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BOTSWANA NATIONAL WATER POLICY

Ministry Minerals, Energy and Water Resources

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FOREWORD

The National Water Master Plan Review in 2006 recommended that a series of institutional reforms were required within the water sector. These are needed to meet the increasingly complex challenges facing Botswana in the development of water resources, the supply of water and overall management of the sector. Based on these recommendations, the Government initiated a comprehensive effort in April 2008 to upgrade and extend water and wastewater services throughout the country. Presentation of this National Water Policy represents an important step in this process.

Recognizing that water represents one of the key constraints to future sustained growth; the National Water Policy provides the guiding principles and policy direction for development of further National Development Plans. Since independence in 1966 we have demonstrated strong economic growth, with nearly 9% growth recorded year on year for more than four decades. Historically this growth has been driven primarily by the nation's natural resources: mining, nature-based tourism, and agriculture. The development of these resources have been supported by sound macroeconomic policies, strong financial management and the implementation of incentives to attract private enterprise against a background of political stability. Recognizing the importance of the environment to securing this sustainable growth, this has been accomplished with relatively little environmental degradation or loss of biodiversity.

Reflecting these economic achievements, levels of poverty have been halved over the past 20 years and there have been substantial improvements in a range of social indicators. However, there are a number of persistent challenges. Just under 6.5% of the population is estimated to live on less than US$1 per day. High levels of income inequality and persistent unemployment, at around 17.8% of the population, continue to disproportionately afflict the youth. Despite significant advancements and one of the most progressive campaigns, HIV and AIDS continues to have devastating impacts across the nation.

While the country's economy has a narrow economic base, with diamonds and the government sector dominating the economy, the sound policy platform, underpinned by strong institutions and good governance, have sustained the strong economic performance. Ensuring continued economic growth and development to address these challenges will depend on economic diversification, employment creation and measures to combat poverty. While the national development principles and planning objectives remain unchanged, reflecting the goals of economic growth and diversification, social equity and poverty eradication and environmentally sustainable development. Water will be central to realizing these objectives and positioning the country to deal with future development challenges. The National Water Policy represents the first step in a continual process to ensure that water is properly positioned to meet the needs of the nation and its people.

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1.1 SECTOR OBJECTIVES

1.1.1 Botswana faces a major challenge in continuing the sustainable development and efficient utilization of its scarce water resources to support further economic growth, diversification and the eradication of poverty. Having successfully implemented the optimized capital investment program envisaged under the first National Water Master Plan (1991) the policy and strategies to meet national water demands in the future will need to be directed towards improving allocative efficiency and enhancing technological developments to improve water resources stewardship and water demand management.

1.1.2 The Objective of the National Water Policy is, therefore, to provide a national framework that will facilitate access to water of suitable quality and standards for the citizenry and provide the foundations for sustainable development of water resources in support of economic growth, diversification and poverty eradication.

1.1.3 In pursuit of these objectives, this Policy aims to promote the following:

- Protection, conservation and restoration of the nation's water resources
- Promotion of effective, sustainable management of water resources
- Promotion of the equitable and efficient use of water resources
- Reduction of the subsidies associated with water supply
- Assurance of access and affordability of water for all
- Protection and restoration of the environment
- Promotion of productive uses of water

1.2 POLICY PRINCIPLES

1.2.1 Throughout the formulation and implementation of the National Water Policy three essential guiding and overarching principles are applied. These are: i) equity; ii) efficiency; and, iii) sustainability.

Equity

1.2.2 All water belongs to the State and is held in trust on behalf of the people of Botswana. There shall be equitable access to water and authorization for its use shall be for a defined period which shall be subject to renewal . The renewal should not be unduly denied.

1.2.3 Water is a basic human necessity.

1.2.4 Water resources shall be managed in an integrated manner to meet the needs of present and future generations. Management shall be through participatory approaches, involving users, planners and policy makers at all levels.

1.2.5 Access to water will be given in the following order of priority: (i) the basic requirements required for human consumption; (ii) the environment to ensure sustainable foundations for supporting the national interests; followed by (iii) arable and livestock use, commercial and industrial applications.

1.2.6 Gender and social equity in accessing water resources will be ensured and, in particular, women shall be empowered to participate fully in issues and decisions relating to sustainable development and management of water resources.

Efficiency

1.2.7 All people in Botswana are responsible for the proper use and protection of the country's scarce and valuable water resources. Existing usage will be monitored and analyzed to identify wasteful practices and their impact.

1.2.8 Water has an economic value which must be recognized and reflected in its cost to users. Costs to users must ensure the wise use of water, and support the development and application of technology to improve efficiency.

1.2.9 Given the limited water resources available, regulatory functions and service delivery responsibilities will be separated to improve the efficiency of both.

Sustainability

1.2.10 Fresh water is a finite and vulnerable resource which is essential to sustain life, development and the environment. Long-term development and prosperity are dependent upon sustainable application and recognition of the shared nature of the nation's limited resources.

1.2.11 Water is one of the nation's most important environmental assets. In providing basic requirements for human consumption, cognizance shall be taken for the environment and ecosystem requirements to receive priority when planning and allocating water among competing uses and users.

1.2.12 Water should be managed at the lowest appropriate level, through a participatory approach, with planning, management and use based on integrated, catchment management approaches that encourage conjunctive use, including technical, financial, legal, public awareness and education inputs and outputs, as well as improvements in management at all levels.

1.2.13 The precautionary principle shall be adopted with water conservation measures and practices used to promote environmental sustainability, economic efficiency and social equity.

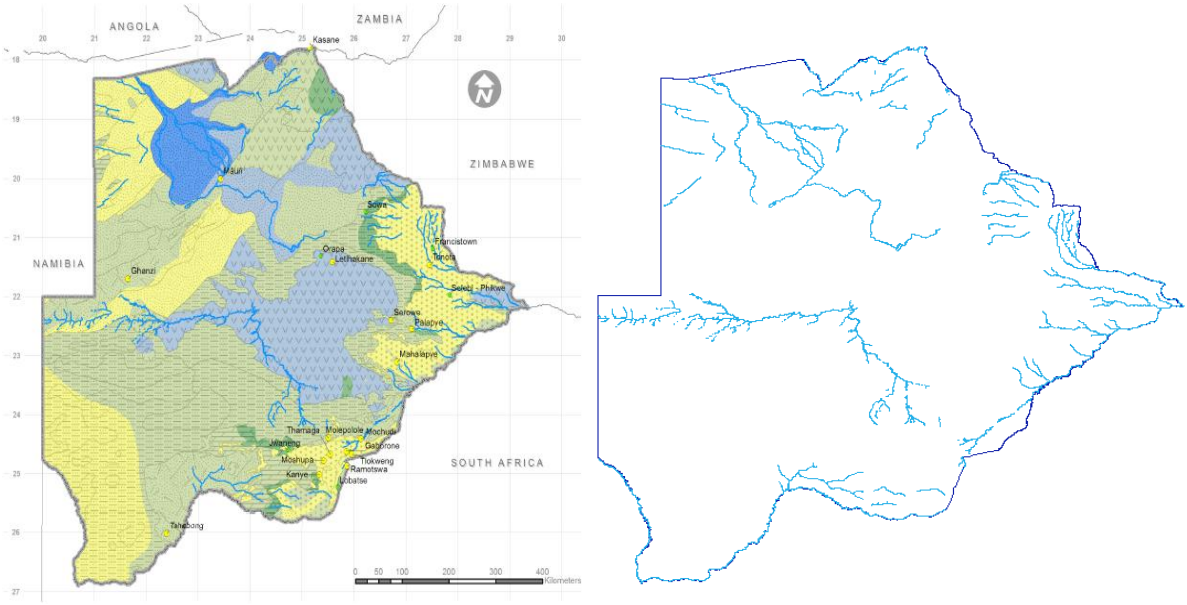
2 WATER SECTOR SITUATION ANALYSIS

2.1 Water ResourcesSituation

2.1.1 The nation's water resources are characterized by wide spatial variability, extreme scarcity, and a high dependency on internationally shared and trans-boundary waters. Most of the water is located in the northwest, far from the population center in the eastern corridor . The dependency ratio, reflecting that part of the total renewable water resources originating outside the country, is the highest in southern Africa at 80 percent. All of the country's five major drainage basins (Figure 1) are shared:

- The Limpopo River basin, occupying about 14 percent of the country in the east;
- The Orange-Senqu River basin, occupying about 12 percent in the south;
- The Zambezi River basin, occupying 2 percent in the north;
- The Okavango Delta, which is an endorheic basin occupying about 9 percent in the northwest;
- The South Interior, which also is an endorheic basin occupying the remaining area (about 63 percent) including the Kalahari Desert and the Makgadikgadi Pans.

Figure 1.Water Resources of Botswana.



2.1.2 Although the total renewable water resources available are in the order of 12.2 km^3/year, the total internal renewable water resources are estimated at only 2.4 km^3/year. The estimated 6,819 m^3 per capita is one of the lowest in the region. Of these, the internal renewable surface water resources are estimated at only 0.8 km^3/year. Low and unreliable rainfall, with high rates of potential evapotranspiration, combined with very flat topography result in low rates of surface runoff and low rates of groundwater recharge. Together with the Chobe and Linyati rivers, the Okavango Delta accounts for 95 percent of all surface water in the country. This large inland delta in the northwest includes about 6,000 km^2 of permanent swamp and between 7,000 and 12,000 km^2 of seasonally inundated swampland. An estimated 11 km^3 of water flows every year into the Delta, although most of this is lost through evapotranspiration and a spillway from the Delta to the ChobeRiver passes water through to the Zambezi River basin in periods of high floods.

2.1.3 Combined with a lack of suitable dam sites, the defining national characteristics significantly reduce sustainable yields from reservoirs to levels well below their mean annual inflows. The storage capacity of the country's large dams has historically been around 0.37 km^3. While the Dikgathong Dam provides an additional 0.4 km^3 in capacity, Botswana has one of the lowest per capita storage capacities in southern Africa. Most dams have been constructed for urban water supplies or for livestock watering. Those on the larger rivers have required international agreements and most of the economically feasible sites have been developed. The large numbers of smaller dams built for livestock watering and irrigation suffer from sedimentation and irregular stream flows, making agricultural application difficult. The availability of treated wastewater has expanded rapidly (estimated to be 0.03 km^3) due to improved sanitation and sewerage systems. This growing resource remains under-utilized despite the National Master Plan for Sanitation and Wastewater (2003) targeting virtually complete re-use and recycling of treated wastewater by the year 2030.

2.1.4 Groundwater in Botswana is limited, both in quantity and quality, and is unevenly distributed over the country. The extractable volume of groundwater is estimated to be about 100 km^3. However, only 1 percent of this amount is rechargeable by rainfall due to the prevailing hydro-climatic characteristics and geological nature of the aquifers. There are more than 25,000 officially registered boreholes of which over 10,000 are owned by the Government for the purpose of water supply. Prior to commissioning of the North-South Water Carrier, groundwater was estimated to account for more than 80 percent of all domestic water supplied. These resources are geologically old and water quality is often affected by salinity and concentrations of fluorides, nitrates and other elements. Current groundwater recharge rates are equivalent to about 1.7 km^3/year. Although the amount of groundwater potentially available is large, it is relatively expensive to exploit and saline in many places. With the exception of a few areas receiving regular floods or having permanent water bodies, the majority of boreholes are located at depths varying from less than 40m in the north and east, to well over 60m in the drier central and south-western parts of the country.

2.1.5 The national demand for water has increased rapidly over the past few decades. Most of this increased demand has come from domestic consumptionand the mining sector, with the current water demand for the entire country estimated at around 250 Mm^3. Over half of the water consumed is through self-providers such as the minerals, livestock and wildlife sectors which accounts for more than 50 percent of all consumption, with the remainder being accounted for by WUC, DWA and the District Councils. Although the agricultural sector has shown little growth it remains the largest user of water. Given that the agricultural sector is dominated by livestock with very little irrigated crop production, the total share of water for agriculture has historically been much lower than that for Sub-Saharan Africa or other Middle Income countries. With 100 percent access to improved water sources in urban areas and 90 percent in rural areas, domestic water access is high compared to many countries in Sub-Saharan Africa. However, the levels of access to sanitation continue to lag, especially in rural areas where only 30 percent of the population is covered.

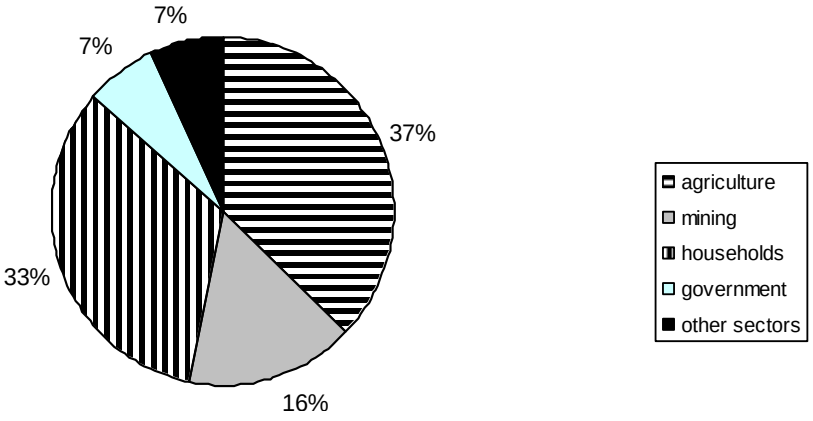


Figure 2: Water demands by sector

2.1.6 National water use efficiency (in terms of value added/m^3) has improved over the past two decades. However, given the prevailing characteristics of Botswana's water resources, their future development will be characterized by high development costs, coupled with high operation and maintenance costs. These stem from the hydro-climatic characteristics, combined with the flat topography and lack of suitable sites for further dam development, the need for long conveyance pipelines to the demand centres, and deeper boreholes. Water resources are already considered a major constraint to the agricultural and mining sectors and to the further development of power generation.

2.1.7 The commitment to economic diversification and the increasing competition for water resources will require care in establishing and maintaining sound planning and allocation mechanisms so as to ensure that the principles of efficiency and equity are met. These constraints and challenges will combine to impact on Botswana's competitiveness and they need to be addressed through implementation of a number of comprehensive water related strategies, as well as by means of measures aimed at improving demand side management. The shared nature of the watercourses will require deepening of international treaties and agreements and the focus on demand management will necessitate a concerted effort to invest in appropriate technology and human capital. Through the integration of the principles outlined herein, the National Water Policy will provide a framework for all sectors of the economy to further the national goals of economic growth, diversification and poverty eradication.

2.2 LegalFframework

2.2.1 The reliance on groundwater and the limited spatial distribution of surface waters creates a complex legal framework for management and development of water resources. This is further compounded by the reliance on internationally shared and trans-boundary waters. To safeguard national interests there is a need to compile and analyze a comprehensive list of policies and legislation relating to water on a regular basis. There is large numbers of international multi-lateral and bi-lateral agreements outlining the legal framework for the water sector. While acknowledging these, the process of policy formulation is embedded within the prevailing international principles as articulated in key documents, such as:

2.2.2 The 1992 statement on Water and Sustainable Development, known as the "Dublin Principles" which specify that:

- Freshwater is a finite and vulnerable resource, essential to sustain life, development and the environment;
- Water development and management should be based on a participatory approach, involving users, planners and policy makers at all levels;
- Women play a central part in the provision, management and safeguarding of water; and
- Water has an economic value in all its competing uses and should be recognized as an economic good.

2.2.3 The UN Convention on the Law of the Non-Navigational Uses of International Watercourses .

2.2.4 The Revised SADC Protocol on Shared Watercourses, which entered into force in September, 2003,with the overall objective of fostering closer cooperation for judicious, sustainable and coordinated management, protection and utilization of shared watercourses and advance the SADC agenda of regional integration and poverty reduction.

2.2.5 This international legal framework is integrated within national policy and Botswana's laws and treaty obligations. Principle relevant policy documents at the national level include the following:

- Vision 2016
- National Development Plan
- Water and Wastewater Sector Tariff Strategy (2010)
- National Energy Policy(2010)
- National Master Plan for Sanitation and Wastewater (2003)
- Wastewater and Sanitation Management Policy (2001)
- Waste Management Strategy (1998)
- National Policy on Natural Resources Conservation and Development (1990)
- Community Based Natural Resources Management Policy (2007)
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- Game Ranching Policy (2002)
- Tourism Policy (1990)
- Integrated Support Programme for Arable Agriculture Development (2010)
- Livestock Management Infrastructure Development (2007)
- National Master Plan for Arable Agriculture and Dairy Development (2002)
- Agricultural Water Development Policy Implementation Guidelines (1993)

Some relevant legislation includes the following:

- Water Act, Ch. 34:01
- Boreholes Act, Ch. 34:02b
- Waterworks Act, Ch. 34:03
- Aquatic Weeds (Control) Act, Ch. 34:04
- Wildlife Conservation and National Parks Act, Ch. 38:01
- Forest Act, Ch. 38:03
- Local Government Act, Ch. 40:01
- Townships Act, Ch. 40:02
- Fire Service Act, Ch. 40:04
- Consumer Protection Act, Ch. 42:07
- Waste Management Act, Ch. 65:06
- Environmental Impact Assessment Act, Ch. 65:07
- Water Utilities Corporation Act, Ch. 74:02
- Public Health Act, Ch. 60:01

2.2.6 The institutional arrangements for the sector are reflective of the Government's decision in May 2009 to address the challenges facing the supply of water and sanitation services across the country. This includes the consolidation of all water and wastewater operations under the Water Utilities Corporation (WUC), the establishment of a Water Resources Board to manage the country's water resources, the reorganization of the Department of Water Affairs, and the establishment of an independent Regulator for water supply and sanitation services. These decisions are intended to clarify roles, responsibilities and accountability throughout the water sector.

2.3 InstitutionalFramework

2.3.1 The Ministry of Minerals, Energy and Water Resources has the responsibility to coordinate development and operational activities in the energy, water and minerals sector. Specific programmes and projects to fulfil these responsibilities are carried out by the departments of Geological Survey, Mines and Water Affairs, along with two parastatals, namely the Botswana Power Corporation and the Water Utilities Corporation.

2.3.2 The Ministry provides leadership and policy directions to the departments and to both parastatals. It is responsible for formulating, directing and coordinating overall national policies on minerals, energy and water resources. It formulates short and long term strategies for implementing the approved national policies and programmes on minerals, energy and water resources. It provides clean water as a direct means of improving people's lives and an essential input for agricultural, commercial and industrial development. It also provides national leadership and liaises with other related sectors within government and other parastatals, private and international agencies working in the field of minerals, energy and water resources.

2.3.3 The Water Resources Boardwill be anentity supported by the Ministry of Minerals, Energy and Water Resources (MMEWR) generally, and its Department of Water Affairs in particular. It will allocate water resources among users, monitor water resources, and develop water related policies. Through the separation of service delivery activities, the Board with ensure independence and equity in the sustainable allocation of water resources.

2.3.4 The Department of Water Affairs is to act as a Secretariat to the Board and provide technical expertise. The DWA is responsible to assess, plan, develop and maintain water resources for domestic, agricultural, commercial, industrial and other uses in the whole country. In order to provide effective leadership for water resources planning, development and management, the Department will assist and advise in the formulation of water resources development and management policies. The department will assess, plan, develop and manage water resources for short, medium and long term purposes. It may, when appropriate and so enabled, also administer the water law and other related legislations, and liaises with riparian users of national and international rivers regarding saving, conserving and protecting water resources.

2.3.5 A Water Regulator will cover economic regulation of water supply and wastewater services. It will ensure financial sustainability across the water sector, reducing wastage by facilitating the streamlining of operations, determining revenue requirements to inform regular tariff adjustments. When reviewing revenue requirements the regulator shall take account of Government guidance on service objectives, direct subsidy and cross-subsidy, informed by affordability considerations. The regulator will also oversee compliance of service standards to ensure efficiency and protect consumer rights.

2.3.6 The Water Utilities Corporation was established under the Water Utilities Corporation Act of 1970 (Laws of Botswana CAP 74:02). Its original responsibility was for the supply and distribution of water within the Shashe Development Area. Powers were also conferred upon it to develop water resources. However, the mandate was extended to assume responsibility as the water authority for cities and townships which have been declared waterworks areas under the Declaration of Waterworks Area Order, 1970. Any demand centre can be declared a “waterworks area” under the Waterworks Act and, by the terms the WUC Act, WUC can be appointed to provide water in this area. The WUC Act also specifies financial principles and methods of charging for water to ensure that: (i) WUCruns on commercial principles; and (ii) the cost of water supply services are recovered.

2.4 NationalPlanningProcess

2.4.1 The National Water Policy has been prepared through an interactive, consultative and participatory process. Formulation was driven by then multi-sectoralNational Water Policy Working Group with the MMEWR providing Secretarial support to the drafting committee.

2.4.2 The foundations of the broad consultative process were established during the detailed review of the National Water Master Plan in 2005 and 2006. The recommendations made to Government at the conclusion of this process were widely debated and led to a number of key recommendations becoming priorities within the National Development Planning process.

2.4.3 The Government and the Water Utilities Corporation have consulted extensively as part of the water reform process with numerous meetings taking place in District Councils, Dikgotla, and with Government and WUC staff, as well as with academics, business representatives, and representatives of Civil Society and Non-Governmental Organizations. Theseconsultations then facilitated the formation of many provisions of this policy.

3 WATER FOR GROWTH

Policy Statement

3.1.1 Water must be considered as an economic good which supports cross-sectoral economic integration and efficiency in allocation and application and it is central to ensuring equity and sustainable development, as well asaddressing poverty eradication.

***Objectives*:**

3.1.2 To ensure the equitable and efficient application of the nation's water resources so as to achieve sustainable economic growth, development and diversification.

3.1.3 To promote integrated planning and development of water resources at different levels and in different sectors in order to maximize economic benefits from its productive application.

***Strategies*:**

3.1.4 Establish and implement water allocation principles and guidelines for different uses based on water demands for sectoral developments in support of national development plans.

3.1.5 Integrate water resource management and development with land use spatial planning in order to maximize productive economic returns and avoid potential constraints imposed by limited water resources.

3.1.6 Account for value added and economic benefits derived from the application of water resources.

3.1.7 Develop and adopt appropriate water charges to account for the economic value of water and use these charges as an instrument for promoting economic diversification and growth.

3.1.8 Bring about institutional changes in order to enhance inter-sectoral coordination and management of water resources and to promote the effective implementation of such coordination and management.

3.1.9 Promote efficient use and water conservation through conjunctive uses of all categories/qualities of water.

3.1.10 Review options for the application of the principles of virtual water to inform trade developments and position Botswana to capitalize on its relative comparative advantage within the Southern African region. Virtual water is defined as amount of water needed for the production of a unit product and according to Economic theory of comparative advantage it is wise to have trade of water intensive product from water-rich to water-poor countries.

3.1.11 For economic growth Botswana should claim its allocation from its shared water courses.

3.1.12 Develop and implement guidelines to ensure appropriate dam safety measures and associated benefit sharing mechanisms for multi-purpose hydraulic infrastructure development.

3.1.13 Provide for use and maintenance of water resources accounts for improved water use efficiency and macro-economic planning including:

a) Monitoring the level of the resources;

b) Valuing the resource; and

c) Measuring the level of consumption and investment.

4 WATER DEMAND MANAGEMENT AND CONSERVATION

Policy Statement

4.1.1 Water must be managed in an integrated and sustainable manner in order to ensure its availability in adequate quantities and qualities for present and future social, economic and environmental needs.

Objectives

4.1.2 To ensure efficient use of Botswana's water resources through promotion of water demand management measures.

4.1.3 To ensure the conservation and protection of the Botswana's limited water resources for future generations.

Strategies:

4.1.4 Develop and adopt water conservation and demand management principles, concepts and measures, each with supporting incentives such a tax rebates.

4.1.5 Review and strengthen legal instruments and standards to be used as tools to promote water conservation.

4.1.6 Integrate water conservation and demand management principles for allocation criteria, planning and design norms and relevant standards and codes.

4.1.7 Develop and implement multi-tiered tariff structure and economic instruments to promote water conservation and demand management measures, particularly in relation to drought.

4.1.8 Ensure water conservation and demand management principles are reflected in EIAs, feasibility studies, designs and plans for all water development and infrastructure activities.

4.1.9 Identify measures and instruments for integrating water conservation and demand management measures for existing water infrastructure.

4.1.10 Promote utilization of alternative sources of water for potable and non-potable use, such as rainwater harvesting, collected storm water and treated effluent, through the use of appropriate and affordable technologies.

4.1.11 Mandate the implementation of water-efficient fixtures, fittings and practices.

4.1.12 Ensure water supply and sanitation service providers maintain water balance records to facilitate regular audits of service standards and operational performance in order to identify entry points for improvements in efficiency and water demand management measures.

4.1.13 Develop and implement comprehensive, nation-wide water demand management programs.

4.1.14 Implement participatory community water conservation programs.

4.1.15 Implement a raw water abstraction fee for all water withdrawals to help fund water management activities and encourage conservation. Graduated flat abstraction fees shall be assessed for commercial, industrial, agricultural and other uses of water. All water abstractions shall be metered for the purposes of water resources monitoring.

4.1.16 Develop and implement guidelines on fit for purpose application of water with corresponding cost structures and incentive mechanisms.

5 DOMESTIC WATER SUPPLY AND SANITATION

Policy Statement

5.1.1 Safe, affordable and reliable water and sanitation must be provided to all the people of Botswana to promote a healthy population and provide the foundations for sustainable economic development and diversification.

Objectives

5.1.2 To accelerate the provision of access to safe, affordable and reliable water and sanitation services to all in Botswana.

5.1.3 To ensure the long-term financial sustainability of potable water supply and wastewater services.

5.1.4 To promote social equity in access to water supply and sanitation services with protection for the destitute and the vulnerable.

5.1.5 To increase the reuse of treated effluent recycledwater and other alternative sources for potable and non-potable uses in line with national development plans.

Strategies:

5.1.6 Transfer responsibility for all water service delivery and sanitation servicesin gazetted settlements to the Water Utilities Corporation.

5.1.7 Establish a full cost accounting structure and appropriate cost recovery mechanisms for water supply and sanitation services to ensure that cost recovery,from tariffs and subsidies as determined by Government, is based on uniform national tariff structures for domestic consumption.

5.1.8 Develop and implement multi-tiered tariff structure, fees and mechanisms to ensure social equity and affordability, supported by the implementation of pro-poor strategies.

5.1.9 Monitor household expenditure on domestic water supplies to ensure affordability such that the maximum household expenditures account for less than 5 percent of household disposable income.

5.1.10 Promote the investment in water supply and sanitation infrastructure.

5.1.11 Accelerate investments and rehabilitation of village water supply infrastructure in rural areas to ensure access to safe drinking water.

5.1.12 Improve sustainable and security of village water supply infrastructure through the development and implementation of a national aftercare strategy for rural water supply systems.

5.1.13 Develop and introduce quality and service standards along with community based monitoring and performance evaluation mechanisms.

5.1.14 Optimize state cooperation in internationally shared and trans-boundary water resources management, development to explore alternative, cost effective supply options.

5.1.15 Increase the inclusion of recycled water to 96 percent by 2030 in line with National Master Plans.

5.1.16 Determine and regularly update water demands and supply options for all areas supported by service strategies for medium and long term planning.

5.1.17 Develop and implement development and management programmes for existing and planned bulk water schemes.

5.1.18 Develop and implement mechanisms, including penalties for misuse, to ensure the protection, safety and sustainability of service delivery infrastructure.

6 WATER FOR ENVIRONMENT AND TOURISM

Policy Statement:

6.1.1 The protection of water resources must be promoted and the conservation and sustainability of ecosystems and the goods and services they provide must be ensured.

Objectives:

6.1.2 To provide an integrated management framework for Botswana's water resources to ensure they are developed on a sustainable basis and retain their integrity to support the needs of current and future generations.

6.1.3 To maintain and protect the natural quantity and quality of water resources in Botswana.

6.1.4 To collect, process, maintain and disseminate data and information on aquatic ecosystems, along with water quality and quantity, as a basis for ensuring protection of wildlife, promotion of nature-based tourism and informed decision making.

6.1.5 To promote the protection of water resources from pollution and the risk of over-exploitation in accordance with national and international provisions.

Strategies:

6.1.6 Undertake a review of existing legislative provisions to improve the coordination and harmonization of acts, policies, strategies, plans, standards and codes related to water and environment within Botswana and regionally through SADC.

6.1.7 Develop and implement environmental standards and guidelines for aquatic ecosystems, including those for water quality standards and monitoring protocols within Botswana and regionally through SADC to promote the protection of water resources.

6.1.8 Assess and operationalize an ecological reserve and requirements for all catchments and water resources infrastructure.

6.1.9 Promote application of Strategic Environmental Assessments (SEA) of policies, strategies, development plans and programmes to enhance sustainable development and leverage synergies.

6.1.10 Adopt Environmental Impact Assessments (EIA) for all water resources projects in accordance with EIA regulations.

6.1.11 Adopt and implement internationally recognized principles on wetlands management, among them the principles drawn from the RAMSAR Convention on Wetlands of International Importance and Waterfowl Habitat.

6.1.12 Determine the cost associated with aquatic natural capital and ensure that those that benefit commercially from natural capital contribute to ensuring sustainable management.

6.1.13 Implement catchment management principles and practices as the basis for managing the nation’s water resources.

6.1.14 Address impacts of human activity and biodiversity on surface and groundwater resources.

6.1.15 Implement the "polluter pays" principle to ensure the responsibility and accountability of polluters and define fees, fines, and other charges to reflect the impact and cost of pollution that can be assigned to the polluter.

6.1.16 Implement a comprehensive, integrated hydro-meteorological monitoringnetwork that measures the resources base, records all water abstractions and uses requiring a permit and monitors their compliance to ensure enforcement.

7 WATER FOR AGRICULTURE (IRRIGATION, FARM LANDS AND LIVESTOCK)

Policy Statement:

7.1.1 Water must be available for agriculture to promote commercialization and diversification of the sector in order to ensure food security at both household and national level and stimulate employment creation.

Objectives:

7.1.2 To improve national food security, contribute to regional food security andpromote employment creation in the rural economy through diversification of the national agricultural base, as well as increased agricultural productivity and output.

7.1.3 To promote adoption of environmentally sustainable production systems and ensure the development of water resources in support of agriculture is undertaken in coordination with other stakeholders.

Strategies:

7.1.4 Integrate water resources planning and development within a national planning framework, supported by an integrated water, land cover and land use database, to maximize conjunctive and efficient application of the country's limited resources.

7.1.5 Ensure water for arable agriculture and livestock is fully accounted for in the national water balance and allocative instruments with corresponding cost reflective structures are implemented in accordance with national development objectives and incentives.

7.1.6 Support research and development on affordable, appropriate and sustainable techniques for increasing productivity and application of emerging crops, irrigation technologies and livestock to improve water efficiency.

7.1.7 Build capacity within the agricultural sector in relation to water harvesting and conservation.

7.1.8 Develop mechanisms and incentives to improve irrigation technologies that will increase water use efficiencies.

7.1.9 Increase safe application of wastewater re-use, bio-solids and other alternative sources of water in agricultural development.

7.1.10 Review guidelines and regulations for facilitating use of shared water resources (borehole, dams, well-fields) for farmers.

7.1.11 Review agricultural related policy documents at the national level to ensure integration of water related issues. (infrastructure development, ISPAAD, NAMPAADD, LIMID)

7.1.12 Implement good agricultural practices to minimize pollution and resource conservation.

8 WATER FOR MINING AND INDUSTRY

Policy Statement:

8.1.1 Water allocations supporting industry and mining must be integrated within the national management framework to ensure water resource sustainability and maximize benefits in the national interests.

Objectives:

8.1.2 To ensure that water of sufficient quantity and quality is available to support sustainable industrial and mining development in line with national development plans.

8.1.3 To ensure that all the water uses associated with exploration, mining and industry are accounted for and conservation measures are implemented to protect their sources and prevent pollution.

8.1.4 To ensure that water balances are fully accounted for in all mining and industrial operations and that all water uses are integrated as part of the water right allocation framework.

8.1.5 To promote the development and application of technologies aimed at reducing the water requirements for mining and industrial application in support of economic development and diversification.

Strategies:

8.1.6 Develop a framework for cluster systems that will assist in effectively integrating mining developments within the national water resources development planning process and, where applicable, facilitating partnerships in infrastructure development to enhance the public interests.

8.1.7 Determine the water balance of all developments in an integrated manner, accounting for all supply avenues, and integrate mine dewatering and industrial effluents in to the overall planning framework and permitting system to ensure all water use is licensed, efficient and fit for purpose.

8.1.8 Develop and apply guidelines on the application of water fit for purpose as part of the permitting system.

8.1.9 Formulate strategic development plans integrating water management within the broader spatial planning to explore options for conjunctive application.

8.1.10 Undertake regular technical and operation audits with a view toimprovee efficiency in water use.

8.1.11 Develop and implement guidelines to ensure that mining, exploration and industry operations do not pollute the environment.

8.1.12 Regulate and license all test drilling for minerals including water.

8.1.13 Implement a hierarchy of water management measures, with economic incentives, focused on promoting reduction, reuse, recycling and safe disposal, such as pre-treatment before disposal.

8.1.14 Develop and implement mechanisms to encourage the adoption of technologies that are more efficient and allow minimal use of water for the cooling of industrial processes.

9 WATER FOR ENERGY

Policy Statement:

9.1.1 Water must be applied efficiently and at a cost that permits the attainment of energy supply security for all sectors of the economy to support the foundations for sustainable economic development and diversification.

Objectives:

9.1.2 To ensure that water of sufficient quantity and quality is available to support national development objectives of energy development to meet national demand and export targets.

9.1.3 To promote the development and application of technologies aimed at reducing the water requirements required to develop energy resources in support of economic development and diversification.

Strategies:

9.1.4 Incorporate water development guidelines into the energy equation and promote the application of technologies to ensure efficient use of water resources.

9.1.5 Develop comprehensive water accounts and spatial demand forecasts to enable the timely development of water supply solutions integrated within the national water resources planning framework.

9.1.6 Encourage the adoption of technologies that are more efficient and allow minimal use of water for the cooling of industrial processes and for electric power generation stations in pursuit of energy self-sufficiency and export targets.

9.1.7 Identify and implement alternative energy solutions, such as development of renewable and bio-energies, that can be integrated into the national energy mix to reduce the carbon contributions through increased water use and energy efficiency.

10 INFORMATION MANAGEMENT AND DISSEMINATION

Policy Statement:

10.1.1 Sustainable water resources data and information systems must provide for effective planning, development and management of water resources in support of the national goals of economic growth, diversification and poverty eradication.

Objectives:

10.1.2 To develop and maintain a comprehensive information database in support of water resources management and developments.

10.1.3 To establish protocols and mechanisms for information acquisition, storage and dissemination across sectors and among stakeholders.

10.1.4 To develop adequate institutional, human capacity and avail financial resources to support implementation of "Information, Education and Communication" programs.

10.1.5 To ensure that information is easily available to facilitate an equitable and sustainable allocation of the country's water resources.

Strategies:

10.1.6 Undertake and regularly update an inventory and assessment of available hydrological, hydrogeological, water quality, meteorological, environmental and water quality monitoring systems and data.

10.1.7 To establish a right to free access to information related to water resources held under private custody (e.g. Freehold) by government..

10.1.8 Establish a centralized clearing house mechanism for integration, management and dissemination of water related data with web-based access.

10.1.9 Determine the operating and maintenance costs of the information integration and management system and ensure adequate resources to sustain information management and dissemination strategies.

10.1.10 Integrate data in to the planning and allocation framework through an integrated water, land cover and land use database.

10.1.11 Prepare and enact a strategy to operationalize an integrated national and international forecast system thatwill improve the national capacity for predicting water-related disasterse.g. floods.

10.1.12 Prepare catchment based risk management and mitigation strategies articulating the procedures toaddress water-related risks such as floods, drought, and pollution

10.1.13 Develop awareness (Information, Education and Communication) programmes for different stakeholders and targets groups.

10.1.14 Publish an Annual Report providing a summary of the water resource situation, including a summary of permits issued and revoked during the year.

11 RESEARCH AND DEVELOPMENT

Policy Statement:

11.1.1 Botswana must have a world class research and development capacity to address its water related challenges and further the goals of economic growth, diversification and poverty eradication.

Objectives:

11.1.2 To promote coordination, cooperation and communication in water related research and development.

11.1.3 To ensure that the research program for the water sector is adequately funded, directed toward the sector's needs and priorities and applied in management and development of the national water resources.

11.1.4 Promote effective transfer of information and technology while also enhancing knowledge and capacity building within the water sector.

11.1.5 To provide the necessary human resources and capacity to sustain the long-term development and management of water resources and meet national targets for water supply and sanitation services.

Strategies:

11.1.6 Establish an appropriate mechanism for securing sustainable, annual financing for research, development and capacity building in water related fields through a dedicated fund supported by government allocations, royalties and water user fees.

11.1.7 Establish a platform to facilitate strategic partnerships among national and international institutions, academia and the private sector to strengthen information, research and capacity.

11.1.8 Develop appropriate incentives to stimulate research aimed at addressing the sustainable development of water and appropriate technological alternatives.

11.1.9 Identify pilot programs with the potential to be scaled up to target research and development.

11.1.10 To identify a training program/institution for Botswana water professionals.

12 INTERNATIONAL COOPERATION

Policy Statement:

12.1.1 Shared international and riparian trans-boundary water resources must be managed and developed in accordance with the obligations and entitlements articulated in international, regional and bilateral agreements.

Objectives:

12.1.2 To strengthen co-operation with riparian states in an effort to pursue the principles of equitable and reasonable utilization of internationally shared andtrans-boundary surface water and aquifer resources.

12.1.3 Promote cooperative planning and development of internationally shared and trans-boundary water basins and aquifers while ensuring protection and development of the national interests.

Strategies:

12.1.4 Strengthen institutional and policy framework for supporting integrated approach to management and development of internationally shared and trans-boundary water resources, including aquifers.

12.1.5 Consolidate and strengthen internationally shared and trans-boundary agreements for all shared surface waters and aquifers.

12.1.6 Provide guidance for the management of internationally shared and trans-boundary water resources and benefit sharing mechanisms.

12.1.7 Cooperate with riparian states in the development, optimal utilization and protection of internationally shared and trans-boundary water resources without compromising national sovereignty.

12.1.8 Implement a comprehensive and compatible monitoring system to support the collection, processing and exchange of data with riparian states for monitoring internationally shared and trans-boundary systems.

12.1.9 Develop national systems to monitor obligations of international agreements in relation to internationally shared and trans-boundary water resources .

12.1.10 Promote the joint planning, development, management, utilization and protection of internationally shared and trans-boundary water resources and aquifers.

12.1.11 To implement best practice for stakeholder engagement including women and marginalized groups in consultations andnegotiations for water use from international shared water courses and aquifers.

13 MONITORING & EVALUATION

Policy Statement:

13.1.1 The importance of water in the long-term sustainable development of Botswana requires continuous monitoring, regularreview and evaluation of policy provisions in order to ensure that these remain relevant to national development goals.

Objectives:

13.1.2 To provide a review mechanism that will ensure the policy framework for the sustainable development and management of water resources is maintained in the national interests.

13.1.3 To put in place a set of agreed indicators to assess the performance of the water sector and all stakeholders in realizing the national development objectives related to the provision, management and development of water resources.

Strategies:

13.1.4 Define agreed, measurable indicators that can be used to establish and maintain an annual monitoring and evaluation program to ensure the provisions of the policy are realized e.g. pollution levels.

13.1.5 Develop integrated monitoring framework that is compatible with national, regional and international standards.

13.1.6 Facilitate the exchange of data and information between stakeholders with a specificmulti-sectoral forum established to trackthe implementation of the policy.

13.1.7 Link the policy evaluation process to the national water accountsin order to assess improvements in the sectoral application of water.

13.1.8 To build the necessary capacity for carrying out the monitoring, evaluation and review of the policy.

14 PREPARATION, ENACTMENT AND REVIEW OF THE POLICY

14.1.1 The Ministry Of Minerals , Energy and Water Resources shall review the National Water Policy and alignit with the National Development Plan review , if deemed necessary by the Minister the Ministershall undertake a revision process with all interested stakeholders.

14.1.2 The Ministry of Minerals, Energy and Water Resources shall prepareall National Water Sector Policies and shall ensure that all interested stakeholders have the opportunity to assist in their development.