies and conservation efforts.

Implementation Strategy:

- Establish regional Apiary Centres of Excellence for training, R&D, and technical support.
- Facilitate access to finance and starter kits for youth and smallholders.
- Promote organic certification and quality assurance systems for honey and bee products.
- Include beekeeping in land use planning, especially in forest and horticultural zones.
- Partner with conservation agencies to ensure pollinator-friendly practices.
- Introduce beekeeping curricula in agricultural colleges and vocational schools.
- Facilitate market linkages and export promotion through trade fairs and cooperatives.

15.10 Game Farming

Issue:
Game farming in Botswana has grown steadily as a land use option combining conservation with commercial potential. However, the sector lacks coherent policy support to fully realise its socio-economic and ecological benefits.

Problem:
As of 2023, Botswana had **more than 200 registered game farms**, many of which are concentrated in Kweneng, Kgatleng, Ghanzi, and the North West District. These farms stock wildlife species such as impala, kudu, gemsbok, and eland for purposes ranging from eco-tourism to live sales, trophy hunting, and meat production. Yet the **sector remains underregulated**, with outdated licensing regimes, unclear animal welfare standards, and limited access to veterinary services. Commercial off-take volumes are also low due to weak domestic and export markets. Data from the Department of Wildlife and National Parks indicates that **wildlife-based tourism and products contribute approximately P2 billion annually**, but game farms capture only a fraction of this due to fragmented policy support.

Objective:
To strengthen the economic, conservation, and rural development impact of game farming through targeted support, regulation, and value chain development.

Policy Statement:
The Government will formally recognise game farming as a strategic land use and promote its integration into national conservation and economic plans.

Implementation Strategy:

- Modernise game farm registration and licensing to enhance traceability.

- Support breeding, veterinary care, and wildlife meat inspection systems.
- Incentivise conservation-linked enterprises and community-private partnerships.
- Develop domestic markets for game meat and eco-tourism while opening up SADC export pathways.

15.11 Veterinary Fencing and National Pest Controls

Issue:
Veterinary fencing has long been used in Botswana to control the spread of livestock diseases such as Foot and Mouth Disease (FMD) and Contagious Bovine Pleuropneumonia (CBPP). However, the current fencing infrastructure is aging, ecologically disruptive, and insufficiently integrated with pest and disease surveillance systems.

Problem:
Over **35,000 km of veterinary fences** crisscross Botswana, segmenting ecosystems and affecting wildlife movement, especially in the Okavango and Kgalagadi regions. While critical for Botswana's beef export trade, the fences are often poorly maintained. Simultaneously, invasive pests like the **tsetse fly, ticks, and screw-worm** threaten both livestock productivity and human health. The absence of an integrated pest control policy undermines efforts to maintain animal health, biodiversity, and export certification.



Objective:
To maintain animal disease control through modernized veterinary fencing and develop an integrated national pest control strategy that balances trade, health, and environmental sustainability.

Policy Statement:
Botswana will implement ecologically-sensitive veterinary fencing and integrated pest management (IPM) systems to strengthen livestock health and minimize environmental harm.

Implementation Strategy:

- Conduct a national audit of veterinary fencing and upgrade to eco-sensitive, disease-containment models.
- Develop and implement a **National Integrated Pest Management Plan**, including early warning systems.
- Promote regional coordination on transboundary pests and diseases.
- Introduce community-based surveillance and response teams.
- Invest in cross-border disease buffer zones using mixed tools (fencing, vaccination, IPM).
- Secure international SPS compliance to protect export markets.

15.12 Animal Health Technologies

Issue:
In pastoral farming, the limited availability of veterinary services and vaccines, coupled with frequent outbreaks of animal diseases such as Foot and Mouth Disease (FMD) and Contagious Bovine Pleuropneumonia (CBPP), poses a significant threat to livestock health and productivity. These challenges prevent farmers from managing livestock health effectively and create barriers to productivity growth.

Specific Problem:
Limited veterinary services, combined with frequent disease outbreaks, hinder the effective management of livestock health, leading to lower productivity and economic losses.

Policy Objective:
The policy aims to improve livestock health systems by expanding veterinary services and promoting disease surveillance and control systems.

Policy Statement:
The government will expand mobile veterinary clinics, increase vaccine production, and implement digital health surveillance systems to strengthen animal health management.

Implementation Strategy:

- Expand the network of mobile veterinary clinics to reach remote pastoral communities.
- Facilitate the establishment of local vaccine manufacturing facilities to meet demand.
- Introduce smart animal health surveillance systems, including digital tracking of livestock health data.
- Promote regular vaccination campaigns, particularly in areas prone to disease outbreaks.

- Collaborate with veterinary associations to enhance the skillsets of veterinary para-professionals.

Time Frame: Short to medium term (2–4 years)

15.13 Improving Feeding Systems

Issue:
Pastoralists often face seasonal feed shortages that negatively impact livestock health and productivity. Additionally, there is a lack of adoption of modern feed formulation technologies like hydroponic fodder, which could significantly improve the quality of livestock feed, ensure its availability year-round and reduce drought losses of P500 m per year.

Hydroponically Grown Fodder



Specific Problem:
Seasonal feed shortages and low adoption of feed formulation technologies undermine the effectiveness of feeding systems, leading to poor livestock health and productivity.

Policy Objective:
The policy seeks to promote feed security by establishing forage banks and modernizing feed production systems.

Policy Statement:
The government will establish forage banks and fodder innovation centres while supporting the private sector in feed production and advisory services.

Implementation Strategy:

- Set up rangeland reseeding programs to restore degraded pastures.
- Establish fodder innovation centres to research and promote alternative feed options.
- Promote the use of hydroponic fodder for all livestock
- Provide subsidies for feed production to encourage private sector involvement.
- Establish partnerships with nutrition companies to improve feed formulation and quality.
- Facilitate training on efficient feeding practices and feed management.

Time Frame: Medium term (3–5 years)

15.14 Livestock Traceability Systems

Issue:
One of the major challenges facing pastoral farming is the lack of traceability systems for livestock. This not only limits access to premium markets that demand quality assurance but also hinders the ability to manage herds effectively. Traceability systems are crucial for ensuring livestock health, improving food safety, and facilitating market access both locally and internationally.

Specific Problem:
Without a robust traceability system, pastoralists face challenges in accessing high-value markets, and herd management becomes less efficient due to inadequate data.

Policy Objective:
The policy aims to build traceable livestock value chains and improve herd management systems through the use of digital technologies.

Policy Statement:
The government will implement a national livestock identification system, supported by digital tracking technologies, to enhance market access and herd management.

Implementation Strategy:

- Introduce RFID tagging systems to track individual animals throughout the supply chain.
- Implement blockchain technology for livestock traceability and market certification.
- Offer training programs for pastoralists on herd management and using mobile apps for tracking livestock.
- Develop a national database to monitor livestock health, movement, and genetic information.

Time Frame: Medium term (3–5 years)

15.15 Value Addition in Animal Products

Issue:
The lack of value addition in animal products, such as meat, dairy, and leather, means that pastoralists often receive low prices for their raw products. Poor processing technologies and limited access to modern facilities prevent farmers from tapping into higher-value markets and reducing post-harvest losses.

Specific Problem:
Limited meat, dairy, and leather processing capabilities result in low value addition and reduced profitability for pastoralists.

Policy Objective:
The policy seeks to diversify livestock value chains by improving processing technologies and supporting the establishment of value-added industries for livestock products.

Policy Statement:
The government will promote the development of modern abattoirs, dairy, and leather

processing facilities, as well as support public-private partnerships to enhance value addition in the livestock sector.

Implementation Strategy:

- Promote the establishment of modern abattoirs and meat processing ventures through public-private partnerships.
- Upgrade existing abattoirs to meet international standards for meat quality and safety.
- Develop certification programs for meat and dairy products to facilitate access to premium markets.
- Set up dairy and leather incubation hubs to support small-scale processors.
- Offer equipment grants and training partnerships to foster entrepreneurship in the livestock processing sector.

Time Frame: Medium to long term (4–6 years)

15.16 Restructuring and Phased Privatisation of the Botswana Meat Commission (BMC)

Issue: The BMC, once a pillar of the livestock economy, has become financially unviable and operationally inefficient, losing over BWP 1.5 billion between 2020 and 2022 and operating below capacity.

Botswana Meat Corporation Performance 2020 to 2024

Year	Estimated Slaughter Volume	Export Value (USD)	Estimated Financial Loss (BWP)	Notes
2020	~100,000 cattle	~$19.5 million	~BWP 300 million	Impacted by COVID-19 disruptions.
2021	~90,000 cattle	~$14.6 million	~BWP 350 million	Decline in exports due to market access issues.
2022	~80,000 cattle	~$12 million	BWP 1.549 billion (accumulated)	Significant losses; technical insolvency reported.
2023	~85,000 cattle	~$15 million	~BWP 200 million	Implementation of MERITING 2022/25 turnaround strategy.
2024	~90,000 cattle (projected)	~$17 million (projected)	~BWP 100 million (projected)	Expected improvement due to new market access and operational efficiencies.

Problem: State ownership has hindered BMC's flexibility, responsiveness to market forces, and ability to attract investment. This has led to poor returns for farmers, declining slaughter volumes, market access problems, and eroded competitiveness in export markets.

Slaughter Volumes: There has been a general decline in slaughter volumes from 2020 to 2022, with a slight recovery projected in 2024.

Export Values: Export values have fluctuated, with a notable decrease in 2021, partially recovering in subsequent years.

Financial Losses: The BMC reported an accumulated loss of BWP 1.549 billion by the end of 2022. However, the implementation of the MERITING 2022/25 strategy has begun to show positive effects, with projected reductions in losses for 2023 and 2024.

Objective: To restructure BMC into a modern, efficient, and commercially sustainable meat industry player through phased privatisation and improved governance, thereby increasing returns to farmers and restoring sector confidence.

Policy Statement: The Government will undertake a phased restructuring and partial privatisation of BMC to improve its operational efficiency, financial sustainability, and market performance, while safeguarding national food security and farmer interests.

Implementation Strategy:

- Conduct an independent forensic and market viability audit of BMC.
- Unbundle BMC into distinct entities (processing, marketing, export logistics) to allow targeted investment and management.
- Establish a regulatory framework for fair competition and quality control post-privatisation.
- Offer strategic equity to local commercial farmers, farmer cooperatives, and international partners with market access.
- Maintain partial government shareholding in the short term to protect public interest during the transition.
- Create a Livestock Sector Adjustment Fund to support affected farmers and workers.

Timeline:

- **Short-term (Year 1):** Audit, stakeholder consultations, legal reforms.
- **Medium-term (Years 2–3):** Operational unbundling, initial private investment rounds.
- **Long-term (Years 4–5):** Full commercialisation, performance monitoring, and regulatory transfer.



15.17 Access to Credit for Pastoralists

Issue:
Access to credit is a major barrier for pastoralists in developing their businesses and improving their livestock management. Many pastoralists struggle to secure loans due to the lack of collateral and high-interest rates. This limits their ability to invest in essential inputs such as feed, veterinary services, and breeding stock, thus hindering their overall productivity and profitability.

Specific Problem:
The inability to access affordable financing, especially for those without collateral, hampers the growth potential of pastoral farmers.

Policy Objective:
The policy aims to improve access to finance for pastoralists by introducing collateral-free loans and microfinance options, while also negotiating lower interest rates for loans.

Policy Statement:
The government will introduce collateral-free loans and microfinance options for pastoralists, along with advocating for lower interest rates on pastoral loans.

Implementation Strategy:

- Partner with microfinance institutions and commercial banks to offer collateral-free loan products.
- Negotiate with financial institutions to lower interest rates for pastoral loans.
- Establish government-backed loan guarantee programs for small-scale pastoralists.
- Provide financial literacy programs to help pastoralists manage and repay loans effectively.
- Set up financial advisory services to guide pastoralists on loan applications and repayment terms.

Time Frame: Short term (1–2 years)

15.18 Improving Profitability and Cash Flow

Issue:
Pastoralists often struggle with low profitability due to inefficient livestock management practices and poor cash flow from their activities. This is compounded by a lack of proper financial management practices, such as bookkeeping, which further limits their ability to plan for growth or manage their resources effectively.

Specific Problem:
Low profitability and poor cash flow management prevent pastoralists from scaling up their operations and achieving financial sustainability.

Policy Objective:
The policy seeks to increase profitability and improve cash flow management for pastoralists by implementing training programs on efficient livestock management and financial literacy.

Policy Statement:
The government will implement training programs aimed at improving livestock management practices and promote financial literacy among pastoralists to improve cash flow and profitability.

Implementation Strategy

- Provide extension services to train pastoralists on best practices in livestock management.
- Offer workshops and training on financial management, budgeting, and bookkeeping.
- Develop mobile applications to assist pastoralists with simple financial record-keeping.
- Set up financial management workshops in partnership with local banks and NGOs.
- Facilitate access to affordable financial planning tools for small-scale pastoralists.

Time Frame: Short term (1–2 years)

15.19 Financial Products for Risk Mitigation

Issue:
Pastoralists face significant risks due to climate-related shocks, diseases, and natural disasters such as droughts. The lack of financial products designed to mitigate these risks leaves pastoralists vulnerable to these unpredictable events, often leading to substantial financial losses and asset depletion.

Specific Problem:
Without adequate financial products tailored to risk mitigation, pastoralists are unable to safeguard their livelihoods from the negative impacts of droughts, disease outbreaks, and other emergencies.

Policy Objective:
The policy seeks to introduce financial products that mitigate risks faced by pastoralists, including drought and disease insurance.

Policy Statement:
The government will collaborate with financial institutions and insurance providers to develop and promote financial products designed to mitigate the risks of drought and disease for pastoralists.

Implementation Strategy

- Develop insurance products that cover losses due to drought and disease outbreaks.
- Facilitate partnerships between pastoralists and insurance companies to offer affordable insurance premiums.
- Introduce emergency relief funds for pastoralists affected by natural disasters or disease outbreaks.
- Offer training programs to educate pastoralists on available risk management products and strategies.

- Set up partnerships between the government, financial institutions, and private sector to co-create insurance models tailored to pastoral farming.

Time Frame: Medium term (3–5 years)

15.20 Emergency Funds for Livestock Farmers

Issue:
Pastoralists often face unforeseen financial crises caused by emergencies such as disease outbreaks, drought, or market crashes. However, there are insufficient emergency funding mechanisms to support pastoralists in these situations, making recovery slow and difficult.

Specific Problem:
Without access to emergency funds, pastoralists are unable to quickly recover from unforeseen crises, which leads to long-term financial instability.

Policy Objective:
The policy aims to provide emergency funding mechanisms for pastoralists in times of crisis, enabling quick recovery and reducing the long-term financial impact of disasters.

Policy Statement:
The government will set up and maintain a ring-fenced emergency fund for pastoralists, with specific focus on crisis recovery and disaster response.

Implementation Strategy

- Establish a government-led emergency fund for pastoralists affected by disasters.
- Set up criteria for accessing the emergency fund, ensuring transparency and efficiency.
- Partner with insurance companies to create a quick-claim system for pastoralists during emergencies.
- Promote awareness about the availability of emergency funds and educate pastoralists on how to access them.
- Collaborate with NGOs to enhance the capacity of emergency response systems for pastoralists.

Time Frame: Medium term (3–5 years)

16 Agrisector Horticulture Policies

“Increasing variety – improving nutrition”



16.1 Introduction to the Botswana Horticulture Subsector Policy

Botswana’s horticulture subsector represents an emerging frontier in agricultural diversification, food security enhancement, and rural employment generation. While the nation has historically focused on livestock and staple crops, increasing food imports, a changing climate, and rising youth unemployment necessitate a deliberate pivot toward high-value, short-cycle crops such as vegetables, fruits, herbs, and nuts.

At present, Botswana produces less than 20% of its horticultural needs, resulting in a significant import bill, especially from South Africa. Yet, the country has comparative advantages in certain areas—abundant sunshine, off-season timing for regional exports, and proximity to premium markets. Despite low and variable rainfall, innovations such as protected farming (greenhouses, tunnels), micro-irrigation, and climate-smart technologies have made commercial horticulture increasingly viable.

This policy seeks to establish horticulture as a dynamic, commercially attractive, and sustainable component of the national agricultural economy. It aims to improve local production capacity, reduce import dependence, create jobs, especially for youth and women, and stimulate agro-processing and exports. Key policy focus areas include infrastructure development (irrigation, cold chains, packhouses), farmer support services, access to finance and markets, and research and innovation in crop selection and pest management.

Horticulture also provides a critical entry point for smallholders into markets, with potential to link production with school feeding schemes, supermarkets, tourism, and regional export opportunities. Moreover, as water becomes scarcer, crops with high water productivity and returns per hectare will be prioritized.

The Ministry of Lands and Agriculture will oversee the implementation of a National Horticulture Development Plan, anchored in five-year strategies, renewable annually, and integrated into broader sector and climate resilience plans.

16.2 Frut Tree Crop Policy



Issue: Botswana has significant untapped potential for growing high-value fruit crops like avocado, citrus, and other drought-tolerant fruits, but the sector remains underdeveloped.

Problem: Despite suitable agro-ecological zones and growing domestic and regional demand, the fruit industry suffers from inadequate technical knowledge, limited investment, absence of nurseries, and lack of cold chain infrastructure. Current imports of fruits exceed P250 million annually.

Objective: To promote the production of climate-resilient fruit tree crops for domestic consumption, nutrition improvement, income generation, and potential exports.

Policy Statement: The government will promote strategic investment in avocado, citrus, pomegranate, fig, guava, and other fruits through nursery development, extension support, water-efficient irrigation, and market access.

Implementation Strategy:

- Identify and zone suitable areas for various fruit crops (e.g. Okavango, Tuli Block, Bobirwa).
- Establish certified nurseries and introduce improved varieties adapted to Botswana's climate.

- Provide technical training on orchard management, pest control, and pruning.
- Offer start-up support (seedlings, fencing, drip kits) to qualified farmers.
- Facilitate partnerships with regional fruit processors and supermarket chains.
- Develop a National Fruit Industry Development Plan with targets for hectares planted and tonnes produced.
- Integrate fruit farming into school feeding programs and local nutrition policies.
- Promote agroforestry models combining fruit trees with legumes and fodder crops.

Time Frame:

- Pilot phase: 2025–2026 (nurseries, farmer selection, training)
- Expansion phase: 2027–2029 (commercial orchard development, value chain creation)
- Review and scale-up: 2030 onward

16.3 Seedling and Plant Propagation Systems

Issue: The horticulture sector faces a shortage of quality seedlings, which affects productivity and the quality of produce. A reliance on imported seeds hampers the development of a sustainable local seed industry.

Objective: To improve the availability of certified planting material and strengthen local seed production.

Policy Statement: The government will establish national and private nurseries while supporting seed research programs to reduce dependency on imports.



Implementation Strategy:

- Establish public and private nurseries with support for training and funding.
- Foster partnerships between research institutions and local seed producers.

- Promote research into locally suitable seed varieties for various horticultural crops.
- Support the creation of an efficient distribution network for locally produced seedlings.

Time Frame: Short to medium term (2–4 years)

16.4 Adoption of Protected Agriculture

Issue: Protected horticulture, also known as protected cultivation or polyhouse farming, involves growing crops in a controlled environment to mitigate adverse weather conditions and enhance productivity. This is achieved through structures like greenhouses, polyhouses, insect-proof net houses, or shade houses, which offer varying degrees of environmental control. The issue is how to extend their use in Botswana to create an optimal growing environment for crops, leading to higher yields and better-quality produce.

Problem: Horticultural farming is vulnerable to climate shocks such as heatwaves, pest infestations, and drought, which affects yield consistency. Limited technical skills in controlled environment farming hinder adoption of greenhouse and shade-net technologies.

Objective: To expand the use of greenhouse and shade-net farming systems to mitigate climate risks and build horticultural technical expertise.

Policy Statement: The policy will support the construction of protected structures (greenhouses, shade nets) and offer specialized training to enhance skills in controlled environment farming.



Implementation Strategy:

- Provide grants and financing support for constructing greenhouses and shade nets.
- Set up horticultural centres of excellence for technical training and certification.
- Develop partnerships with private sector players for knowledge exchange and technology transfer.
- Establish demonstration projects for farmers to experience the benefits of protected farming.

Time Frame: Short to medium term (2–4 years)

16.5 Irrigation and Fertigation Systems

Issue: Irrigation is the artificial watering of land to support plant growth. Fertigation is the application of fertilizers through an irrigation system. Essentially, it combines water delivery with nutrient application, making it a more efficient way to manage both resources.

Problem Overuse of water resources and high costs associated with modern irrigation technologies are major concerns for horticultural farmers.

Objective: To promote water-smart horticulture and reduce the cost of irrigation systems through innovation.

Policy Statement: The policy will encourage the adoption of drip irrigation and fertigation technologies and incentivize the local manufacture and importation of affordable irrigation kits.

LEA Fertigation and Training



Implementation Strategy:

- Subsidize the installation of drip irrigation systems and fertigation technologies.
- Create demonstration projects to showcase the benefits of water-efficient irrigation.
- Collaborate with private sector players to reduce the cost of irrigation kits.
- Provide technical training to farmers on the installation and management of water-smart systems.

Time Frame: Short to medium term (2–4 years)

16.6 Phytosanitary Controls

Issue:
Botswana's expanding agricultural trade and regional integration are constrained by insufficient phytosanitary systems, which poses risks to crop health, food security, and market access.

Problem:
Pests and plant diseases such as fall armyworm, fruit flies, and Tuta absoluta have caused significant crop losses across Botswana. The country's capacity to inspect, monitor, and certify plant products for domestic and export markets remains limited. The **Plant Protection Act (2009)** provides a legal basis, but enforcement, staffing, and diagnostic infrastructure are weak. According to the Department of Crop Production, crop yield losses due to pests exceed **30% annually in vulnerable districts**, while rejection of fresh produce at export points due to phytosanitary non-compliance remains a persistent problem. These challenges threaten the success of horticulture expansion, seed multiplication schemes, and the development of export markets for high-value crops.

Objective:
To protect Botswana's crops, plant biodiversity, and export credibility by strengthening phytosanitary inspection, diagnostic capacity, and international compliance.

Policy Statement:
The Government will upgrade national phytosanitary systems in alignment with the International Plant Protection Convention (IPPC) and SADC Plant Health Protocol.

Implementation Strategy:

- Strengthen institutional capacity for pest surveillance, border controls, and field diagnostics.
- Invest in mobile labs and training for quarantine and inspection officers.
- Establish pest risk analysis (PRA) protocols and early warning systems.
- Digitise phytosanitary certification and align with ePhyto standards.
- Partner with regional labs and research institutions for rapid response mechanisms.

16.7 High Capital Costs for Horticulture Farming

Issue: Diversifying and investing in horticulture in Botswana can be achieved through government initiatives like the Horticulture Impact Accelerator Subsidy (IAS) program, which provides funding for farming packages. The government also supports the sector through programs like the Special Integrated Support Programme for Arable Agriculture Development (ISPAAD). Horticulture is a priority area for agricultural diversification and employment creation in Botswana, with a focus on value chain development.

Problem: The initial cost of setting up horticultural farms, including greenhouse systems and irrigation, is high, making it difficult for small-scale farmers to enter the sector.

Objective: To provide affordable financing for horticultural farms, particularly for greenhouse and irrigation setups.

Policy Statement: The government appreciates that the horticulture sub-sector is underdeveloped and will work with financial institutions to develop targeted loan products and subsidies for horticultural farmers.

Implementation Strategy:

- Partner with commercial banks, NGOs, and financial institutions to develop loan products tailored to horticulture.
- Offer subsidies for the purchase of greenhouse systems, seeds, and irrigation equipment.
- Establish government-backed financing programs with low-interest rates for small-scale farmers.
- Create financial literacy programs to help farmers better manage loan products and credit access.

Time Frame: Medium term (3–5 years)

16.8 Access to Insurance

Issue: Agricultural insurance can protect horticulture crops, offering financial security against various risks like fire, lightning, floods, windstorms, hail, and uncontrollable pests, locusts and diseases. Some policies also include coverage for frost, with options for additional frost protection.

Problem. Horticultural farmers face significant financial risks due to weather events, pest outbreaks, and other uncontrollable factors. The lack of access to affordable crop and pest insurance products makes it difficult for farmers to recover from losses.

Objective: To increase access to crop insurance and promote the use of insurance products among horticultural farmers.

Policy Statement: The government appreciates its role in enabling diversification in agriculture and will collaborate with insurance companies to develop affordable crop and pest insurance packages, and will run awareness campaigns to encourage their adoption.

Implementation Strategy:

- Develop tailored crop and pest insurance products in collaboration with insurance companies.
- Implement government-funded educational programs to raise awareness about the importance of crop insurance.
- Establish partnerships with international insurance firms to introduce globally recognized insurance standards.
- Facilitate insurance subsidies for small-scale farmers to lower the entry cost for insurance.

Time Frame: Medium term (3–5 years)

17 AgriSubsector Forestry Policies

“Sustainable forestry - improving rural livelihoods”



17.1 Introduction Forestry Sub-Sector Policies

Forestry in Botswana remains an underdeveloped sub-sector, despite the country's vast woodland resources and the ecological and economic potential they hold. The new focus within the Botswana Agriculture Policy aims to lay the groundwork for a formal, sustainable, and productive forestry sub-sector—one that contributes to rural development, environmental resilience, and the diversification of the national economy.

Botswana’s forests and woodlands, although largely unmanaged, provide critical ecosystem services such as carbon sequestration, soil protection, and water regulation. They are also a source of fuelwood, medicinal plants, and wild foods for rural populations. However, due to limited institutional support, lack of regulation, and overreliance on natural harvesting, these resources are increasingly vulnerable to degradation.

This policy initiative marks a strategic shift toward structured forestry development, including the promotion of agroforestry, community woodlots, commercial plantations, and ecosystem restoration. It encourages inclusive stakeholder participation, investment in forestry research, and capacity building at all levels—from smallholder farmers to district planning authorities.

By establishing a clear framework and setting ambitious but realistic targets, Botswana intends to develop a forestry sub-sector that not only safeguards natural resources but also creates jobs, supports climate adaptation, and strengthens national food and energy security.

17.2 Adoption of Modern Forestry Techniques

Issue: Forestry in Botswana is a relatively undeveloped sector, despite the country having substantial woodland and scrub cover. While forests provide essential resources for rural populations and offer potential for economic diversification, effective management and protection have been limited. The country is working towards implementing a forestry subsector policy and exploring the potential of forestry for diversifying its economy, particularly in light of its reliance on diamond mining, a non-renewable resource

Problem: Inefficient harvesting methods and outdated forest management practices are widespread in many regions, leading to unsustainable forestry operations and long-term degradation of forest ecosystems. This inefficiency manifests in overharvesting, poor forest regeneration, and degraded soil health.

Objective: The aim is to modernize forestry operations by promoting sustainable harvesting practices and the integration of digital technologies for efficient forest management.

Policy Statement: The government will promote the gradual replacement of informal logging with agroforestry to diversify the sector and boost local incomes. By gradually introducing these practices across the industry, the government expects a significant shift towards more sustainable forest management, reducing environmental degradation and increasing forest regeneration.

Implementation Strategy

- Implementation will begin with training programs that focus on teaching sustainable logging practices and agroforestry techniques.
- Forestry cooperatives will be established to provide support, share knowledge, and pool resources for effective forestry management.
- In parallel, satellite-based forest monitoring systems and GIS tools will be deployed to track forest health and logging activities. These technologies will enable real-time decision-making and reduce illegal logging by improving oversight.

Time Frame: Medium-term (3–5 years) – This is a moderate timeline as it involves significant training, technology integration, and system development.

17.3 Deforestation and Land Degradation

Issue: Botswana faces significant deforestation and land degradation through poor rangeland management, with approximately 46% of the country's land being degraded. Unsustainable practices like overgrazing, fuelwood harvesting, and expansion of agriculture are primary drivers, leading to soil erosion, desertification, and reduced biodiversity. The annual cost of land degradation is estimated at USD 353 million, impacting the country's GDP and well-being.

Problem: Uncontrolled forest exploitation, coupled with inadequate land restoration practices, results in deforestation and soil degradation, contributing to ecosystem imbalances and climate change. Often, forested areas are cleared for agricultural purposes or urban development without considering long-term environmental impacts.



Objective: The goal is to curb forest exploitation , promote sustainable wood harvesting, and restore land through reforestation and soil rehabilitation efforts.

Policy Statement: The government will focus on strengthening forest law enforcement, initiating national reforestation campaigns, and supporting land restoration projects to curb the ongoing deforestation crisis. The adoption of best practices in sustainable land use will be prioritized.

Implementation Strategy:

- Strengthening enforcement mechanisms will involve increasing forest ranger patrols and using satellite surveillance to monitor logging activities.
- Public awareness campaigns will be held to educate local communities on sustainable forest management. National reforestation campaigns, backed by incentives such as tax breaks or subsidies for replanting, will be rolled out, especially in areas affected by extensive deforestation.
- The government will also promote the use of agroforestry and improved land management practices to prevent soil erosion and fertility loss, thereby stabilizing the land for future forest regeneration.
- Collaboration with local communities and NGOs will be integral to the success of these efforts.

Time Frame: Short to medium term (1–5 years) – Immediate enforcement measures can be initiated in the short term, while long-term reforestation efforts may span several years.

17.4 Forest Product Value Addition

Issue: In Botswana, value addition to forest products, particularly non-timber forest resources (NTF), is a key area for economic development and poverty reduction. This involves processing and transforming raw materials into higher-value products like food, beverages, crafts, and building materials. By adding value, Botswana can increase the income generated from its forest resources and diversify its economy beyond traditional reliance on mining and livestock.

Problem: The forest industry often relies heavily on raw timber sales with little emphasis on processing or adding value. This limits the economic potential of the forestry sector, resulting in the loss of potential jobs and revenue from higher-value forest products. Non-timber forest products (NTFPs) are also underutilized, despite their economic and cultural importance.

Objective: The goal is to diversify forest-based industries by promoting value-added products and increasing the use of NTFPs, which would create new markets, boost rural economies, and reduce pressure on timber resources. This approach will not only expand forest industries but also create new employment opportunities in rural areas. The government will work with industry stakeholders to build value chains for products such as essential oils, mushrooms, medicinal plants, and organic materials.

Policy Statement: The government will prioritize the development of local wood processing industries, including sawmills, biofuel plants, and other value-added facilities. Simultaneously, the collection and processing of NTFPs will be encouraged, diversifying the forestry economy and creating sustainable livelihoods for communities.

Implementation Strategy:

- Invest in the construction of sawmills, pellet plants, and biofuel facilities, supported by grants and technical assistance.
- Training programs aimed at enhancing skills in value-added wood product manufacturing.
- NTFPs will be promoted through research and development initiatives, with a focus on sustainable harvesting and processing techniques.

Time Frame: Medium term (3–5 years) – Building infrastructure and training personnel will require several years of planning and implementation.

17.5 Forest Health Management and Pest Control

Issue: In Botswana, forest health management and pest control should be integrated into a broader approach to sustainable forestry and environmental conservation. Pest control services should be available to land owners experiencing pest infestations in their holdings through local authorities.

Problem: Pests and diseases pose significant threats to forest ecosystems, resulting in reduced biodiversity, weakened forest structure, and compromised ecosystem services. The lack of effective pest management and early warning systems exacerbates these issues, leading to widespread outbreaks and deforestation.

Objective: The policy aims to prevent pest outbreaks through the development of pest-resistant tree breeds and the introduction of integrated pest management (IPM) strategies.

Policy Statement: The government will promote research into pest-resistant tree species and set up early warning systems to detect and manage pest outbreaks before they cause significant damage. Integrated pest management techniques will be implemented to

ensure sustainable pest control while minimizing environmental harm.

Implementation Strategy:

- Fund research into the development of pest-resistant tree breeds, which can better withstand pest infestations and reduce the need for chemical interventions.
- Early warning systems will be established, using technologies such as satellite surveillance, drones, and sensors to detect early signs of pest and disease outbreaks.
- Introduce IPM techniques, which combine biological control, cultural practices, and chemical alternatives to reduce the reliance on harmful pesticides.
- Extension services will be set up to train forest managers and communities on these techniques, ensuring effective and sustainable pest control.

Time Frame: Medium term (3–5 years) – Research and technological integration will take several years to become operational.

17.6 Forest Data Collection and Monitoring Systems

Issue: BOTSAT-1, Botswana's first national satellite, is poised to revolutionize rangeland and forest data collection and monitoring. It will utilize a hyperspectral camera to provide essential data for environmental monitoring, including forestry, and support sectors like mining and agriculture. This data will be crucial for managing forests, tracking deforestation, and ensuring sustainable practices, particularly with Botswana's commitment to international treaties like SADC REDD+.

Issue: Accurate and timely data on forest conditions, including carbon stocks and forest health, is lacking in many countries. This hampers effective forest management, as well as the ability to engage in carbon credit schemes or implement long-term conservation strategies.

Objective: The policy seeks to improve forest data collection and analysis, creating a more transparent, data-driven approach to forest management and conservation.

Policy Statement: The government will establish a national forest monitoring system, using modern technologies like GIS, drones, and satellite imagery to gather real-time data on forest conditions. In addition, a forest carbon registry will be developed to track carbon stocks and facilitate participation in carbon markets.

Implementation Strategy:

- Work with international partners to establish a national forest monitoring system that uses satellite imagery, drones, and GIS to track deforestation, forest health, and carbon stocks.

- Set up a forest carbon registry to store data on carbon stocks and facilitate the development of carbon credit programs.

- Work closely with local and international organizations to ensure that forest data is accurate and regularly updated. Training programs for forest managers and other

stakeholders will ensure that the data is used effectively for decision-making.

Time Frame: Medium term (3–5 years) – Setting up monitoring systems and data collection infrastructure will take a few years, particularly in remote areas.

17.7 Funding Forest Conservation through Carbon Credits

Issue: Forest conservation can be funded through the carbon credit market by selling carbon offsets generated from projects like reforestation, improved forest management, and avoided deforestation. These carbon credits, representing verified emission reductions, are purchased by companies and individuals to offset their carbon footprints, providing a financial incentive for forest conservation efforts. However, there are ongoing debates about the effectiveness and integrity of some carbon credit programs, particularly those related to forest conservation.

Potential Value of Carbon Credit in Botswana

Vegetation Type	Area (km^2)	Carbon Sequestration (tCO_2e/km^2/year)	Total Carbon Sequestered (tCO_2e/year)	Value of Carbon Sequestration (EUR/year)	Value of Carbon Sequestration (Pula/year)
Mopane Woodland	120,000	5	600,000	€ 51,000,000	714,000,000
Mixed Bushveld	180,000	6	1,080,000	€ 91,800,000	1,285,200,000
Shrubland (Arid & Semi-arid)	100,000	2.5	250,000	€ 21,250,000	297,500,000
Grassland (Savanna and Open)	90,000	3	270,000	€ 22,950,000	321,300,000
Forest Reserves (Protected areas)	13,000	10	130,000	€ 11,050,000	154,700,000
Riverine/Seasonal Wetlands	15,000	7	105,000	€ 8,925,000	124,950,000
Salt Pans and Bare Land	40,000	0.1	4,000	€ 340,000	4,760,000
Agricultural Land (Cropland)	20,000	1	20,000	€ 1,700,000	23,800,000
Urban and Other Developed Areas	2,000	0	0	€ 0	0
Total	**580,000**		**2,459,000**	**€ 209,015,000**	2,926,210,000

Problem: Limited financial resources are allocated to rangeland management and forest conservation and management, making it difficult to implement long-term strategies for sustainability. Reforestation projects also face high upfront costs, deterring private investment and international partnerships.

Objective: The goal is to increase investment in sustainable forestry practices and develop funding mechanisms for reforestation projects.

Policy Statement: The government will set up conservation funds, by attracting carbon credits as well as attract private investments, and offer incentives for sustainable forestry practices and reforestation efforts.

Implementation Strategy:

- Adopt a carbon credit trading policy, prepare concomitant regulations and set up appropriate governing bodies to oversee the carbon credit trading market in Botswana.
- Establish a national conservation fund, drawing on contributions from carbon credits, public and private sectors, as well as international donors.
- Tax incentives, grants, and subsidies will be provided to encourage businesses to invest in sustainable forestry and reforestation.
- Support reforestation projects, the government will work with international environmental organizations to secure co-financing and technical support. Public-

private partnerships will be explored to ensure financial sustainability.

Time Frame: Medium term (1–5 years) – Funding mechanisms and partnerships take time to establish, particularly in building relationships with international donors.

17.8 Lack of Access to Credit for Forestry Businesses

Issue: Funding for forestry businesses in Botswana can be obtained through government grants, loans, and private investment opportunities. The Ministry of Investment, Trade, and Industry, through its parastatals like Local Enterprise Authority (LEA) and Citizen Entrepreneurial Development Agency (CEDA), facilitates entrepreneurship in this sector. Additionally, the Botswana Innovation Fund (BIF) provides grants for innovative solutions addressing national challenges, including those in the forestry sector. Private sector funding, such as angel investment and venture capital, also plays a role in supporting early-stage and growing forestry businesses.

Problem: Many small forestry businesses struggle to access credit due to the perceived risks associated with forest enterprises. This limits their growth potential and ability to participate in the formal market.

Objective: The objective is to improve access to finance for small and medium-sized forestry businesses by offering tailored loans and creating microfinance opportunities.

Policy Statement: The government will create financing products specifically designed for forestry businesses and work with microfinance institutions to offer affordable loans to small enterprises.

Implementation Strategy:

- Develop loan products with favourable terms for forestry businesses, particularly small and medium-sized enterprises.
- Collaborate with microfinance institutions and commercial banks will be key to ensuring that financing options are accessible and affordable.
- Introduce loan guarantee schemes to reduce the risk for lenders, making it easier for forestry businesses to secure credit.
- Financial literacy programs will be offered to forestry business owners to help them manage their finances and navigate the loan application process.

Time Frame: Short to medium term (2–4 years) – This policy can be implemented quickly, with the development of financial products and partnerships taking a couple of years.

17.9 Low Profitability in Forest-Based Industries

Issue: Many forest-based industries remain underdeveloped, and the profitability of forestry enterprises is low due to inefficiencies in forest management and a lack of value-added products.

Objective: To increase profitability in the forestry sector by supporting the development of value-added products and enhancing the efficiency of forest management practices.

Policy Statement: The government will promote the development of value-added products from timber and non-timber forest products, as well as improve forest management efficiency through training and technology adoption.

Implementation Strategy:

- Establish grants and incentives for the development of wood processing units, such as sawmills and biofuel plants.
- Support will also be given to the non-timber forest product sector, including medicinal herbs, mushrooms, and handicrafts, to diversify forest-based industries.
- Training programs on efficient forest management practices will be rolled out to improve profitability and sustainability.
- Collaborate with private sector stakeholders to build stronger forest-based value chains.

Time Frame: Medium term (3–5 years) – Developing new products and technologies will require medium-term investment and planning.

18 Agrisubsector Aquaculture

“Developing fish-farming to its full potential”



18.1 Introduction

Aquaculture in Botswana is a growing sector focused on fish farming, aiming to diversify the economy, improve livelihoods, and contribute to food security. The government actively promotes aquaculture development by establishing divisions and facilities like the Mmadinare Fish Hatchery. While still in its early stages, the industry has the potential to significantly impact national food security and economic development.

18.2 Improving Water Quality Management in Aquaculture Systems

Issue: One of the critical challenges facing the aquaculture sector is poor water quality management. Many aquaculture farms use outdated or inefficient water management practices, which lead to poor water quality. This results in increased fish mortality, the spread of diseases, and reduced productivity. Furthermore, inefficient water use can have negative environmental impacts, including pollution and habitat degradation. Effective water quality management is essential to ensuring the sustainability and profitability of aquaculture farms.

Problem:
Aquaculture farms often rely on open systems that use large quantities of water, with little to no filtration. As fish are raised in these conditions, the water becomes polluted with waste, excess feed, and chemicals. These poor water conditions lead to increased disease outbreaks, which can devastate fish populations. Additionally, there is a lack of knowledge about how to effectively manage water quality, leading to the inefficient use of resources and increased operational costs for farmers.

Objective:
The objective of this policy is to improve water quality management in aquaculture systems by

encouraging the adoption of sustainable technologies and practices, such as closed-loop and recirculating aquaculture systems (RAS), which are more efficient in water usage and less harmful to the environment.

Policy Statement:
The government will promote the adoption of sustainable aquaculture technologies, particularly closed-loop and recirculating aquaculture systems, to improve water quality management. These systems will help conserve water, reduce waste, and enhance fish health, contributing to more sustainable aquaculture practices.



Implementation Strategies:

- Provide subsidies and financial incentives for the adoption of closed-loop and recirculating aquaculture systems.
- Establish training programs to educate fish farmers on effective water management techniques.
- Promote research into improving water filtration and recycling technologies for aquaculture.
- Foster public-private partnerships to facilitate the introduction of sustainable water management technologies.
- Implement monitoring and evaluation systems to track the effectiveness of adopted water management systems.

Time Frame:
Medium term (3–5 years)

18.3 Promoting Sustainable Feed Practices in Aquaculture

Issue:
Aquaculture production relies heavily on fish feed, which often comprises wild-caught fish and unsustainable ingredients. The use of such feed contributes to the depletion of wild fish stocks

and creates environmental challenges, including the carbon footprint associated with feed production. Many aquaculture farmers lack knowledge of sustainable feed alternatives, leading to overreliance on traditional feed sources. This lack of sustainable practices in feed production can undermine the long-term sustainability of aquaculture as an industry.

Problem:
A significant issue in aquaculture is the lack of sustainable and eco-friendly feed practices. The fish feed industry continues to depend largely on marine-based ingredients, which are sourced from unsustainable fishing practices. The result is increased pressure on global fish stocks, unsustainable resource use, and higher feed costs. Additionally, small-scale aquaculture operators often lack access to alternative, sustainable feed options due to limited research, training, and infrastructure to support such practices.

Objective:
The objective of this policy is to promote the adoption of sustainable feed and nutrition practices in aquaculture by developing research and training programs focused on eco-friendly fish feed alternatives, and fostering public-private partnerships to encourage innovation in sustainable feed development.

Policy Statement:
The government will invest in the development and dissemination of sustainable feed practices in aquaculture, prioritizing research into alternative feed sources and fostering partnerships to ensure the availability of eco-friendly feed options. Through education and innovation, the policy will reduce reliance on wild-caught fish and decrease the ecological footprint of aquaculture operations.

Strategies:

- Fund research into sustainable feed alternatives, such as plant-based or insect-based feeds, and their nutritional benefits.
- Create training programs to educate fish farmers on sustainable feed options and their impact on farm productivity.
- Establish public-private partnerships to facilitate the development of affordable, eco-friendly feed sources.
- Introduce incentives for companies that produce sustainable feed to increase market penetration and availability.
- Promote awareness campaigns to highlight the environmental benefits of sustainable feed practices in aquaculture.

Time Frame:
Medium term (3–5 years)

18.4 Enhancing Fish Breeding Systems and Technology

Issue:
Aquaculture practices often depend on wild-caught fish for breeding, which can lead to a decline in wild fish populations and genetic bottlenecks in farmed stocks. Limited development and adoption of modern breeding technologies hinder the growth of aquaculture, reducing the ability to meet market demands for healthy, sustainable fish production.

Problem:
The over-reliance on wild-caught fish for breeding purposes, combined with a lack of advanced breeding techniques, limits the capacity for aquaculture to scale efficiently and sustainably. Additionally, the quality of stocked fish, including their genetic diversity, is often suboptimal, leading to lower yields and increased susceptibility to diseases.

Objective:
This policy aims to enhance the quality and efficiency of aquaculture breeding systems by investing in selective breeding and hatchery development, ensuring better genetic stock, improved productivity, and sustainable aquaculture growth.

Policy Statement:
The government will prioritize the development of selective breeding programs and hatcheries, aiming to improve the genetic quality of farmed fish. Investments in advanced breeding technologies and infrastructure will be essential to reduce the need for wild-caught broodstock and support a sustainable aquaculture industry.

Strategies:

- Establish government-funded research programs to advance selective breeding methods and improve fish genetics.
- Support the development of hatcheries to ensure a steady supply of high-quality fingerlings for farmers.
- Provide training and capacity-building programs for fish farmers to adopt best practices in breeding and stocking.
- Foster public-private partnerships to introduce advanced breeding technologies in aquaculture.
- Encourage the private sector to invest in high-tech fish breeding infrastructure through tax incentives.

Time Frame:
Short to medium term (2–4 years)

18.5 Improving Fish Health Management Systems

Issue:
Fish farms are often susceptible to disease outbreaks, which can lead to significant economic losses and pose risks to fish populations. The lack of robust fish health management systems and limited veterinary expertise in aquaculture exacerbate these challenges, leading to poor health outcomes for farmed fish and heightened production costs.

Problem:
The absence of comprehensive fish health management systems results in inadequate surveillance, early detection of diseases, and improper management of fish health on farms. Additionally, the lack of specialized veterinary expertise in aquaculture weakens efforts to prevent and control outbreaks of diseases, compromising the productivity and sustainability of aquaculture.

Objective:
This policy aims to strengthen fish health management systems by enhancing surveillance, disease control, and veterinary expertise in aquaculture, thereby improving the resilience of fish farming operations.

Policy Statement:
The government will invest in fish health surveillance systems and promote veterinary training tailored to aquaculture. By enhancing early detection and control mechanisms, the policy seeks to reduce the incidence of disease outbreaks and improve the overall health of farmed fish, ensuring long-term sustainability for aquaculture.

Implementing Strategies:

- Develop fish health training programs for farmers and veterinarians focused on disease prevention, detection, and management.
- Establish a national fish health surveillance system to monitor and manage disease risks in aquaculture.
- Introduce public health campaigns aimed at educating aquaculture operators about common fish diseases and prevention measures.
- Collaborate with international experts and organizations to improve local veterinary practices in aquaculture.
- Provide financial incentives for the development of aquaculture-specific veterinary education programs.

Time Frame:
Short to medium term (2–4 years)

18.6 Expanding Aquaculture Infrastructure

Issue:
A lack of modern aquaculture facilities and supporting infrastructure, such as cold storage and transport systems, limits the growth of the industry. Inadequate facilities result in inefficiencies in fish farming, higher operational costs, and challenges in maintaining product quality, especially with perishable fish products.

Problem:
Without proper infrastructure, aquaculture operations face challenges in scaling up production and ensuring the quality and shelf-life of their products. Cold storage facilities and transport systems are critical for maintaining fish quality from farm to market, but many aquaculture farmers lack access to these essential resources.

Objective:
This policy aims to expand access to modern aquaculture infrastructure, including fish farming facilities and cold storage, to support industry growth and improve fish quality and supply chain efficiency.

Policy Statement:
The government will invest in the construction and upgrading of fish farming infrastructure, including cold storage and transportation systems. This policy will ensure

that aquaculture businesses have access to the facilities necessary for efficient production and market competitiveness.

Implementing Strategies:

- Provide subsidies and grants for building modern fish farming infrastructure, including water management and cold storage facilities.
- Develop policies to support zoning for fish farms in appropriate locations to optimize land use.
- Facilitate access to financing options for small and medium aquaculture enterprises to develop necessary infrastructure.
- Collaborate with private investors to build large-scale cold storage and transport networks for aquaculture products.
- Establish a national aquaculture infrastructure development fund to ensure long-term sustainability.

Time Frame:
Medium term (3–5 years)

18.7 Improving Market Access for Small-Scale Aquaculture Farmers

Issue:
Small-scale aquaculture farmers often face challenges in accessing market information, which limits their ability to sell their products at competitive prices. Poor market connectivity and inefficient distribution channels prevent small-scale farmers from realizing the full potential of their production, reducing their profitability.

Problem:
The lack of market access, transparency, and reliable pricing information hampers the ability of small-scale aquaculture farmers to enter new markets and grow their businesses. Without access to comprehensive market data, farmers are unable to make informed decisions about pricing and distribution.

Objective:
This policy aims to improve market access for small-scale aquaculture farmers by creating national and regional market information platforms that facilitate better pricing, distribution, and marketing.

Policy Statement:
The government will establish digital platforms and cooperative networks to support market access for small-scale fish farmers. These platforms will provide reliable pricing data, enhance supply chain transparency, and create opportunities for farmers to access both local and international markets.

Strategies:

- Develop a national fish market information platform to connect farmers with buyers and provide up-to-date market pricing and trends.

- Encourage the formation of cooperative networks among small-scale aquaculture farmers to strengthen bargaining power and streamline distribution.
- Partner with digital technology providers to create user-friendly tools for farmers to access market information.
- Offer technical support and training for small-scale farmers to improve their marketing strategies.
- Establish a marketing and distribution support fund to help small-scale farmers reach new markets.

Time Frame:
Short term (1–2 years)

18.8 Improving Competitiveness of Local Aquaculture Products

Issue:
Local aquaculture products often face stiff competition from international imports, which may be more affordable due to economies of scale or lower production costs. As a result, local aquaculture producers struggle to remain competitive in both domestic and international markets.

Problem:
The inability to compete with international products affects the profitability and sustainability of local aquaculture operations. Limited resources for improving quality, production efficiency, and marketing make it difficult for domestic producers to differentiate themselves in the marketplace.

Objective:
This policy aims to improve the competitiveness of local aquaculture products by offering incentives for quality improvement, production innovation, and product differentiation.

Policy Statement:
The government will introduce incentives for improving the quality and production efficiency of local aquaculture products. These incentives will focus on quality certification, product differentiation, and support for innovation to make local products more competitive in the market.

Implementing Strategies:

- Provide financial incentives for aquaculture businesses that achieve quality certifications and implement sustainable production practices.
- Establish quality assurance programs to ensure that local products meet international market standards.
- Offer support for research into innovative aquaculture practices that enhance product differentiation.
- Facilitate trade agreements and partnerships to open new export markets for locally produced aquaculture products.

- Promote branding and marketing campaigns that highlight the quality and sustainability of local aquaculture products.

Time Frame:
Medium term (3–5 years)

19 Hydroponics Industry

"Adopting water smart farming"



19.1 Introduction

Hydroponics is a method of growing plants without soil, using a nutrient-rich water solution. Instead of relying on soil, plants' roots are submerged in or suspended above the nutrient solution, providing them with the necessary elements for growth. This technique offers several advantages, including increased yields, efficient water usage, and controlled growing conditions. Hydroponics is ideal for water scarce countries like Botswana, using only 10% of the water of soil based growing systems. Hydroponics will be especially useful in growing green fodder for livestock all year round.

19.2 High Initial Capital Costs

Issue: The cost of establishing hydroponic systems remains a significant barrier to entry for most farmers in Botswana.

Problem: Smallholder farmers often lack the financial resources and access to credit needed to invest in hydroponic infrastructure, which typically requires substantial upfront capital for equipment, lighting, water systems, and controlled environments. Without support, the technology remains inaccessible to those who could benefit most from its water efficiency and year-round productivity.

Objective: To reduce financial barriers to entry and enable broader participation in hydroponic agriculture.

Policy Statement: The government supports water efficient food production systems and will subsidize hydroponic system investments and support access to affordable financing mechanisms to scale adoption, especially among smallholder farmers and youth.

Implementation Strategies:

- Provide targeted grants and low-interest loans for hydroponic startups.
- Partner with financial institutions to develop hydroponic-specific credit products.
- Offer tax breaks for hydroponic equipment manufacturers and suppliers.
- Promote cooperative models to pool resources for collective infrastructure.
- Establish public-private partnerships to lower technology access costs.

Time Frame: Short to medium term (2–4 years)

19.3 Knowledge and Training

Issue: There is a widespread lack of technical knowledge and practical experience in hydroponic agriculture across Botswana.

Problem: Many farmers, extension officers, and agricultural students are unfamiliar with the principles, systems, and maintenance requirements of hydroponic farming. This skills gap undermines adoption, reduces productivity, and increases the risk of failure for new entrants. Without targeted training, hydroponics will remain a niche practice.

Objective: To build a skilled workforce capable of operating and maintaining hydroponic systems across the country.

Policy Statement: The government will invest in technical training programs, curriculum development, and demonstration sites to mainstream hydroponic education and skill development.

Implementation Strategies:

- Establish dedicated hydroponics training centres in agricultural colleges.
- Integrate hydroponics modules into vocational and secondary school curricula.
- Support extension services with hydroponics-focused training.
- Fund farmer field schools and on-site demonstrations.
- Promote certification programs for hydroponic technicians and entrepreneurs.

Time Frame: Short term (1–2 years)

19.4 Water and Nutrient Management Challenge

Issue: Efficient water and nutrient use are critical to the sustainability and success of hydroponic systems, but many farmers struggle to manage these elements effectively.

Problem: Limited knowledge of nutrient formulation, pH balancing, and water recycling can result in waste, crop failure, or environmental harm. Without localized research and

standardization, many growers rely on imported inputs and generalized formulas that may not suit local crops or conditions.

Objective: To improve the efficiency and effectiveness of water and nutrient use in hydroponic farming.

Policy Statement: The government will promote optimized nutrient management and water-saving technologies in hydroponic systems through research, innovation, and capacity building.

Implementation Strategies:

- Fund local research into hydroponic nutrient solutions and water recycling.
- Develop national guidelines for nutrient management in hydroponics.
- Introduce drip irrigation and closed-loop systems in pilot projects.
- Provide training on water quality monitoring and nutrient dosing.
- Collaborate with universities and private sector to innovate eco-friendly systems.

Time Frame: Short to medium term (1–3 years)

19.5 Market Access and Commercialization

Issue: Despite the high quality of hydroponic produce, farmers face difficulty accessing consistent, profitable markets.

Problem: Weak supply chains, low consumer awareness, and limited integration with retail and export systems reduce the commercial viability of hydroponics. Many producers lack the scale or branding needed to penetrate supermarkets, restaurants, or export markets, making it difficult to sustain their operations.

Objective: To expand market access and improve the profitability of hydroponic agriculture.

Policy Statement: The government will strengthen market linkages, support value chain integration, and promote hydroponic produce as a high-quality, sustainable food option.

Implementation Strategies:

- Facilitate contracts between hydroponic farmers and supermarkets or hotels.
- Support the formation of cooperatives to improve bargaining power.
- Introduce quality labels or certification for hydroponic products.
- Conduct marketing campaigns to educate consumers.
- Create export facilitation programs for premium hydroponic produce.

Time Frame: Medium term (3–5 years)

19.6 Limited Research and Innovation

Issue: There is insufficient local research and innovation focused on adapting hydroponics to Botswana's unique climate and socio-economic context.

Problem: Most hydroponic systems are imported and designed for temperate regions, making them poorly suited to Botswana's semi-arid environment. The lack of localized design, testing, and innovation stifles potential efficiency gains and cost reductions.

Objective: To build a strong research and innovation ecosystem for hydroponic farming in Botswana.

Policy Statement: The government will support hydroponics-focused research, promote collaboration with international innovators, and incentivize the development of systems adapted to local needs.

Implementation Strategies:

- Establish hydroponics research centres at national agricultural institutions.
- Fund pilot projects testing indigenous solutions and local materials.
- Provide innovation grants to entrepreneurs in the agri-tech space.
- Partner with international research bodies and innovation hubs.
- Host annual hydroponics innovation challenges and exhibitions.

Time Frame: Medium term (3–5 years)

20 Cash Crops

"Cashing in on increasing demand for plant-based diets"



20.1 Introduction to Policies on Cash Crops

As Botswana seeks to diversify its economy and reduce dependence on mineral revenues, the development of a vibrant cash crop sector has become a strategic priority within the national agricultural policy framework. Recognizing the potential of high-value crops to generate

income, create employment, and stimulate agro-industrial development, government policy now actively supports the expansion of cash crop production across suitable agro-ecological zones.

Historically, Botswana's agricultural sector has been dominated by subsistence farming and livestock, with limited commercial crop production. However, changing climatic conditions, growing regional markets, and rising demand for crops such as groundnuts, sunflower, beans, horticultural produce, and niche exports like moringa and spices present new opportunities for farmers and agribusinesses.

20.2 Cash Crops in low rainfall countries

Issue: Botswana's reliance on traditional cereal farming under low rainfall conditions has resulted in low agricultural productivity and limited export earnings. There is significant untapped potential for cash crops in Botswana, as shown in the table.

Cash Crop	Suitability	Typical Yield (t/ha)	Cropping Density (plants/ha)	Market Price (BWP/ton)	Notes
Cowpeas	High	0.5 – 1.2	200,000 – 250,000	6,000 – 9,000	Drought-tolerant legume, enhances soil fertility.
Sorghum	High	0.8 – 2.0	140,000 – 180,000	2,700 – 3,800	Resilient staple crop, widely consumed locally.
Pearl Millet	High	0.6 – 1.5	130,000 – 160,000	3,000 – 4,200	Fast-maturing and heat-tolerant.
Mung Beans	Medium–High	0.7 – 1.5	300,000 – 350,000	9,000 – 12,000	Growing export interest, short growing period.
Sunflowers	Medium	1.0 – 2.5	50,000 – 65,000	5,000 – 7,000	Oil crop, moderate rainfall needs.
Sesame	Medium–High	0.4 – 1.0	200,000 – 300,000	12,000 – 18,000	Very high-value crop, export-ready.
Cotton	Medium	0.8 – 2.0	70,000 – 90,000	15,000 – 22,000	Market-dependent, needs ginneries and contract farming.
Hemp (Industrial)	Low–Medium	0.5 – 1.5	10,000 – 15,000	5,500 – 11,000	Emerging crop, regulatory framework needed.
Groundnuts	Medium	1.0 – 2.5	120,000 – 150,000	7,500 – 10,500	Widely consumed; needs shelling/handling infrastructure.
Pigeon Peas	High	0.7 – 1.5	100,000 – 120,000	6,000 – 9,000	Hardy, dual-purpose crop for food and soil improvement.
Bambara Groundnuts	High	0.6 – 1.0	100,000 – 150,000	4,500 – 7,500	Indigenous crop with rising niche demand.

Issue: Botswana's reliance on traditional cereal farming under low rainfall conditions has resulted in low agricultural productivity and limited export earnings. There is significant untapped potential for drought-tolerant cash crops suited to arid and semi-arid zones.

Problem: Current crop diversification is minimal. Farmers lack knowledge, inputs, and markets for high-value drought-resilient crops such as pulses, oilseeds, cotton, and sesame. Inadequate research, extension, and marketing support hinder development of a viable cash crop economy.

Objective: To promote a diversified, climate-smart cash crop sector in Botswana by increasing the production, processing, and marketing of high-value crops suited to low rainfall environments.

Policy Statement: The Ministry of Lands and Agriculture will lead the transformation of crop production through promotion of suitable cash crops, establishment of value chains, and support to farmers with inputs, extension, and market access, targeting increased incomes and exports.

Implementation Strategy

- Identify and zone districts suitable for priority cash crops (e.g., cowpeas, mung beans, sesame, cotton).
- Develop cropping packages and agronomic guidelines for each target crop.
- Provide starter input packs and training to lead farmers and cooperatives.
- Strengthen market intelligence, storage, and aggregation infrastructure.
- Promote contract farming, forward pricing, and export partnerships.
- Facilitate certification and branding (e.g., "Drought Smart Botswana Produce").
- Collaborate with BAMB, LEA, and BITC for domestic and export market development.
- Monitor performance through crop-specific yield and value targets annually.

Timeline: Phased over 5 years with thematic reviews and crop portfolio updates every 2 years.

20.3 Cash crops v Food Production

Balancing Cash Crops and Food Security in Botswana

Issue: Botswana is exploring diversification in agriculture, including the introduction of high-value cash crops like industrial hemp. However, this raises concerns over resource competition—especially land and water—with food production, at a time when the country faces recurring droughts, food import dependency, and declining soil fertility.

Problem: The expansion of water-intensive cash crops like hemp may undermine food self-sufficiency by competing for limited arable land, irrigation, and extension services needed for staple crops. There is currently no regulatory framework balancing these competing demands.

Policy Objective: To establish a strategic framework that ensures the introduction and cultivation of cash crops such as hemp do not compromise national food security or the sustainable use of natural resources.

Policy Statement:

The Government of Botswana shall regulate and zone cash crop production to protect food security objectives and sustainable land and water use. Priority shall be given to climate-smart agriculture, and incentives will favour cash crops in areas unsuitable for food crops. A permitting system will be introduced for hemp, cotton, tobacco, and other high-value non-food crops, linked to environmental impact assessments and national food security needs.

Implementation Strategies:

- Introduce zoning guidelines that prioritize food production in prime arable areas.
- Require Environmental and Agricultural Resource Use Impact Assessments for all commercial cash crop permits.
- Promote integrated farming systems that combine food and cash crops where feasible.
- Invest in drought-resistant staple crop R&D and promote regenerative agriculture.
- Monitor and report annually on water and land use across crop types.
- Establish a Hemp Licensing Authority with a cross-sectoral advisory board.
- Link investment incentives to sustainable practices and food security commitments.

Time Frame:

Phase 1 (2025–2026): Policy development, stakeholder consultations, zoning and permitting frameworks.

Phase 2 (2026–2028): Pilot schemes, monitoring systems, and integration with national food production plans.

Phase 3 (2029–2030): Full implementation, review, and adjustment based on outcomes

20.4 Difficulty in Obtaining Long-Term Capital for Cash Crop Farming

Issue: Cash crop farmers often face difficulty accessing long-term capital, which hinders the growth and development of the sector. This includes challenges such as high-interest rates, collateral requirements, and limited access to loans specifically designed for cash crop production.

Problem: The financial sector does not adequately address the long-term investment needs of cash crop farmers, limiting their ability to expand and modernize their operations. This restricts their capacity to adopt new technologies and improve yields.

Objective: To improve access to affordable financing, making long-term loans and insurance more accessible to cash crop farmers.

Policy Statement:
The government will partner with commercial banks, development agencies, and agricultural finance institutions to design financial products tailored to the needs of cash crop farmers, enabling them to access long-term capital with favourable conditions.

Implementation Strategies:

- **Partnership Development:** Collaborate with commercial banks and financial institutions to create tailored long-term loan products for cash crop farmers.
- **Insurance Products:** Work with insurers to design crop-specific insurance products that can cover both weather risks and market instability.
- **Subsidies and Incentives:** Provide subsidies for interest rates on long-term loans specifically for cash crop farmers.
- **Financial Literacy Programs:** Organize financial literacy campaigns to help farmers understand and access available financial products.

- **Government-backed Loans:** Set up government-backed loan guarantees to reduce the risk for lenders.

Time Frame: Short to Medium Term (1–3 years)

20.5 Cultivation and Processing of Industrial Hemp

Issue:
Botswana seeks to diversify its agricultural and industrial base while promoting sustainable rural livelihoods and green economic growth. Industrial hemp offers a high-potential, climate-resilient crop with multiple applications in textiles, bioplastics, construction, food, and wellness.

Problem:
Current legislation does not differentiate industrial hemp from narcotic cannabis, creating regulatory and legal barriers to cultivation. As a result, Botswana is missing out on a fast-growing global market, employment opportunities, and the potential for import substitution through local hemp-based products.

Objective:
To establish a legal and policy framework that enables the regulated cultivation, processing, and commercialization of industrial hemp for economic diversification, environmental sustainability, and rural development.

Policy Statement:
The Government of Botswana will promote the cultivation and processing of low-THC industrial hemp under a controlled licensing system. This policy will ensure alignment with national agricultural, industrial, health, and trade policies while maintaining strict regulatory safeguards to prevent misuse.

Implementation Strategy:

- Amend existing legislation to clearly define and legalize industrial hemp (THC content below 0.3%).
- Establish a licensing authority under the Ministry of Lands and Agriculture to regulate growers, processors, and exporters.
- Provide training, seed access, and extension support to interested farmers.
- Promote research into hemp agronomy, product development, and value chains.
- Encourage private sector investment in processing facilities and product innovation.
- Collaborate with SADC and international partners on standards and market access.
- Launch a public education campaign to distinguish industrial hemp from psychoactive cannabis.

20.6 Balancing Cash Crop Promotion and Food Security in Botswana

Issue: Botswana is a food-insecure country with low domestic production of staples, yet it must also diversify into drought-tolerant cash crops to boost rural incomes and exports.

Problem: The push for cash crops like cotton, pulses, sesame, and oilseeds may displace food crop production (e.g. sorghum, maize, millet), exacerbating household and national food insecurity, especially in drought-prone areas. Without a guiding framework, competition for land, water, and policy attention could weaken national resilience.

Objective: To create a balanced cropping strategy that promotes cash crops for income generation while safeguarding household and national food self-sufficiency.

Policy Statement: The Ministry of Lands and Agriculture will implement a dual-track crop development model that integrates food and cash crop production, ensuring that food needs are met while building robust market-oriented value chains for strategic cash crops.

Implementation Strategy:

- Designate minimum household food plots per farming household to ensure staple crop security.
- Promote intercropping and rotation models (e.g. sorghum + cowpea) to optimise land use.
- Zone land for balanced crop portfolios by region based on agro-ecology and rainfall.
- Provide targeted subsidies: staple crops to protect food security; cash crops to stimulate trade.
- Monitor national food reserves and cropping trends through an Early Warning System.
- Support contract farming that guarantees staple crop production before cash crop allocation.
- Incentivize agro-processors to source locally from both food and cash crops.

Timeline: Phased over 5 years, integrated into the National Agricultural Development Plan, with annual assessments of staple crop sufficiency and cash crop market performance.

21 Monitoring and Evaluation Framework for Botswana's Agricultural Sector

21.1 Vision 2036 and SDG Alignment

Objective	Output Indicators (KPIs)	Outcome Indicators (KPIs)
Food security & self-sufficiency	- % increase in hectares under cultivation - Volume of staple crops produced annually	- % reduction in food imports - % of population with adequate daily caloric intake
Agricultural diversification & value addition	- Number of new cash/value crops introduced - Number of agro-processing facilities supported	- % increase in agriculture's contribution to GDP - % increase in processed agricultural exports
Technological innovation & climate resilience	- Number of farmers trained in precision agriculture - Area (ha) under climate-smart practices	- % change in yield per hectare - % of farms resilient to drought/floods
Youth & gender empowerment	- % of agricultural funding allocated to youth/women - Number of youth and women in agriculture programs	- % increase in youth/women-led agribusinesses - Employment rate in rural youth population

21.2 NDP 12 and Agricultural Sector Objectives

Objective	Output Indicators	Outcome Indicators
Enhance productivity & sustainability	- Fertilizer use per hectare - Number of extension visits per farmer	- % increase in yield per crop/livestock type - Reduction in land degradation (ha)
Improve access to markets & finance	- Number of new farmer co-ops - Number of loans issued to smallholders	- % increase in farmer income - % of produce reaching formal markets
Promote private sector involvement	- Number of PPPs signed - Volume of private investment in agriculture	- % share of private sector in agricultural GDP - Number of jobs created in agribusiness
Strengthen rural infrastructure	- Kilometres of farm roads built/rehabilitated	- % decrease in post-harvest losses

Objective	Output Indicators	Outcome Indicators
	- Number of market centres established	- Travel time to markets reduced by %

21.3 Subsector-Specific M&E Indicators

21.3.1 Livestock Farming

Output	Outcome
- Number of livestock vaccinated	- % increase in off-take rates
- Number of farmers using improved breeds	- Export volume of beef and dairy products

21.3.2 Crop Production

Output	Outcome
- Number of hectares under irrigation	- % increase in maize and cereal self-sufficiency
- Number of farmers using drought-tolerant seeds	- % reduction in seasonal food shortages

21.4 Support Services

21.4.1 Irrigation & Water Management

Output	Outcome
- Area under irrigation (ha)	- % of agricultural water used efficiently
- Number of rainwater harvesting systems installed	- Crop yields during dry seasons

21.4.2 Research and Innovation

Output	Outcome
- Number of R&D projects funded	- Adoption rate of new technologies
- Number of technologies disseminated	- Increase in productivity per unit input

21.4.3 Finance & Market Access

Output	Outcome
- Number of micro-loans approved	- % increase in smallholder income
- Number of new markets accessed	- % of farm produce sold in structured markets

21.5 Cross-Cutting Themes

Theme	Output Indicators	Outcome Indicators
Youth & gender	- Number of youth trained in agri-skills - % of extension workers trained in gender sensitivity	- % of women/youth employed in agriculture - Number of new women/youth-led agribusinesses
Environmental sustainability	- Number of farms using conservation methods - Area under agroecological practices	- Soil fertility index - % reduction in carbon emissions from agriculture
Capacity building	- Number of training sessions held - Number of extension staff trained	- % improvement in farmer decision-making - % increase in adoption of good practices
Institutional strengthening	- Number of policies reviewed/updated - Stakeholder platforms operationalized	- Improved policy implementation rate - Stakeholder satisfaction index