



ESWATINI GOVERNMENT



MINISTRY OF NATURAL RESOURCES AND ENERGY

NATIONAL WATER POLICY

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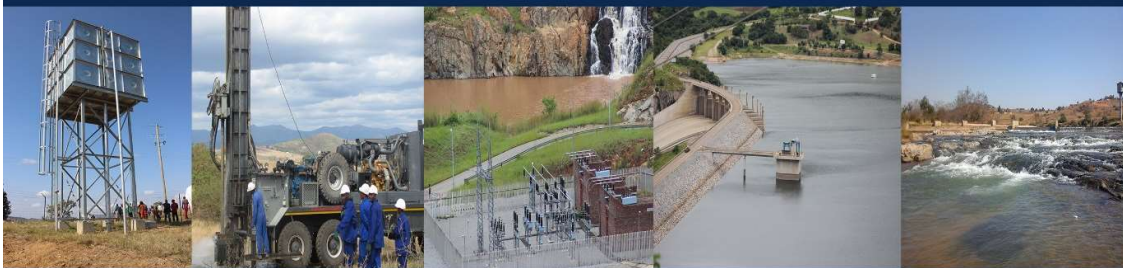


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LIST OF ACRONYMS AND ABBREVIATIONS:

| | |
|----------|--|
| AMCOW | African Ministers Council on Water |
| AU | African Union |
| DWA | Department of Water Affairs |
| EEA | Eswatini Environment Authority |
| ESEPARC | Eswatini Economic Policy Analysis and Research Centre |
| EIAs | Environmental Impact Assessments |
| EWP | Eswatini Water Partnership |
| FAO | Food and Agriculture Organisation |
| GWP | Global Water Partnership |
| HIV/AIDS | Human Immune Virus / Acquired Immune Deficiency Syndrome |
| ICPs | International Cooperating Partners |
| ID | Irrigation District |
| IWRM | Integrated Water Resources Management |
| KDDP | Komati Downstream Development Project |
| LUSIP | Lower Usuthu Smallholder Irrigation Project |
| MDGs | Millennium Development Goals |
| MNRE | Ministry Natural Resources and Energy |
| MOA | Ministry of Agriculture |
| NDS | National Development Strategy |
| NEPAD | New Economic Partnership for African Development |
| NGOs | Non-Governmental Organisations |
| NWA | National Water Authority |
| NWP | National Water Policy |
| NWRS | National Water Resources Strategy |
| PAC | Public Accounts Committee |
| PB | Project Board |
| PPPs | Public Private Partnerships |

| | |
|------------|--|
| RBA | River Basin Authority |
| RBOs | River Basin Organizations |
| RISDP | Regional Indicative Strategic Development Plan |
| RSAPs | Regional Strategic Action Plans |
| RWP | Regional Water Policy |
| RWS | Regional Water Strategy |
| SADC | Southern African Development Community |
| SADC-HYCOS | Southern African Development Community Hydrological Cycle Observing System |
| SADC WP | Southern African Development Community Water Policy |
| SADC WS | Southern African Development Community Water Strategy |
| SDGs | Sustainable Development Goals |
| SEAs | Strategic Environmental Assessments |
| SNL | Swazi Nation Land |
| SWCIs | Shared Water Course Institutions |
| UNCBD | United Nations Convention on Biological Diversity |
| UNCCD | United Nations Convention to Combat Desertification |
| UNDP | United Nations Development Programme |
| WAB | Water Apportionment Board |
| WCD | World Commission on Dams |
| WDM | Water Demand Management |
| WHO | World Health organisation |
| WUA | Water User Association |
| WUD | Water User District |

DEFINITION OF TERMS:

Agricultural use- use of water for irrigation purposes.

Alien invasive species- means species of plants and animals, introduced from elsewhere: neither endemic (restricted to, and native to, a particular area) nor indigenous.

Allocative efficiency- the extent to which the limited resources are allocated in accordance with the wishes of consumers. It also refers to the efficiency with which markets are allocating resources.

Aquaculture- includes all activities aimed at producing in restricted areas, processing and marketing aquatic plants and animals from fresh, brackish or salt waters.

Blue water- fresh surface and groundwater, in other words, the water in freshwater lakes, rivers and aquifers.

Bulk Water Tariff- a tariff levied on a water-user abstracting bulk water from a river to recover the cost of water supply infrastructure and the operation and maintenance of the infrastructure. It excludes infrastructure charge by water supply service providers who abstract and purify water for distribution to potable water consumers.

Catchment- an area that receives precipitation and naturally drains into a watercourse.

Comparative Advantage- a condition when a country produces a commodity at a lower opportunity cost than trade partners.

Conversion Factor- a factor by which a quantity that is expressed in one set of units must be multiplied in order to convert it into another set of units.

Cost Recovery- the extent to which users are charged for goods and/or services to generate revenue to recover the costs of provision.

Cross-subsidization- the practice of charging higher prices to one group of consumers to subsidize lower prices for another group.

Denudation- means removal and or the processes that cause the wearing away of the Earth's surface by moving water, leading to a reduction in elevation and in relief of landforms and of landscapes.

Domestic use- use of water for drinking, washing, cooking, bathing, sanitation, hygiene and stock watering purposes.

Economic Good- a physical object or service that has value to people and can be sold for a non-negative price in the marketplace.

Ecosystem integrity- the long-term ability of an ecosystem to self-support and maintain an adaptive community of organisms having a species composition, diversity, and functional organisation comparable to that of nearby natural habitats.

Ecosystem- the combination and interaction of all factors, biotic and abiotic, that make up a particular environment and its organisms.

Emergency situation- a situation that causes or poses an imminent threat of causing serious harm to the people of Eswatini and which results suddenly from natural cause such as torrential rains, floods, landslides or earth quakes or from human conduct.

Environmental use- the use of water for the preservation and maintenance of eco systems.

Financial intermediaries- an institution, firm or individual who mediates between two or more parties in a financial context.

Flocculent- the coalescence of fine particles into a coarser precipitate.

Flood plain- an area outside of the main river channel that becomes inundated during periods of high rainfall or river flow.

Gender - refers to the socially and culturally constructed roles, privileges, responsibilities, power and influence, social relations, expectations and value of men and women, girls and boys.

Gender Balance- equal ease of access of men and women to resources, opportunities, decision making, and equal participation of women and men in all areas of work or programmes.

Gender Mainstreaming- the process of assessing the implications for women and men of any planned action, including legislation, policies and programmes, in any area and at different levels. It is a strategy for making women's integral dimension in the design, implementation, monitoring and evaluation of policies and programmes, in all political, economic and societal spheres so that women and men benefit equality, and inequality is not perpetuated. The ultimate goal is to achieve gender equality.

Green water- rain water on land that does not runoff or recharges the groundwater but is stored in the soil or temporarily stays on top of the soil or vegetation.

Grey water- any domestic wastewater produced, excluding sewage.

Ground water- means water below the surface of the ground which does not flow in a known or defined channel.

Industrial use- the use of water for commercial electrical power generation, industrial, manufacturing and mining purpose.

Integrated Water Resources Management- a process that promotes the coordinated development and management of water, land and related resources, in order to maximise the resultant economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems.

In stream flows- is the water flowing in a stream channel or water body.

Least-cost Planning- a process in planning which aims to find the least expensive way of meeting a demand for water for any use.

Levy- is a sum of money that one has to pay e.g. Tax to the government.

Management of a Watercourse- Planning the sustainable development of a watercourse and providing for the implementation of any plans adopted and otherwise promoting the rational, equitable and optimal utilisation, protection, and control of the watercourse.

Navigational use- use of water for sailing whether it be for transport, fishing, recreation or tourism.

Operating in Silos-a situation in which structures operate in isolation with a predetermined objective and are independent of the parent operation.

Paucity of Water- scarcity of water.

Pollution of water- means any detrimental alteration in the composition or quality of the water, which results directly or indirectly from human conduct.

Potable Water- water that is suitable for drinking.

Primary Purpose Water- means the use of water for domestic requirements, sanitation, watering of domestic animals (less than 30 livestock units), and limited irrigation of land (less than a quarter of a hectare) that belong to a homestead but does not include the use of water supplied by a local authority for distribution to the inhabitants.

Regulation of the flow of the waters of a watercourse- the use of hydraulic works or any other continuing measure to alter, vary or otherwise control the flow of waters of a watercourse.

Reservoir/ Reserve- a lake-like area where water is kept until it is needed.

Retail Water Tariff- a tariff incurred by water-user, be it an individual, an institution and/or an organisation payable upon consumption of water resource from a service provider.

Riparian Diversity- variable characteristics along a river bank.

Riparian- pertaining, relating, or situated on the banks of a river or stream.

River Basin- an area drained by a system of surface and ground waters consisting by virtue of their physical relationship a unitary whole normally flowing into a common terminus.

Riverine Diversity- different species in a river environment.

Shared watercourse- a watercourse passing through or forming the border between two or more States.

Significant harm- no-trivial harm capable of being established by objective evidence without necessarily rising to the level of being substantial.

Sustainable development- development that meets the needs of the present without compromising the ability of future generations to meet their own needs.

Sustainable water Management- meeting current water demand for all water-users without impairing future supply.

Trans-boundary water- any water source (including surface and ground water) that cuts across political (especially country) boundaries.

Virtual Water Concept- a concept that measures how water is embedded in the production and trade of food and consumer products.

Vulnerable groups- the degree to which a population, individual or organisation is unable to anticipate, cope with, resist and recover from the impacts of disasters.

Water Demand Management- the use of price, quantitative restrictions and other devices, e.g., leakage detection and control, to manage the demand for water.

Water Resource Management Tariff- tariff charged to water-users based on the amount of water permitted to abstract from a river in a basin to finance operations of a river basin institution.

Water Resources Utilization- includes domestic water supply, irrigation, hydropower, navigation, fisheries, environment, tourism, aquaculture, industrial / manufacturing and forestry.

Water Security- the capacity of a population to safeguard sustainable access to adequate quantities of acceptable quality water for sustaining livelihoods, human well-being, and socio-economic development, for ensuring protection against water-borne pollution and water-related disasters, and for preserving ecosystems in a climate of peace and political stability.

Watercourse- a system of surface and ground waters consisting – by virtue of their physical relationship – a unitary whole normally flowing into a common terminus such as the sea, lake or aquifer.

Watershed- a ridge of land that separates two adjacent river systems and drains to a particular point along a stream.

FOREWORD



The Kingdom of Eswatini has about 4,500 million cubic meters of available fresh water resources of which the country harnesses and stores only 744 million cubic meters or 17%. Of the amount harvested, 666.4 million cubic meters is stored in large dams while small private dams take up the remaining 73.6 million cubic meters. Most of our water resources are shared with our Riparian States and this calls for effective collaboration in the development and management of our water resources.

Over the years, the country has observed a serious decline in the amount of water available within our river systems. This situation has been further compounded by the noted changes in our climatic conditions which calls for improved strategies for efficient water resources development and management. The provision of potable water especially to our rural areas remains a challenge and the country has made great efforts to ensure the achievement of 100% potable water coverage by the year 2022.

The Government of the Kingdom of Eswatini is pleased to present the National Water Policy to guide national water resources development and management. It has been developed in line with the provisions of Regional and International Policies as well as other related instruments and presents ***Statements of Good Intent*** for effective development and management of the country's water resources. It is centred on the premise that ***water sustains life and is the engine and catalyst for socio economic development.***

The Ministry of Natural Resources and Energy being the Ministry responsible for water resources remains indebted to the different stakeholders who have provided inputs which enabled the production of this important document. The issues presented in the document provide a good guide and best practice for water resources development and management. It is therefore the Ministry's hope that our different water using sectors will adhere to these provisions to ensure a water secure nation.

The document presents ***seven (7) key pillars*** with their related Policy pronouncements and Strategies as presented below:

- Water for Economic Development and Poverty Alleviation
- Water Allocation and Utilisation
- International Cooperation in Water Resources Management

- Water Resources Development and Management
- Stakeholder Participation and Capacity Building
- Institutional Framework
- Water Pricing

The Ministry remains grateful for the support rendered by our different sector players in the production of the document and in the different consultations which helped to gather stakeholders' views to input the document. It is noted that there are likely to be new issues and developments during the life span of this Policy and these will be captured through the periodic review of the document to keep up with developments in the water world.

It is my wish that this document presents a new dawn in the Eswatini Water Sector.



JABULILE MASHWAMA (SENATOR)

MINISTER FOR NATURAL RESOURCES AND ENERGY

1. INTRODUCTION

1.1. Background

The Eswatini National Water Policy (NWP) sets out the vision, intention, and strategy of the country on the development and management of water resources. The NWP underscores the aspirations of the National Development Strategy (NDS) and the Poverty Reduction Strategy and Action Plan (PRSAP) of reducing poverty and increasing economic prosperity in Eswatini.

The water sector as expressed in the NDS is about the development and implementation of strategies for poverty alleviation and drought mitigation, with the main objective of improving water availability for social development. Therefore, the NDS sees water as an engine for a people centred development that ensures sustainable economic prosperity.

The country expects the water sector to play a catalytic role in poverty eradication through various interventions as articulated in the vision of the water sector, which seeks to attain *national economic prosperity and social upliftment through equitable, productive and optimum utilisation of water resources while ensuring environmental sustainability*.

To achieve this goal, water plays a role in the attainment of the following objectives: Social Equity; Food Security; Peace and Stability; Energy Security; Safety from Water Related Disasters; Environmental Sustainability; Improved Tourism and Recreational Activities, and Industrial Development.

BOX 1: NATIONAL DEVELOPMENT STRATEGY (NDS) VISION

“By the year 2022, the Kingdom of Eswatini will be in the top 10% of the medium human development group of countries founded on sustainable economic development, social justice, and political stability”

To achieve the set goal, Eswatini requires a multi-sectoral approach anchored on an Integrated Water Resources Management (IWRM) approach and an IWRM Strategy. The IWRM and IWRM strategy provide a framework to guide role players in the country’s water sector using the following tools to address key focal areas:

- a) Institutional Arrangements;
- b) Water Resources Development;
- c) Water Resources Management;
- d) Water Resources Information Management;
- e) Water Supply and Sanitation Service Provision;
- f) Legal Regulatory Instruments of Good Practice;
- g) Capacity Building, Research and Training; and
- h) Awareness Creation and Stakeholder Engagement.

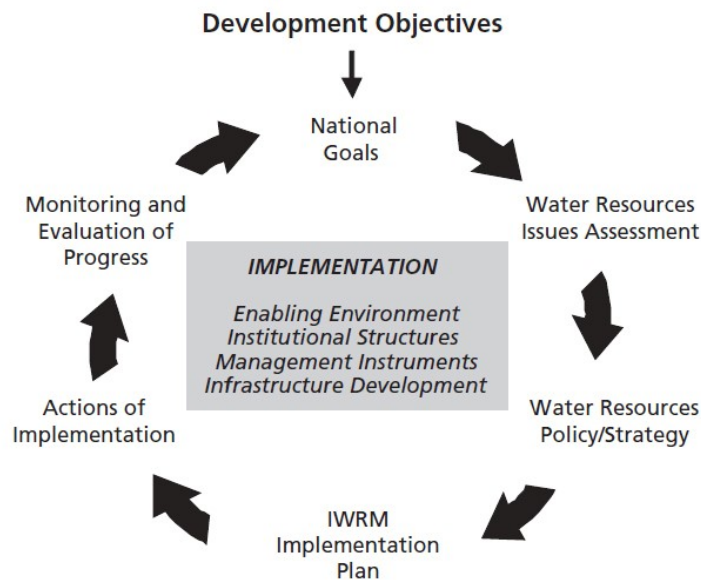
Water is a key driver of economic and social development. It is also one of the many vital natural resources needed to maintain the integrity of the natural environment and so water issues cannot be considered in isolation. In addition, factors such as demographic and climatic changes further increase the stress on water resources, which require adaptive water management strategies.

Water managers, whether in the government or private sectors, are required to make decisions

on water allocation and have to reconcile the ever-increasing demand for water with diminishing water supplies, which has increasingly made the traditional approach of managing water redundant. A more holistic approach to water management is essential.

This is the rationale behind the IWRM approach: it provides for a forward-looking, efficient, equitable, and sustainable development and management of limited water resources and coping with conflicting demands. This NWP aims at promoting a new integrated approach to manage the Kingdom of Eswatini’s water resources through goal setting, benchmarking, strategic development, implementation and monitoring and evaluation - see Figure 1.

FIGURE 1: POLICY CONCEPTUAL FRAMEWORK



Source: Status Report on Integrated Water Resources Management and Water Efficiency Plans. UN-Water, 2008

1.2. Overview and Context of the National Water Policy

This Policy meets the principles enshrined in Articles 210 and 215 of the Constitution of the Kingdom of Eswatini. It meets the principles of sustainable development, especially those set out in goals 6 and 13 of the Sustainable Development Goals (SDGs), the UN Convention on the Law of the Non-Navigational Uses of International Watercourses 1997, and the Eswatini National Climate Change Policy of 2016.

The policy also meets the provisions of the Southern African Development Community (SADC) Regional Water Policy and Strategy of 2006, and the Revised Protocol on Shared Watercourses in the Southern African Development Community and good practices from a number of jurisdictions within the African continent and outside Africa.

Other landmark international events that have influenced the policy include the UN

Conference on the Human Environment (Stockholm, 1972); the International Drinking Water Supply and Sanitation Decade launch (Mar del Plata, 1977); and the World Conference on Water and the Environment (Dublin, 1992). Others include the UNCED Earth Summit - Agenda 21 (Rio de Janeiro, 1992); the Drinking Water and Environmental Sanitation Conference on the Implementation of Agenda 21 (Noordwijk, Meeting of Ministers, 1994); the Global Water Partnership meeting (Stockholm, 1996); and the First World Water Forum of the World Water Council (Marrakesh, 1997).

The Policy provides a framework for water management in Eswatini. It provides the rules and regulations for the promotion of sustainable water harvesting and sharing of trans-boundary watercourses at all levels in the country.

The policy spells-out the role of government in water allocation and utilisation, water and environmental sustainability, water and public safety, water resources development and management, stakeholder participation and capacity building, institutional frameworks governing the water sector, water pricing, water source protection and catchment management, and guidelines for implementation.

The policy also covers a wide range of other water management issues including international co-operation in water resource management, and in the provision of water for economic development and poverty alleviation.

1.3. The National Water Policy Formulation Process

The development process of the NWP began in the year 2000 with financial support from the United Nations Development Programme (UNDP). Without a reference water policy in place, the UNDP availed funds for the engagement of a consultant to educate the water sector on how the Government was going to conduct the policy formulation process. The convening of a Drafting Team consisting of sector players followed suit and the work concluded with the production of the first draft water policy for Eswatini complemented with an intensive stakeholder consultation process both within and outside of government.

However, at around the same time the Southern African Development Community (SADC) region was initiating processes for the formulation of a Regional Water Policy and Strategy. The aim of SADC was to harmonise all existing water policy documents within the region.

This, then, meant Eswatini had to suspend temporarily the NWP formulation process until SADC produces the Regional Water Policy (RWP). In 2006, SADC approved the Regional Water Policy and Strategy document, which allowed the National Water Authority (NWA) to resume its processes and finalise the NWP document.

In the year 2007, the NWA created a multi-stakeholder Working Group to guide the water policy finalisation process. This group got financial support from the Eswatini Water Partnership (EWP), which allowed the country to engage a small team of local experts who conducted a literature review to enhance the draft produced in 2000.

The NWA approved the resultant draft and thereafter took it through the different chiefdoms to collect further inputs. The country convened a national stakeholder workshop to validate the documents and tool it to Cabinet through the Portfolio Committee for the Ministry Natural Resources and Energy (MNRE).

The draft National Water Policy was finalised in 2009. However, the 2009 draft was overtaken by events and developments that transpired after its presentation. Key among these developments was the enactment of the Water Act of 2003 and the several developments in the SADC Region, which created the need to review the 2009 final draft to incorporate these developments and come up with a comprehensive water policy for Eswatini.

In 2016, the UNDP provided funding to the Government of Eswatini, through the Ministry of Natural Resources and Energy (MNRE) for utilisation by the Department of Water Affairs (DWA), to consult national stakeholders and review and finalise the National Water Policy. The Government of Eswatini acknowledges that water policies, however well intentioned, need stakeholder engagement for their successful implementation on the ground.

The Government further acknowledges the role-played by Traditional Leaders in water resources management at the grassroots levels and that played by the Natural Resources Portfolio Committee.

In finalising this policy, the DWA embarked on a stakeholder consultation and engagement process that included organising and holding workshops in the four (4) regions of the country to solicit inputs from over 400 Traditional Leaders as well as about 20 Portfolio Committee members. In addition, more than 100 participants attended validation workshop held to promote stakeholder participation in the formulation of the Policy.

2. PROBLEM STATEMENT AND RATIONALE

Despite being a finite resource, water is fundamental for sustainable development. The Kingdom of Eswatini's (KoE) NDS, as revised and developmental vision: Vision 2022 demands availability of water to meet the set national goals, given that Eswatini's economy is agro-based economy.

The growing population, agricultural production, hydro power generation, and industrial productivity demands of the economy, in an era of increasing negative impacts of climate change, puts the country's sustainable development and inclusive growth agenda at risk.

The national water legislative frameworks stem from the 2003 National Water Act, which is not in harmony with recent national water demand developments and adequate integration of climate change risks, such as the demographic transition and an increase in drought-like conditions in Eswatini. While the legislation provides for decentralized water resources management, the institutional capacities remain a limiting factor for effective coordination of the water sector and the management of water resources.

The disintegrated sectoral planning and monitoring restricts linkages for effective national water resources management. Water allocation and pricing guidelines do not adequately recognise water as an economic 'good' and competing uses do not recognise the reciprocal benefit from national investments.

Therefore, the NWP envisage water reforms that should promote the development and review of compliance frameworks that encourage innovation in the devolution of adaptive water technology transfer, water infrastructure development, and adherence to quality water standards.

The multi-disciplinary approach to water resources management increases opportunities for synergy in a holistic undertaking. In addition, a gender responsive multi-stakeholder participation is yet to be realised in addressing inequalities in the sector. The national water resources being trans-boundary in nature also requires research, and negotiation capacities for the effective management of existing cooperative agreements. This is essential for a holistic promotion of IWRM of the shared water basins.

2.1 Rationale for the National Water Policy

The rationale for this National Water Policy (NWP) is to promote efficient and sustainable use of water resources through strengthening the institutional framework; water resources development; water resources management; water resources information management; water supply and sanitation service provision; legal regulatory instruments of good practice; capacity building, research and training; and awareness creation and stakeholder participation while ensuring gender representation in all processes.

This Policy is aimed at increasing the level of monitoring of water utilisation due to increased number of users and the resultant potential for conflict. Over the years, water resources management has become more complex due to issues such as water quality problems, priority in water allocation, trans-boundary obligations, and development of infrastructure, stakeholder participation as well as the environment as a water-user.

New and creative approaches are required to meet the Sustainable Development Goals (SDGs), which pertains to water. These may include, *inter alia* reassessment of the allocation criteria, promotion of efficient water-use, and promotion of water harvesting technologies, water catchment protection and negotiating for greater shares from the trans-boundary Rivers.

BOX 2: ESWATINI CONSTITUTIONAL PROVISIONS WITH REGARD TO WATER.

210. (1) Subject to the provisions of this constitution or any other law, land, minerals and water are national resources

210. (2) In the interest of the present and future generation, the State shall protect and make rational use of its land, mineral and water resources as well as its fauna and flora, and shall take appropriate measures to conserve and improve the environment.

215. There shall be no private right of property in any water found naturally in Eswatini.

217. Parliament may make laws – (c) regarding the use of water naturally found in Eswatini.

2.2 Governance and Institutional Reforms in the Water Sector

The Eswatini Water Act, enacted into law in 2003, is still in force. It seeks to consolidate the administration of water resources under one ministry. It also created basin level structures (River Basin Authorities, Irrigation Districts and Water-user Associations) with significant powers to manage water.

Above these structures is the National Water Authority (NWA), whose role is to supervise the activities of the structures described above and to advise the Minister on policy matters. The Act provides for; *inter alia*, the Authority committees, the Department of Water Affairs (DWA) and the Water Apportionment Board that have varying roles and functions under the Act.

A significant development that positively influenced the water sector in the country was the enactment of the Constitution of the Kingdom of Eswatini in 2005, which contains related provisions under Section 210 and 215. Section 210 of the Constitution declares water as a national resource and vests the ultimate responsibility for its protection in the State. Section 215 rules out any private right of property in any water found in Eswatini. Other sections deal with environmental protection, which has implications for water as well as Parliament's intervention concerning enactment of laws related to water.

2.3 Legal Framework of Water Resources in Eswatini

Prior to 1967, Eswatini did not have a comprehensive legislation governing water and water use. Existing legislation such as the Eswatini Administration Act of 1950 had direct or indirect implications for water resource management but did not focus on the water sector. The Government had an almost exclusive responsibility for water in the country. However, at the time, the country also did not consider water, as a resource, finite and limited.

The Water Act of 1967 formalised the water sector and provided for the establishment of the Water Apportionment Board (WAB), which had powers to manage and allocate water in Eswatini. The Minister responsible for water could hear appeals against the decisions of the Board. The Minister had the power to over-rule the decision of the WAB. However, the Water Act (1967) did not deal with the fragmentation of water coordination among different ministries and departments. It also did not extend the participation of water-users wide enough while most of the authority still rested with government.

The Water Act of 2003 consolidated the administration of water under one ministry and created basin level structures (River Basin Authorities, Irrigation Districts and Water-user Associations) with significant powers to manage the resource. Above these structures is a National Water Authority (NWA), whose role is to supervise the activities of the structures described above and to advise the Minister on policy matters.

A significant development that influenced the water sector in the country was the enactment of the Constitution of the Kingdom of Eswatini in 2005. The Constitution also stipulated provisions related to water. Article 210 of the Constitution declares water as a national resource and vests the ultimate responsibility for its protection in the State. Article 215 rules out any private right of property in any water found in Eswatini. The other Articles deal with environmental protection, which has implications for water as well as Parliament's intervention concerning the enactment of laws related to water.

Eswatini's reliance on groundwater and the limited spatial distribution of surface waters creates a complex legal framework for management and development of water resources. Compounding the situation is the country's reliance on internationally shared and trans-boundary waters.

To safeguard national interests, there is a need to compile and analyse all policies and legislation relating to water on a regular basis. There are multitudes 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:

International and Regional Agreements

- The Sustainable Development Goals, 2015.
- The Dublin Principles on water and the environment, 1992.
- The UN Convention on the Law of the Non-Navigational Uses of International Watercourses 1997.
- The SADC Regional Water Policy and Strategy, 2006.
- The Revised Protocol on Shared Water Resources SADC, 2000.
- The Treaty on development and utilisation of the water resources of the Komati River Basin between the Kingdom of Eswatini and the Government of the Republic of South Africa, 1992
- The Agreement between the Government of the Republic of South Africa, the government of the Kingdom of Eswatini and the government of the people's Republic of Mozambique relative to the establishment of a tripartite permanent technical committee, 1983
- The Agreement on the establishment and Functioning of the Joint Water Commission (JWC) signed between South Africa; Eswatini in 1992.
- The Agreement on Cross Border Water Supply between the Republic of South Africa and the Kingdom of Eswatini signed in 2010.
- The Interim IncoMaputo Agreement between the Kingdom of Eswatini and the Republic of South Africa and the Republic of Mozambique signed in 2002.
- Regional Climate Change Strategy of 2015.
- The Mbuluzi River Basin Agreement between the Kingdom of Eswatini and the Republic of Mozambique in 1976.
- The Pigg's Peak Agreement of 1991.
- The Lavumisa Agreement, 2006.
- The Tripartite Interim Agreement Between the Republic of Mozambique, the Republic of South Africa and the Kingdom of Eswatini for Co-operation on the Protection and Sustainable Utilisation of the Water Resources of the Incomati and Maputo Watercourses, 1991.
- SADC Agriculture Policy, 2013.
- Paris Agreement, 2016.

At the national level, principles of water resources are contained in the following documents:

National Policies and Plans

- The National Climate Change Policy, 2016.
- The Environment Policy and Environment Action Plan, 1997.
- The Disaster Risk Management Plan and Disaster Risk Management Policy, 2010.
- The Comprehensive Agriculture Sector Policy (2005).
- The Freshwater Fisheries and Aquaculture Policy (2015).
- The Food Security Policy (2005).
- The Forestry Policy (2002).
- The National Irrigation Policy (2015).
- The Disaster Management Policy (2010).
- The Disaster Risk Management Policy (2011).
- The Eswatini National Agricultural Investment Plan (2015).
- The Energy Policy (2003).
- The Education and Training Sector Policy (2011).
- The Education Sector Strategic Plan (2010-22).
- The Health Policy (2007).
- The Health Sector Strategic Plan (2008-13).
- The Sports and Recreation Policy (2012).
- The Tourism Policy (2011).
- The Decentralization Policy (2006).
- The National Youth Policy (2009).
- The Gender Policy (2010).
- The National Rural Resettlement Policy (2003).

National Legislation and Regulations

- The Constitution of the Kingdom of Eswatini, 2005.
- The National Water Act, 2003.
- The Water Services Act, 1992.
- The Environmental Management Act, 2002.
- The Environmental Audit, Assessment and Review Regulations, 2000.
- The Waste Regulations, 2000.
- The Ozone Regulations, 2003.
- The Meteorological Service Act (1992).
- The Water Pollution Regulation. (2010).
- Draft Water Application and Pricing Regulations, 2016.
- Draft Dam Safety Regulations, 2016.
- Disaster Risk Management Act (2006).
- The Energy Regulatory Authority Act (2007).
- The Public Health Act (1969).
- The Electricity Company Act (2007).
- The Land Act (1972).
- The Meteorological Act (1992).

2.4 Water Sector Situation analysis

2.4.1 Water Resources in Eswatini

Eswatini's total renewable water resources is 4.51 km³/year, with 1.87 km³/year or 42 percent originating from South Africa. Eswatini's dam capacity per capita was at level of 454.5 m³ in 2015, down from 474.8 m³ in 2010, this is a change of 4.28 %. In 2015, Eswatini's total dam capacity was 0.59 km³.

Eswatini shares five major rivers with South Africa and Mozambique as shown in Annex 1. The Komati and Lomati river systems, in the north of the country, originate in South Africa and flow to Mozambique and the Indian Ocean via South Africa. The water resources of the Lomati river basin are intensively used and this has led to tension among the three countries.

Irrigated agriculture consumes the bulk (870 Mm³/annum) of water, of which 67% goes to the sugarcane industry. The Mbuluzi River originates in Eswatini and flows into Mozambique. This river system also requires cooperation between the two countries in an effort to share the water resources therein equitably. Hydrological data uncertainty Effective and insufficient institutional capacity affects the implementation of the water sharing formula. The Usuthu River originates in South Africa and flows out through Eswatini into Mozambique, forming the border between Mozambique and South Africa. The Ngwavuma, in the south of the country, originates in Eswatini and flows into South Africa before entering Mozambique.

There are no major underground water aquifers in Eswatini, and so the yields are low. Groundwater sources are used mainly for drinking, especially in the drought prone areas.

On the other hand, there are nine (9) major dams with a height of more than 10 metres and total storage capacity of about 585 million m³ (Table 1). Among these, seven (7) are used for irrigation purposes, one (1) for hydroelectric purposes and the other for water supply while the larger dam, Maguga Dam, was constructed in 2002 for irrigation, hydroelectricity generation, and tourism. One dam is currently under construction and its main purpose shall be irrigation of sugarcane and other crops. Total withdrawals for agricultural, domestic and industrial purposes are estimated at almost 1 km³. Irrigation uses about 90-95 percent of the water resources in the country (Table 2).

TABLE 1: MAIN DAMS IN ESWATINI

| Dam | Capacity (x10 ⁶ m ³) | Date established | River system |
|--------------------|---|------------------|--------------|
| 1. Maguga | 332 | 2001 | Komati |
| 2. Mnjoli | 153 | 1980 | Mbuluzi |
| 3. Sand River | 50.3 | 1965 | Komati |
| 4. Lumphohlo | 24 | 1984 | Usuthu |
| 5. Henrick van Eck | 9.87 | 1969 | Usuthu |
| 6. Sivunga | 5.92 | 1972 | Usuthu |
| 7. Nyetane | 6.78 | Raised 1992 | Usuthu |
| 8. Hawane | 2.75 | 1984 | Mbuluzi |
| 9. Lavumisa | 0.35 | 1996 | Pongola |
| 10. Lubovane | 155 | 2009 | Usuthu |
| Total | 740 | - | - |

Source: Revised Integrated Water Resources Management Masterplan (2016).

TABLE 2: WATER-USE BY SECTOR IN ESWATINI (2000)

| Category | Water withdrawal (x10 ⁶ m ³) | Water withdrawal (%) |
|----------------|---|----------------------|
| Irrigation | 992.65 | 95.3 |
| Livestock | 12.51 | 1.2 |
| Domestic-Rural | 9.75 | 0.9 |
| Domestic-Urban | 14.43 | 1.4 |
| Industry | 12.02 | 1.2 |
| In stream use | - | - |
| Total | 1041.36 | 100.0 |

Source : Mlilo et al (2000)

The country is divided into four physiographic regions that run almost parallel in a north-south direction namely: Highveld, Middleveld, Lowveld, and Lubombo Plateau. Table 3 shows the distribution of this land. The climatic and topographic characteristics of these zones play a significant role in determining the land-use patterns in the country, which in turn affect water-use. The main land-uses include small-scale subsistence agriculture, large-scale commercial agriculture and communal grazing. The spatial distribution of water is uneven across the country; water sources are often not located where the demand is, so requiring reservoirs and conveyance systems to bring the water to the user, hence the need for storage. This also points to the need for effective water management institutions.

TABLE 3: AGRO-ECOLOGICAL REGIONS OF ESWATINI

| Region | Description | Area (%) | Population (%) | Arable Land (%) |
|-----------------|--|----------|----------------|-----------------|
| Highveld | Upland area, mountainous, with high rainfall and mild temperatures. | 33 | 31 | 13 |
| Middleveld | region is warmer and drier than the Highveld. | 28 | 41 | 20 |
| Lowveld | Relatively flat and low-lying, with a marked drought hazard but with good soils. | 31 | 24 | 12 |
| Lubombo Plateau | The plateau rises abruptly from the Lowveld, wooded bushland. | 8 | 4 | 12 |

Source: Mlilo et al (2000)

2.4.2 Water Quality

Sections 5 and 18 of the Eswatini Environment Authority Act, 1992, operationalises the Water Pollution Control Regulations of 2010. Despite the existence of these regulations, water quality is affected by the catchment's characteristics such as uncontrolled discharge of effluent into water bodies leading to water pollution thus making the water unfit not only for human and animal consumption but also for agricultural and industrial operations.

The Water Source Point Mapping Report documents that 72 percent of the Eswatini population uses an improved source of drinking water (96 percent in urban areas and 63 percent in rural areas). Overall, 57 percent of the population uses piped water (piped into dwelling; yard/plot; neighbour; or public tap/standpipe). Rivers and unprotected wells are the main source of household water for people in the countryside with 67 percent of the rural population relying on these.

The highest risk of bilharzia infection is in the Middleveld and Lubombo Plateau where rivers flow slowly and stagnant pools form. The high temperatures and the lack of alternative water supply result in people using the rivers and streams for swimming, washing and drinking. Domestic animals use the same water and contaminate it, increasing the risk of transmitting infections to humans. Eswatini is yet to conduct a study to establish the full extent of the problem of bilharzia. However, in the 1990s, estimations revealed that the infected population might be as high as 20 percent of the total population in both the Middleveld and the Lubombo Plateau.

Therefore, this Policy also seeks to enable the prevention of water pollution, curtail the damage of water sector infrastructure, and allow for watercourse protection including the improvement or maintenance of communal water supplies. The Policy will also provide for the conditions under which the country may engage in activities that for water quality improvement in order to make it safe for use. This Policy will further contribute towards catchment planning and management.

2.5 Justification for the National Water Policy

This Policy is required to guide the Government of Eswatini on how to develop and manage the diminishing water resources for sustainable and socio-economic advancement of the livelihoods of the people in the country.

The policy provides for clear demarcation of the responsibilities of the various stakeholders and institutions involved in the integrated development and management of water resources in Eswatini, in light of the developed and ascended National Water Act of 2003.

The NWP provides a framework and background within which the legislation operates, providing details on the management of water resources in Eswatini. It further exposes the limitation of the operationalisation of the Water Act with a view to influence future enactment and/or review of legislation and strategies governing the water sector and the use of water in Eswatini.

2.6 Expected Outcomes and Benefits

This NWP provides a direction and framework for the management, development, and utilisation of water resources. It sets out the approach, objectives, principles and strategies for implementation. In addition, the Policy outlines the human, institutional, technological, and financial requirements for the attainment of the policy objectives.

The major outcome of this NWP is to improve the management of water resources, including institutional coordination and defining of roles and responsibilities. It encourages the use of water resources in an efficient and equitable manner consistent with the dictates of sustainable development (or the social, economic, and environmental needs of present and future generations). This will help to achieve the national goal of increasing accessibility to reliable safe water by all sectors of the economy in order to enhance economic growth and improve quality of life.

3. OVERALL POLICY GOAL, OBJECTIVES AND PRINCIPLES

The National Water Policy (NWP) is a political statement of the intentions of the Kingdom of Eswatini with respect to water resources development and management. It seeks to provide guidance to water and supporting legislators, managers, users, and supporting partners. The policy is expected to lead to sustainable development through harmonised and coordinated regional strategies, programmes, and actions to address water resources management in the Country.

3.1 Goal

To provide a climate and infrastructure that will make optimal use of Eswatini's water resources by ensuring the sustainable development and management of water resources while progressively maximising the quality of life of the people of Eswatini.

3.2 Objectives

Eswatini faces a major challenge in continuing the sustainable development and efficient utilisation of its scarce water resources to support the economic growth and diversification and poverty eradication.

The policy, and strategies to meet national water demands in the future, will need to be directed towards improving allocative efficiency in the provision of water and enhance technological developments to improve water resources stewardship and water demand management.

The national framework will facilitate access to water of suitable quality, through integrated practices and provide the foundations for the sustainable development of water resources in support of economic growth and diversification and poverty eradication.

The broad rural water supply sub-sector policy objectives are to improve health and alleviate rural poverty through improved access to adequate and safe water.

Therefore, the NWP intends to achieve the following specific objectives:

- a) To provide a national framework for sustainable development and management of water resources in support of economic growth, ecological integrity, human health, and poverty eradication.
- b) To promote equitable provision through access to adequate and good quality water for all.
- c) To promote water resources' allocative efficiency practices.
- d) To promote integrated and decentralised management of water resources with particular emphasis on the roles and responsibilities of stakeholders.
- e) To enhance resilience of the water resources through sound risk management practices.
- f) To ensure that trans-boundary obligations are met at all times and levels.
- g) To promote sustainable economic development in the use of water.
- h) To improve water security in the Country.
- i) To ensure coordination of water resources planning with land-use planning and adoption of basin/catchment planning and management.

3.3 Policy Principles in Water Resources Management

It is the responsibility of the Government to promote sustainable management and use of water resources in Eswatini. The policy aligns to national development programmes, taking into account that, sustainable management and development of water resources is essential for the political, social, environmental, and economic development of Eswatini as a whole.

Throughout the formulation and implementation of the NWP, eight (8) essential guiding and overarching principles are applied as provided below:

- a) **Coherence:** Consistency with global, regional and other relevant national instruments and legislative frameworks should be promoted.
- b) **Integration:** Planning, development, and management of water resources need to be governed by common integrated perspectives considering local, regional, and international context, having an environmentally sound basis, keeping in view the human, social, economic and environmental needs.
- c) **Regulation:** Water-usage needs to be regulated keeping in mind the local geo-climatic and hydrological situations.
- d) **Equity:** The principle of equity and social justice must inform the use and allocation of water resources. All water belongs to the State and is held in trust on behalf of the people of Eswatini. There shall be equitable access to water by all people in the Country to promote adequate quantity and quality water resources management to sustain human well-being. Gender and social equity in accessing water resources will be ensured and women shall be empowered to fully participate in issues and decisions relating to sustainable development and management of water resources.
- e) **Efficiency:** All people in Eswatini are responsible for the proper use and protection of the country's scarce and valuable water resources. The country shall monitor and analyse existing usage to identify inefficiencies, their impact, and provide corrective measures.
- f) **Inclusive participation:** Inclusivity in all sectors, in advancing set roles and responsibilities for all and by all.
- g) **Partnership and consultation:** Participation of stakeholders in the water and related sectors in the identification of solutions to constraints, implementation, monitoring and evaluation of the policy.
- h) **Sustainability:** 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 application and recognition of the shared nature of the nation's limited resources with future generations. The precautionary principle shall be adopted to promote environmental sustainability, economic efficiency and social equity.

4. KEY ISSUES AND POLICY STATEMENTS

In view of the cross-cutting nature of water, the Policy is cognisant of other sectors' policy objectives as they pertain to resource management and has incorporated the following policy statements to optimize the linkages and synergies.

4.1 Water for Economic Development and Poverty Alleviation



FIGURE 2 - MAGUGA DAM HYDRO POWER PLANT IN THE KOMATI RIVER

This section contains policy statements and proposed strategies addressing the role to be played by water in the socio-economic development of the country, including agricultural development, industrial development, food security, energy security and water for basic human needs.

4.1.1. Water for Socio-Economic Development

4.1.1.1 Managing Water as an Economic Good

Within the context of the 2005 National Constitutional proclamations any person or community desiring to utilise water for primary purposes shall not be required to obtain a permit given that water is considered a resource with a social and an economic value. In managing water resources, it is important to recognise the value of water to economic development, emphasising beneficial and efficient use. The principle of allocative efficiency in water resource utilisation shall be applied in order to maximise the net economic and social benefits, as well as contribute towards poverty reduction.

Policy Statement:

Water shall be considered as an economic good, which supports cross-sectoral integration and development, and shall be conserved, developed, and managed to provide for benefits.

Objectives:

- a) To ensure the equitable and efficient application of the nation's water resources, contributes towards achieving sustainable economic growth, development and diversification.
- b) To strongly 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:

- a) Apply the principle of allocative efficiency in water resource utilisation in order to maximise the net economic and social benefits, and contribution towards poverty reduction.
- b) Water-users have a responsibility to utilise water efficiently, with pricing and other mechanisms put in place to encourage allocation of water to uses with higher value with due consideration for social obligations.
- c) Establish a ring-fenced water resource development and management fund that will be resourced through donations, tariffs and levies. Develop operating procedures, and regulatory frameworks for the water resource development and management fund and promote accountability and transparency in its utilisation.
- d) Promote and develop a reporting mechanism by the water resource development and management fund managers to account for value added and economic benefits derived from the application of water resources.
- e) Integrate water resource management and development with land-use spatial planning to maximize productive economic returns and avoid potential constraints imposed by limited water resources.
- f) Formulate and implement appropriate water pricing systems that will reflect the economic and social value of water.

4.1.1.2 Managing Water as a Social Good

Water is not only an economic good; it supports biological life and a range of social services and in the process enhances the well-being and dignity of humans. The effort to achieve such should not be precluded by a requirement that persons and/or communities should obtain a permit for the use of water for primary purposes (as defined in the Water Act).

In addition, water is of significant natural value in most cultural and religious practices in Eswatini and it has an aesthetic value (especially reservoirs and riverine areas) to society. ESEPARC and NDMA (2017) found that because of lack of water, the economy of Eswatini

shrunk by about 7.01 percent in 2016. Thus, the management of water resources must take into account such use to maintain and preserve the country's social norms.

Access to water services in the country has been inequitable in that there is an evident difficulty of access to water by disadvantaged, vulnerable, or marginalised groups like the elderly, children (mostly orphans) and persons with disabilities.

Policy Statement:

Water shall be considered as a social good that is essential for poverty reduction, social well-being, and human dignity.

Objectives:

- a) To ensure the equitable and efficient use of the nation's water resources for the benefit of all the people of Eswatini.
- b) To promote integrated planning and development of water resources at different sectors and levels in order to maximize societal benefits by all the people of Eswatini.

Strategies:

- a) Allocate and enhance access to water with due consideration of social benefits and the environment.
- b) Improve access to water services, at affordable terms and within reasonable distance, to the disadvantaged, marginalised, and vulnerable groups.
- c) Ensure that siting of basic water services is within internationally defined standards of reasonable distance(s).
- d) Create a conducive regulatory environment for the control, and implementation of the legislation that regulates the quality and use, of water for recreational activities.

4.1.1.3 Water Allocation between Sectors and Users

The allocation of water at the national level should be in support of development initiatives along the NDS and other development initiatives in order to maximise total economic development opportunities. This implies promotion of water efficient uses, regarding the social development and food security impacts of other uses such as irrigation and industry. Such includes formulation and the implementation of appropriate allocation methodology and water pricing systems that will reflect the economic and social value of water.

Policy Statement:

Water allocation between sectors and users shall consider, among other things, the economic benefits together with social obligations and environmental requirements.

Objective:

To ensure even distribution and allocation of water across all sectors and users in Eswatini.

Strategies:

- a) Adopt and use an agreed methodology for, and prioritise, water allocation to sectors that maximise economic development opportunities, as enshrined in the revised NDS of 2014.
- b) Ensure RBA regulations promotes efficiencies and considers the social development and food security impacts in water-use.
- c) Formulate and implement appropriate water pricing systems that will reflect the economic and social value of water.

4.1.1.4 Allocating Water for Productive Use

In the eradication of poverty, water supply planning and management must not only accommodate water for domestic use, but also for productive use. This may include income generating activities, homestead backyard gardens, Small Micro and Medium Enterprises (SMME) and livestock watering. In allocating water within a basin, consideration ought to be given to the economic development and poverty reduction potential associated with the proposed water-use.

Policy Statement:

Where possible, the NWA will make water available for productive use, in light of the primary-use in alleviating poverty.

Objective:

To ensure the promotion of productive use of water resources throughout Eswatini.

Strategies:

- a) Allocate water at the basin level in support of development initiatives that maximises total economic development opportunities in Eswatini.
- b) Balance water allocation between sectors and users to consider among other things the economic benefits balanced with social obligation and environmental requirements.
- c) Ensure water efficient uses, with regard to the social development and food security impacts of other uses such as irrigation.
- d) The NWA will introduce charges for water abstracted from natural river courses. Water-used for productive purposes, as opposed to primary use, will attract a charge.

4.1.1.5 Applying Comparative Advantage in Water Utilisation

Comparative advantage in the utilisation of water requires that users use the resource for production purposes. A need therefore arises to understand the economic benefits of water-use. Comparing the value of water-use products alongside the national needs (for food security, agriculture production) requires a negotiated process, based on integrated planning at national and regional level.

Policy Statement:

Comparative advantage is a fundamental principle for efficient water resources management and resources utilisation as a means of promoting trade, services, poverty reduction, and balancing national water budgets in a sustainable manner and shall be applied to water resources management.

Objective:

To ensure efficient water resources management and resources utilisation in a sustainable manner.

Strategies:

- a) NWA will, in consultation with stakeholders, develop a methodology to determine the comparative advantage criteria to be used in water allocation.
- b) Allocate water resources management to activities with comparative advantage at all levels.
- c) NWA will develop an allocation methodology that will give greater weight in water-used efficiently.

4.1.2 Water for Food Security

4.1.2.1 Promoting Food Security and Sustainable Water Resources Development

The attainment of food security hinges on the integrated planning, management, and development of water resources with emphasis on equitable yet efficient water allocation. Eswatini has a great potential of being a net supplier of crucial staple food grains in the SADC Region, hence efforts to promote grain production shall be encouraged with due cognisance of economic efficiency. The dominance of mono-cropping of non-food crops, particularly sugarcane, when allocating water for the purposes of improving food security should be managed. The NWA must support efforts to promote diversification in food production by MOA and others. The attainment of food security and sustainable water resources development will require among other things the full implementation of the National Food Security Policy.

To promote sustainable development for water resources that will ensure reliable and efficient food production, diversity of crops and livestock, irrigated agriculture and industrial development have to optimise production that will not be undermined by effects of soil management, including pollution and inappropriate effluent discharge.

Policy Statement:

The NWA shall strive to achieve national food security through sustainable water utilisation and management for increased agricultural production and productivity.

Objectives:

- a) To improve national food security, contribute to regional food security, and promote employment creation in the rural economy through diversification of the national agricultural base, as well as increased agricultural productivity and outcomes.
- b) To promote adoption of environmentally sustainable production systems and ensure the development of water resources in support of agriculture is undertaken coordination with other stakeholders
- c) To ensure availability of water in sufficient quantity and quality to support the functions of the eco-systems and alternative livelihoods.

Strategies:

- a) The NWA will support the implementation of the National Food Security Policy.
- b) The NWA, in its planning and allocation determinations, will make provisions for water requirements for livestock for economic, social, environmental, cultural, and food security and nutrition purposes with due promotion and support stocking rate controls to combat soil erosion and degradation of riverine biodiversity.
- c) The NWA and its partners will develop guidelines to support responsible water-use for increased food crop production by small-scale arable farmers.
- d) The NWA will support MOA initiatives exploring the options and opportunities to diversify agricultural production in both high and low rainfall zones.
- e) The NWA under its mandate to allocate water for primary use, will support MOA in its efforts to improve small scale irrigated agriculture and stock watering for rural farmers to diversify their crop and stock production to ensure that they establish and maintain a sufficient and balanced diet, which translates to improved health and well-being overall.
- f) Conduct research to scientifically define the appropriate water reserves/in-stream flow requirements for all the river basins and make provisions during allocation for aquaculture and riparian use.
- g) The NWA will support national efforts to develop sustainable irrigated agriculture and aquaculture as a means of promoting reliable food production and enhancing food security in the country as a primary objective for social and economic development.

- h) The NWA will collect, process, and disseminate information on water resources to organisations and extension agencies in order to facilitate development of agriculture.

4.1.2.2 Water Resources for Irrigated Agriculture

More than 95% of the country's water-use is dedicated to commercial irrigated agriculture notably the irrigation of sugarcane. The continued expansion of irrigated agriculture, is in an era of reduced rainfall and climate change impacts and requires that the NWA improves its assessment of water availability using a methodology developed to allocate water to users and uses that improve the economic development of the country, stimulate small-scale crop production, and contributes towards poverty reduction. Future water resources developments for commercial irrigated agriculture shall be planned in an integrated manner.

Policy Statement:

Water resources development for commercial agriculture irrigation shall uphold the core principles of Integrated Water Resources Management and Development (IWRM) by continuously monitoring water availability and increased annual demand for water.

Objectives:

- a) To ensure promotion of water efficient irrigation schemes and systems that will ensure sustainable use of water resources in Eswatini recognising the increased threat of climate change induced reductions in water availability.
- b) To ensure IWRM and development in Eswatini.

Strategies:

- a) The NWA will prepare an IWRM Plan for the country.
- b) The NWA shall review the procedures for applications for water permits with the view to support small-scale irrigation schemes for food production.
- c) The NWA will prepare guidelines for applicants seeking a permit for food production purposes.
- d) The NWA will develop guidelines on efficient utilisation of water for irrigation.
- e) The NWA will develop, in consultation with stakeholders, long-term objectives to reduce the amount of water required to produce a given crop or biomass. The long-term objective is to adapt to a changing climate that is expected to manifest in reduced national rainfall by increasing the need for irrigated farmers to adopt increasingly more efficient methods of irrigation.

4.1.2.3 Promoting Rainwater Harvesting and Conservation Agriculture

Rainwater harvesting has largely been carried out on an *ad hoc* basis in the country, with little or no formal support through established policy or institutions. The Government, private

sector driven organisations, and rural and urban households have largely driven rainwater harvesting. This has been influenced by the availability of potable or productive water within or near the households, variations and seasonality of rainfall in the country and the effects of recurring or extended droughts, particularly in recent years. Conservation agriculture (also referred to as climate smart agriculture) offers opportunities to increase or retain soil moisture through low tillage operations and mulching. The MOA has developed a Conservation Agriculture Strategy and has engaged thousands of farmers to adopt this system of production.

Policy Statement:

Improved rainwater harvesting, and tillage techniques shall be promoted and supported to encourage water conservation in the agriculture and other sectors.

Objective:

To support improved domestic water harvesting and conservation agriculture and reduce water demand throughout Eswatini.

Strategies:

- a) Provide institutional support to enhance on-going efforts of homesteads utilizing rainwater harvesting systems.
- b) Support rainwater harvesting initiatives in government basic services facilities (schools, clinics / hospitals) and urban buildings.
- c) The NWA will support ongoing national initiatives to introduce conservation agriculture to small-scale and subsistence farmers.
- d) The NWA will develop guidelines on a range of potentially useful rainwater harvesting technologies.

4.1.2.4 Promoting the Use of Water for Primary Purposes

The pronouncement of water-use for primary purposes guarantees the development of water infrastructure, small-scale water harvesting, and small-scale irrigated farming, which if effectively applied, will lead to higher income levels through enhanced crop production and productivity, sustainable livestock husbandry, and generally higher nutrition levels. This will increase income, reduce human poverty, and further help in the fight against diseases, particularly HIV/AIDS, however water supply alone does not reduce poverty directly.

Policy Statement:

The NWA shall promote and prioritise the use of water for primary purposes (i.e., domestic, livestock and home gardens) and as a means of raising agricultural productivity of rural farmers.

Objective:

To promote and prioritise the effective use of water for primary purposes for crop production, livestock watering and increased nutrition.

Strategies:

- a) Primary water-use should be a priority in water resource development projects to avoid diversion of irrigation water for primary use. The NWA will strive towards ensuring water allocated for primary purposes is used in an efficient and productive manner through awareness raising initiatives within and amongst beneficiaries of primary water.
- b) The NWA will support households who decide to commercialise their crop production through specific water allocation criteria that rewards small-scale farmers to increase agricultural production at small-scale.

4.1.2.5 Improvement in Water Resource Use Efficiency

It is critical that Eswatini use its available water more efficiently to ensure continued agriculture production and sector growth in light of the project climate change impacts – increasing temperatures and drought. Eswatini-based irrigation schemes are exploring more efficient water-use methodologies as this result in reduced water abstraction. In addition, efficient irrigation techniques will undergo tariffs and levies application. NWA is committed to supporting increased water-use efficiency through conserving water by applying efficient irrigation systems such as drip and centre pivot systems than furrow and dragline systems.

This will allow more emerging small and commercial scale farmers to produce a diversity of crops thus further ensuring food security for the nation and possibly in the region as well as increasing income levels and thus raising the overall standard of living, particularly for rural communities.

Policy Statement:

The NWA shall promote and support increased water-use efficiency through legal and/or regulatory instruments that reward efficient water-use.

Objective:

To ensure increased water resource use efficiencies.

Strategies:

- a) The NWA will develop guidelines on the benefits of transitioning from irrigation systems that are water inefficient (e.g. furrow irrigation) to systems that are more water efficient.
- b) Incentives (tariffs and levies) will be incorporated in promoting water-use efficiencies and savings, in particular in irrigation practices.

4.1.2.6 Managing Climate Change impacts on Water Availability

Eswatini is faced with water shortages, unpredictable rainfall, and shifting seasons, among others risks, majorly due to climate change. This policy is intended to avert water scarcity through strategies that promote water efficiency.

Policy Statement:

The NWA shall strongly support efficient utilisation and management of water resources.

Objective:

To manage water scarcity and ensure its adequate availability to all people.

Strategies:

- a) Develop national water programmes and plans that are coherent and create synergies between water-users.
- b) Develop actions to manage water scarcity – promote use of efficient irrigation systems.
- c) Develop guidelines for drought management at the basin levels.
- d) Promote public participation mechanisms for water scarcity management issues.
- e) Establish learning facilities (schools) for farmers to promote climate adaptation (drought-resistant crops, crop rotation, and sustainable ways to raise livestock).
- f) Establish indigenous and drought-tolerant seed banks and distribution mechanisms.

4.1.2.7 Strengthening water resilience

Water development and management planning along the IWRM will include consultations with different stakeholders for collective resolutions on actions to promote water-use and restrictions for a reduced demand during droughts and build resilience. It is essential that all users (in particular irrigators) understand the future risks of drought when setting their level of service.

Policy statement:

The NWA shall ensure that the water industry is able to secure efficient investment in long-term resilience while keeping customer bills at an acceptable level.

Objective:

To build a resilient water system through minimizing the impacts of climate variability and change; and instituting measures to mitigate the effects of, and prevent damage caused by, extreme hydrological occurrences (floods and droughts).

Strategies:

- a) Develop and implement a national water resources long-term planning framework, which will establish water needs over the next 50 years and the strategic options.
- b) Develop and implement a water resilient plan requiring water-users' institution to choose an appropriate drought model to test their systems.
- c) Develop collaborative mechanisms with other sectors such as the energy and agriculture, to develop joint infrastructure and offer water services or procure water supplies.
- d) Enhance the natural resilience of catchments, to increase the water available for abstraction without posing unacceptable pressures on the environment.
- e) Ensure coordinated and informed land-use planning/building regulations and environment impact assessments resolution enforcement.
- f) Create synergies for water-users to work in partnership with landowners and others to improve the morphology of rivers in their region and enable them to better support water ecosystems.

4.1.2.8 Water Security

Water security refers to the capacity of a population to safeguard sustainable access to adequate quantities and qualities of water for sustaining livelihoods, human well-being, and socio-economic development. Such would ensure protection against pollution and risks (disasters), and for preserving ecosystems. It encapsulates complex and interconnected challenges and opportunities, and highlights water's centrality for achieving a larger sense of security, sustainability, development, and well-being.

Policy statement:

The NWA shall address water security in the country through safeguarding sustainable access to adequate quantities and qualities of water to sustain livelihoods, human well-being, and socio-economic development.

Objective:

To put in place measures that shall ensure water security.

Strategies:

- a) Develop and implement policies to promote effective water planning, allocation and pricing, aimed at increasing water security, while ensuring affordability for those who are unable to pay.
- b) Develop an environment and supporting policies for the use of unconventional water sources, such as wastewater management, for the redeployment, recovery and reuse of water for human and other competing uses.

- c) Manage water more sustainably as part of green economy while increasing water productivity and conservation.
- d) Secure funding to restore ecosystem services in river basins and to increase river health.
- e) Ensure shared economic, social and environmental benefits of trans-boundary rivers, lakes, and aquifers.
- f) Build resilience in communities against impacts of climate change.

4.1.3 Water for Energy Development

4.1.3.1 Promoting Generation of Hydro-power

Eswatini is host to a number of watercourses, many of which are not suitable for large-scale hydro-electric power generation. This renders the country dependent on imported power that, at present, is relatively expensive. The production of electrical power is of paramount importance to the nation to achieve energy security. Such, however, poses pressure on the biodiversity, as there is demand for wood fuel in the rural areas resulting in cutting of trees for wood fuel leading to loss of biodiversity of both flora and fauna, soil erosion, and uncontrollable gully formation. It is therefore of paramount importance that the use of renewable energy be promoted to augment energy sources.

Policy Statement:

The NWA shall promote and prioritize the generation of hydro-electric power at mega and micro generation levels to enhance energy security.

Objectives:

- a) To ensure that water of sufficient quantity and quality is available for national energy development priorities to meet national demand and export targets.
- b) To promote the development and application of technologies aimed at reducing pressure on water for energy production in support of economic development and diversification.

Strategies:

- a) Develop and incorporate water development guidelines into the energy equation and promote the application of technologies to ensure efficient use of water resources.
- b) Require RBAs to prepare comprehensive water accounts and spatial demand forecasts to enable the timely development of water supply solutions integrated within the national water resources planning framework.
- c) 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.
- d) 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.
- e) Integrate, where appropriate, power generation in the development of multi-purpose water infrastructure.
- f) Facilitate hydro-power generation at both large and small scale to address some of the country's shortfall in power supply to meet current and future demand while ensuring that natural flows are maintained.

4.1.4 Water for Industrial Development

4.1.4.1 Promoting Industrial Development

In recognising the economic value of water, it is important to note that industrial development cannot progress without sufficient water input. However, delivering water that is of sufficient quantities and the requisite quality for industrial purposes is costly. As such, a levy or tariff may have to be attached to water allocated for industrial use to ensure that economic benefits and corresponding incentives are applied.

Policy Statement:

The NWA shall allocate water for industrial development, which includes manufacturing, mining, tourism, afforestation and navigation at economically viable and sustainable terms.

Objectives:

- a) To ensure that water of sufficient quality and quantity is available to support sustainable industrial development in line with national development plans.
- b) 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.
- c) 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.
- d) To regulate the use of water in high water consuming industries and advocate for water saving technology.
- e) 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:

- a) Develop and implement legislation to regulate the quantity of water-used in high water consuming industries.
- b) Develop and implement guidelines to ensure that industry operations do not pollute the environment.

- c) Determine the water balance of all developments in an integrated manner, accounting for all supply avenues, and integrate industrial effluents in to the overall planning framework and permitting system to ensure all water-use is licensed, efficient and fit for purpose.
- d) Employ cost-effective mechanisms of water provision for industrial development.
- e) Apply appropriate levies/tariffs to water allocated for industrial use to ensure that economic benefits and corresponding incentives are realised.
- f) Monitor and control closely effluent emissions from industrial use and take appropriate action to ensure preservation of the environment and surrounding ecosystems.
- g) Recycle industrial wastewater for re-use where possible.

4.1.4.2 Promoting Alternative Systems of Cooling Industrial Processes

The relative paucity of water in Eswatini’s watercourses limits the potential use of wet cooling thermal power stations. It would therefore have to revert to dry cooling technologies. The same applies to other industries currently relying on “wet” cooling in the country, as they must be encouraged to adopt “dry” cooling technologies.

Policy Statement:

The NWA shall encourage and adopt technologies that are more efficient in terms of water-use for cooling industrial processes and electrical power generation.

Objective:

To ensure promotion of alternative technologies and systems of cooling industrial processes in Eswatini.

Strategies:

- a) Utilise dry cooling technologies for hydro-carbon-powered stations to meet adequately the country’s electricity requirements.
- b) Facilitate the adoption of dry cooling technologies for industries.
- c) Enforce recycling of industrial cooling water, where dry cooling is inapplicable.

4.1.5 Water Supply, Sanitation and Hygiene

4.1.5.1 Promoting and Improving Access to Potable Water, Sanitation and Hygiene

The provision of potable water and adequate sanitation is essential for improving the quality of life. The importance of clean water supply is emphasised by the country’s commitment to the NDS, which envisages full water supply and sanitation coverage by the year 2030, and through the adoption of SDG 6, “to ensure availability and sustainable management of water and sanitation for all.”

Safe drinking water helps to reduce the incidence of water borne diseases in households and communities, reduces public and private expenditure on health care and further increases the productivity of the population ages as time spent (by women and children of school going age) travelling to collect water is reduced. It is a guiding principle of the Government of Eswatini that every person be entitled to a minimum of 30 litres of safe and clean water per day at a distance of no more than 200 metres. The challenge is to ensure that water supply systems are functional for proper management, maintenance, affordability and water quality.

Sanitation standards deteriorate as one moves from urban areas to peri-urban areas and finally to the rural areas. The PRSAP asserts that only 45% in rural areas have proper sanitation facilities, while 63% of households in urban areas use flush-toilets and the rest use either pit latrines or a smaller percentage the bush. The Government of Eswatini is committed to 100 percent sanitation coverage for rural, peri-urban and urban areas by the year 2022.

Policy Statement:

The NWA has a social, moral, and economic responsibility to ensure that all its citizens have adequate access to safe water and adequate sanitation to guarantee human dignity and health.

Objectives:

- a) To accelerate the provision of access to safe, affordable and reliable water and sanitation services.
- b) To ensure the long-term financial sustainability of potable water supply and wastewater services.
- c) To promote social equity in access to water supply and sanitation services with protection for the destitute and the vulnerable.
- d) To increase the reuse of treated effluent recycled water and other alternative sources for potable and non-potable uses in line with national development plans.

Strategies:

- a) Develop a National Potable WASH Plan.
- b) Improve sustainability and security of community's water supply infrastructure through the development and implementation of a national aftercare strategy for rural water supply systems.
- c) Develop new and maintain existing water supply schemes and sanitation facilities.
- d) Synchronize and coordinate the activities of planners and suppliers of water and sanitation related infrastructure and services.
- e) Collaborate with relevant stakeholders to ensure proper planning and regulation of human settlements and associated infrastructure and services in peri-urban and rural areas - availability of sanitary facilities in every household.
- f) Conduct research on options for water supply and sanitation.
- g) Promote sufficient investments in water supply and sanitation infrastructure.

- h) Develop and introduce quality and service standards along with community-based monitoring and performance evaluation mechanisms.
- i) Build capacity and expertise within communities to maintain water supply and sanitation facilities.
- j) Promote community and household-based water purification methods, reduce contamination of water, and water sources.
- k) Strengthen hygiene education to increase further the impact of water supply and sanitation programmes. This should be carried out in an atmosphere of complete community consultation, involvement and participation.

4.1.5.2 Promoting Water Quality Standards for Potable water

It is essential that a collaborative multi-agency approach be adopted to ensure that agencies with responsibility for specific areas within the water cycle are involved in the management of water quality. Drinking water systems operators are therefore encouraged to use a comprehensive risk assessment and management approach, including all steps of the water supply system from catchment to the point of delivery, to consistently ensure a safe drinking-water supply. Drinking water systems operators should therefore establish, implement and maintain water safety plans as per international standards, norms and best practices.

Consultations with other authorities will generally be necessary for other elements of drinking-water quality management, such as monitoring and reporting requirements, emergency response plans and communication strategies. Major stakeholders that could affect or be affected by decisions or activities of the drinking-water supplier should be encouraged to coordinate their planning and management activities where appropriate.

Policy Statement:

The NWA shall promote consistent supply of safe and quality drinking water based on international standards, norms, and best practices.

Objectives:

- a) To ensure safe drinking water through good water supply practice throughout the country.
- b) To prevent contamination of water sources.
- c) To treat the water and reduce or remove contamination that could be present to the extent necessary to meet the water quality targets.
- d) To prevent re-contamination during storage, distribution and handling of drinking water.

Strategies:

- a) Ensure all citizens have access to safe drinking water.
- b) Implement policies, laws and legislations that provide standards in terms of quality and quantity of drinking water supplied to the public.

- c) Establish guidelines to ensure efficient use of resources adopting principles of equity, transparency and accountability.
- d) Promote drinking water as the priority through national and community interventions.
- e) Establish and implement programs intended to encourage borehole drilling.
- f) Subsidise water-drilling equipment to make them affordable to the people of Eswatini to encourage borehole drilling.

4.1.5.3 Cost-recovery and Maintenance of Water Supply and Sanitation Systems

Government may have the means to invest in water supply and sanitation systems around the country, however, maintaining such infrastructure to sustain the benefits appropriate quantities and qualities requires coordinated national and local capacities.

Policy Statement:

The NWA shall ensure long-term sustainability of the water supply services and sanitation facilities by factoring the aspect of cost-recovery into the general operations and maintenance funds, particularly, for rural areas.

Objective:

To ensure long-term sustainability of water supply services and sanitation facilities.

Strategies:

- a) Establish institutional and governance structures to implement determined cost-recovery mechanisms.
- b) Introduce affordable operational cost-recovery measures.
- c) Ensure that cost-recovery measures take cognizance of contributions by the affected disadvantaged groups.

4.1.6 Water for Tourism and Recreational Use

Water for tourism and recreational use is a legitimate use of water and it shall be adequately planned for, along IWRM principles. This form of water-use is considered non-consumptive; however, it shall attract permits and where applicable, levies in keeping with the level of income generated and potential degradation to the environment.

Policy Statement:

Water for tourism and recreational use shall form part of all water resources planning and development in Eswatini.

Objectives:

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

Strategies:

- a) Develop and promulgate suitable regulations governing navigation and recreational use of water bodies and impose charges where applicable.
- b) Identify water bodies not suitable for navigation and/or recreational use and restrain their activities by management overseeing activities in the identified water bodies.
- c) Facilitate eco-tourism and use of water resources for enjoyment/pleasure, with the proviso that such use is safe and does not cause significant damage to the environment.
- d) Facilitate issuing and enforcement of licence(s) for recreational, subsistence or commercial purposes in water bodies.

4.2 Water Allocation and Utilization

FIGURE 3 A AND B - NGWEMPISI RIVER GAUGING SITE AND SUGARCANE IRRIGATION

This section contains policy statements and proposed strategies regarding water allocation priorities, efficient utilization, and monitoring. It should be noted that water availability in Eswatini is subject to considerable uncertainty. Climate change may alter rainfall on the catchments, and the hydrologic regime of the river systems. Water allocation plans, therefore, should integrate uncertainties into account and allow for adequate degree of adaptability.

4.2.1 Water Allocation Priorities

4.2.1.1 Prioritizing Water Allocation

Water is a basic human need for day-to-day living, hence any available drop of water should be targeted to sustain life, thus making water for domestic use, which includes water for basic human needs the highest priority. Primary use of water is viewed in Eswatini as a critical social contribution to alleviate poverty. High assurance water shall be allocated for domestic and industrial purposes, while low assurance water shall be allocated for agricultural purposes. Water for industrial purposes is generally favoured as compared to irrigation water due to its higher economic value per drop. Key sectors include: agriculture (irrigation and supplementary irrigation), livestock, fisheries, aquaculture, hydropower, industrial development, oil production, mining, water transportation, and tourism.

Policy Statement:

In allocating water, priority shall be given to primary use, the natural environment, industrial, agriculture and then other uses based on economic value (allocative efficiency) taking due cognisance of national priorities.

Objective:

To ensure prioritisation, proper allocation and utilization of water resources throughout Eswatini.

Strategies:

- a) Prioritise water for primary use to sustain human life.
- b) Develop regulations, procedures and guidelines to provide criteria for prioritisation of water allocations.
- c) Develop and implement Catchment Management Plans.
- d) Establish and implement a Water Allocation and Utilisation Monitoring Strategy.
- e) Allocate water to the natural environment to enhance its inherent ability to act as a resource base, thus ensuring the sustenance of the water resource.
- f) Allocate all other water-uses on competitive basis (allocative efficiency), such as animal husbandry, irrigation, tourism, water sport, to name but a few.
- g) Improve domestic water supply from a combination of surface and groundwater sources, and rainwater harvesting.
- h) Prescribe sites and regulate water extraction.

4.2.1.2 Prioritising Water Allocation to Organized Groupings over Individuals

It is always encouraging when people organise themselves to form an association, company or cooperative to engage in an income generating endeavour, since it has a greater potential to bridge the economies of scale threshold.

Policy Statement:

In allocating water, preference shall be given to organised groupings (associations, cooperatives, and companies) over individuals with the exception when the individual's request is not more than that of each member of the group.

Objective:

To promote and encourage proper water allocation to organized groupings over individuals.

Strategies:

- a) Allocate water to beneficiary use and water-user associations depending on the overall benefit that will arise from the optimal use of the water.

For example, if a farmers' association with 40 members applies for a water permit to irrigate 20 hectares of mixed vegetables whilst an individual applies to irrigate 10 hectares of mixed vegetables, the policy here suggests that the farmers' association be given priority over the individual farmer should there be not enough water to satisfy both parties. The obvious factor in this example is that each of the members is entitled to ½ hectare whilst the competing applicant wants 10 hectares alone. There are, however, instances whereby the group may require more water per member than an independent individual in which case, the group would not necessarily have an edge over the individual. Caution has to be exercised to resolve conflicts amicably to avoid failure of the groupings.

- b) Encourage the formation of water-user groups in the respective water districts.
- c) Provide incentives for water-user groups.

4.2.1.3 Allocating Groundwater for Primary Use

Groundwater resources provide reliable and easily accessible potable water without the need of extensive and expensive purification. It can easily be over-exploited, thus leading to its contamination and exhaustion. Although not well documented, groundwater pollution by pit latrines, sewer systems, and solid waste disposal also exists in the country. Unlike surface water, once polluted groundwater is hard to restore to its original quality. In this regard it has to be protected and its use limited to primary-use unless an exemption is given by the NWA or its delegated authority.

Policy Statement:

Groundwater shall be protected and not allocated for purposes other than primary use, unless prior exemption has been obtained from the NWA or its delegated authority.

Objective:

To ensure the protection and promotion of allocation of groundwater for primary use throughout Eswatini.

Strategies:

- a) Conduct assessment of groundwater ensuring 72 hour-long pump testing to determine the yield.
- b) Protect the sources of groundwater from pollutions e.g. by industrial pollution, pit latrines, sewer systems, solid waste disposal etc.
- c) Enforce the requirement for drilling and abstraction permits for groundwater utilization as per the requirement of the water legislation.
- d) Regulate the use of groundwater for other uses.
- e) Develop a network and implementing an effective system of ground water monitoring throughout the country.

4.2.2 Water Utilisation Control**4.2.2.1 Issuing of Permits**

The importance of water regulation and monitoring utilisation and abstraction of water due to competing uses in the country is significant in water control. In addition, the entitlement as per trans-boundary water sharing agreements is pertinent information. The issuing of permits for all water-users becomes a useful mechanism for monitoring and managing the use of water resources (both surface and ground water). It is essential that proper records regarding water abstraction are kept up-to-date for water balance calculations. This also extends to situations such as abstraction of surface water for primary use whereby a permit is not required.

Policy Statement:

Water-use shall be monitored and managed through a system of water abstraction permits, which will be issued in accordance with legislations.

Objective:

To develop and encourage the system of issuance of water permits to water-users.

Strategies:

- a) Develop and enforce water allocation guidelines and regulations Issue water abstraction permits for all water-uses save for primary purpose.
- b) Establish procedures to tie water permits to defined land parcels and subject any permit holder who fails to use, or abuses permit to the provisions of the water legislation.
- c) Enforce measuring or otherwise quantification of all water-uses.
- d) Discourage illegal water-use / abstraction.

- e) Develop and manage water-uses database.
- f) Strengthen enforcement and compliance function in relation to water resources protection.

4.2.2.2 Permits for Primary Water-use

Although a permit will not be required for use of water for primary purpose in the case of surface water, it is essential that a proper record of such uses is kept up to date for water balance calculations. Groundwater is a complex resource, hence the need to have a permit for its use irrespective of the purpose. Such is to make it easy to keep a record of the borehole abstraction, borehole yield, borehole location, borehole water quality and other parameters so that users can be advised on the status of the resource timeously.

Policy Statement:

Notwithstanding the provisions of 4.2.2.1, there shall be no need for a surface water abstraction permit for use of water for a primary purpose, but a permit shall be required in the case of groundwater abstraction for the same purpose.

Objective:

To promote the issuance of permits for primary water-use.

Strategies:

- a) Issue water permits for groundwater abstraction for primary purpose.
- b) Keep up-to-date records of water abstractions for all primary purpose uses.
- c) Issue drilling and construction permits to a person who wishes to engage in the business of constructing boreholes to enable people obtain water.

4.2.2.3 Utilizing Groundwater

Due to the connectivity of groundwater with surface water, its allocation shall take cognisance of availability of surface water and where possible, conjunctive use of both types of water sources shall be encouraged. The interconnectivity of surface and ground water has created challenges in the past whereby a borehole drilled close to a water source dries out the surface water source; hence depriving the entire community which is dependent on such source. Hydro-geological complexity of the country demands the effectiveness of monitoring to better understand the groundwater resource. There have been cases of over-exploitation of the resource, with boreholes drying up in certain areas while in some areas very few boreholes exist. There is also dangers of land subsidence and groundwater contamination in cases where over exploitation has occurred.

Policy Statement:

Utilisation of groundwater shall be treated as an integral part of water resources, with due cognisance to its linkage to surface and atmospheric water.

Objective:

To ensure proper and efficient utilisation of ground water as an integral part of water resources management.

Strategies:

- a) Encourage conjunctive use and management of groundwater and surface water, where possible.
- b) Put in place strategic monitoring network of the groundwater resource in selected strategic monitoring wells.
- c) Monitor and manage water-use through a system of water abstraction permits which will be issued in accordance with current water governing legislations.
- d) Monitor the extraction of groundwater to assist in managing conflicts that might arise where surface water is depleted because of sinking borehole next to the surface water.
- e) Develop better understanding of active recharge areas and explore opportunities of artificial recharge.

4.2.2.4 Determining Water Allocation for Agricultural Use

Noting that different crops require different amounts of water to survive and taking cognisance of the varying rainfall from east to west of the country, it is very important that when allocating water for irrigation purposes, it shall be for a specific crop (or group of crops) in a specific area. This will require that the country is zoned based on the amount of rainfall and other climatic factors that play a significant role on irrigation water requirement.

Policy Statement:

When allocating water for irrigation purposes, crop water requirement and climatic factors shall determine the quantity of water to be allocated with strict adherence to best practice, i.e., good irrigation practice and efficiency.

Objective:

To ensure proper and efficient allocation of water for agricultural use throughout Eswatini.

Strategies:

- a) Apply the agro-ecological zoning systems and water resource accounting system when allocating water for irrigation requirements.

- b) Discourage unsustainable crop production across the country and shift to dry land-adapted cultivation with drought tolerant crops or to alternative land-uses such as eco-tourism, grazing, forestry, biodiversity conservation, to name but a few.
- c) Review farming systems and promote where appropriate the introduction of agro-forestry, intercropping, conservation agriculture and other management measures that will improve the soil physical and chemical properties and productivity to optimise water usage.
- d) Apply crop water requirement and climatic factors whenever allocating water for irrigation purposes. These shall determine the quantity of water to be allocated with strict adherence to good irrigation practice and efficiency.
- e) Determine reasonable conversion factor for various crops. This should consider realistic crop water requirements for all crops in the various climatic regions of the country.

4.2.2.5 Controlling Production of Timber Plantations

Plantation forestry is a major influence on the multiple functions of watershed. Presently, there is insufficient co-ordination with the other users within the watersheds in the country. Research has shown that some of the exotic trees that are grown in Eswatini (gum trees, pine trees, etc.) consume considerable amount of water, hence the growing of such trees should be controlled, especially their proximity to watercourses. Plantations should be located away from the watercourses, following the determined distances stipulated in the country's legislation, since their existence reduces the water table and the catchment yield. Afforestation entities might be subjected to some form of levies and/or tariffs in recognition of their inherent deprivation of other potential water-users. It is critical to foster co-operation and co-ordination amongst water-user in a catchment.

Policy Statement:

Timber Plantations shall be subject to permit to manage their production without compromising the integrity of watercourses.

Objective:

To provide for controlled production of Timber Plantations in Eswatini.

Strategies:

- a) Define and ensure adherence to buffer zones in watercourses to control the growing of exotic trees (and other trees) for commercial purposes.
- b) Determine and implement forms of levies/tariffs for exotic trees in recognition of the inherent deprivation of other potential water-users.
- c) Collaborate with relevant institution(s) in the issuing and enforcement of relevant permits.
- d) Ascertain water-use patterns by the different types of forestry.

4.2.2.6 Managing Impacts of Drought

It is a known fact that drought situations are always a pending threat, although it may not be precisely predicted in terms of time and extent. In the very likely event that it occurs, the NWA will notify those affected to adjust their water abstraction quantities so that the available water could be utilised over a longer period and hence minimise the impact.

In a given catchment or sub-catchment, should rationing be imposed, it is crucial that it should be considered in a staggered manner, whereby irrigated agriculture is rationed first, followed by industrial activities before rationing water for primary purpose. In some cases, this might not be possible due to inherent intertwined nature of industrial use of water and domestic water-use. In such situations, which will normally occur in towns and cities, more measures that are restrictive may be imposed ranging from banning of the use of hosepipe for washing cars, irrigation of lawns, filling swimming pools with portable water and finally, restriction of actual domestic use of water.

Policy Statement:

In cases of drought, the NWA in consultation with other mandatory institutions or its delegated authority, shall issue a rationing notice to all water permit holders (following the order of irrigated agriculture, industrial activities, stock watering and domestic water-use) to adjust their water abstraction quantities depending on the severity of the prevailing drought situation.

Objective:

To mitigate effects of drought by ensuring a reduction in activities that is water intensive.

Strategies:

- a) Develop a Water Sector Disaster Contingency Framework/Strategy for the various organisations, utility and catchments
- b) Strengthen capacity and capability of early warning systems (including agrometeorological modelling) to timeously preparedness, mitigation and response to drought situations.
- c) Prioritize allocation of domestic water during occurrence of drought.
- d) Declare and issue rationing upon conclusive determination of a drought situation.
- e) Encourage farmers in drought prone areas to produce drought tolerant crops and varieties and rear small stock who survive drought conditions.
- f) Introduce water-recycling techniques.

4.2.3 Water, Environmental Sustainability and Public Safety (Socio-Economic Development and Watercourse Ecosystems)

This section contains policy statements and proposed strategies dealing with the role of the environment as both a user and resource base. It deals with allocation of in-stream

minimum flows, protection of riparian diversity, and control of alien invasive species, disaster management and mitigation, coordinating of water related disaster management efforts.

4.2.3.1 Protecting Watercourse Ecosystems

Catchment management is vital for the health of a watercourse. Riparian zones are often the richest and most diverse ecosystem in all the catchments in the country; however, these are threatened by encroachment and excessive abstractions of water from the rivers for socio-economic development. Farming operations in these zones degrade the catchment and increase siltation levels, thus reducing the life span of reservoirs. It is critical to protect the watercourses, which happen to be sources of food and catalysts for biodiversity usually rich in medicinal fauna and flora used by subsistent communities in the catchment, often overlooked during project feasibility studies.

Policy Statement:

The government shall promote the protection and conservation of catchment ecosystems and ecological infrastructure to ensure the sustainability of water systems.

Objective:

To ensure maximum protection of all watercourse ecosystems.

Strategies:

- a) Determine and apply the minimum in-stream flow requirements through research and incorporate into laws and regulations governing the use of the water resource.
- b) Develop conservation strategies and mechanisms for protection of water sources and courses.
- c) Maintain the sustainability of watercourse for natural and economic benefits.
- d) Ensure that all agricultural activities including forestation, industrial activities, and settlements are not allowed within 33 metres from the 100-year flood zone and wetlands.

4.2.3.2 Assessing Impacts of Water Related Developments on the Environment

Strategic Environmental Assessments (SEA) and Environmental Impact Assessments (EIAs) are useful tools for providing foresight in sustainable development. At global level these are now prerequisites for development with environmental audits for re-enforcement. The SADC Water Policy prescribes “mandatory” EIAs for water resource development projects in watercourses. The Environmental Management Act makes it mandatory to carry out such assessments for any development project in Eswatini.

Policy Statement:

All developments that have a bearing on water shall be preceded by credible assessment(s) of the significance of their impact on the environment and be accompanied by comprehensive mitigation plans, where applicable.

Objective:

To ensure proper assessment of the impacts of water related developments on the environment.

Strategies:

- a) Strengthen implementation of existing laws and regulations to enforce environmental protection measures in all river basins and aquifers in the country.
- b) Protect shared watercourses from degradation and protect downstream users from pollution.
- c) Coordinate activities of institutions responsible for water and environmental protection.

4.2.3.3 Management of drought and floods

Droughts and floods are a common feature and their co-existence poses a potent threat, which has to be managed. The recurrence of drought and famines during the second half of the 20th century necessitated the development of irrigation to give protection against the failure of crops and to reduce large-scale expenditure on famine relief. With the increase in population, development activity has encroached the floodplains, leading to unsustainable watercourses.

Flooding is caused by the inadequate capacity within the banks of the rivers to contain the high flows brought down from the upper catchments due to heavy rainfall. Flooding is accentuated by erosion and silting of the riverbeds, resulting in a reduction of the carrying capacity of river channels; earthquakes and landslides leading to changes in river courses and obstructions to flow; synchronization of floods in the main and tributary rivers; retardation due to tidal effects; encroachment of floodplains; and haphazard and unplanned growth of urban areas.

Drought, on the other hand, is a recurrent natural feature that results from the lack of precipitation over an extended period. It is a temporary deviation of rainfall and moisture conditions from the mean, thus differing from seasonal/aridity. It is a creeping phenomenon and, unlike other hazards, can last for months and, in severe cases, years. Drought affects virtually all climatic regions and more than one-half of the Earth is susceptible to droughts every year.

Policy statement:

The government shall put in place a proper drought and floods response plan in order to manage and avert their impacts.

Objective:

To manage drought and floods and their effects on the environment.

Strategies:

- a) Integrate water policies with land-use policies.
- b) Conduct Comprehensive Flood Risk Profile for the country.
- c) Develop a Flood Control and Management Master Plan for each flood-prone basin and implement - Establish non-structural measures such as flood forecasting and warning, floodplain zoning and flood proofing in order to minimize losses and reduce recurring expenditure on flood relief. Physical flood-protection works like embankments and dykes will continue to be used where necessary.
- d) Provide an adequate flood cushion in water-storage projects, wherever feasible, to facilitate better flood management. In highly flood-prone areas, flood control should be given overriding consideration in reservoir-regulation policy, even at the cost of sacrificing some irrigation or power benefits.

- e) Develop mechanisms for optimum irrigation benefits, using the command area development approach.

4.2.3.4 Preserving Flood Zones

Rapid population growth and increasing poverty are putting pressure on the river basins. Settlement and/or farming in flood zones are increasing at a rapid rate. This poses a risk not only to the environment, but also to the settlers in the event of flooding. Protection of the flood plans is provided for in the out-dated legislation, also disabled by low enforcement and high levels of poverty that dissuade poor communities from pursuing short-term means of survival in these areas.

Policy Statement:

Flood zones shall be designated and preserved in all watercourses.

Objective:

To ensure designation and preservation of flood zones in all water courses.

Strategies:

- a) Map out flood zones in all watercourses.
- b) Enforce legislation that protects flood zones.

- c) Strengthen capacity to implement legislation that seeks to protect flood zones.
- d) Coordinate activities of institutions and structures for effective management of flood zones.
- e) Raise public awareness on the importance of preserving flood zones.
- f) Prioritise the development of waters resources for poverty alleviation.

4.2.4 Water Quality Management

4.2.4.1 Improving Water Quality

The growth in industrial and agricultural developments has led to noticeable deterioration resulting from pollution and denudation of river banks. Deterioration in water quality is mainly due to addition of chemical, biological and physical pollutants in the water systems. Desperation to create employment has, in some instances, blinded authorities to the detrimental impact of some industries. Generally, water quality tends to be good in the headwaters and deteriorates in a downstream direction because of natural factors, human and industrial activities.

Policy Statement:

Water and environmental management institutions shall facilitate the enactment and enforcement of laws and regulations to minimise point and non-point water pollution.

Objective:

To ensure good water quality for aquatic ecosystems, public health, industrial and agricultural developments while minimising pollution of water resource.

Strategies:

- a) Strengthen and enforce laws and regulations to minimise point and non-point water pollution by setting standards for pollution.
- b) Strength and enforce effluent control laws and regulations for waste discharged practices that conforms to the established maximum permissible limits.
- c) Investigate sources of point and non-point water pollution and develop a database for application of corrective measures.
- d) Continually monitor and evaluate ground and surface water to determine water quality trends. This may include chemical, physical and biological parameters.
- e) Decentralise water management and conduct civic education to prevent pollution and denudation of water sources.
- f) Apply and enforce the “polluter pays principle” as a measure of placing responsibility for mitigating pollution where it belongs.
- g) Establish and implement systems to prevent water pollution and minimize erosion.

- h) Take the necessary steps to minimize waste and non-beneficial use of water from the water resources.
- i) Promote conservation and wise use of wetlands.
- j) Establish a waste discharge permit for any person who is responsible for producing, storing, discharging or disposing of any waste, or any waste containing a substance.

4.2.4.2 Development of Water Quality Standards

Poor water quality is the most important environmental issue of water resources because it adds to the reduction of usable water quantity and negatively affects the aquatic and riverine ecosystems and biota. It is therefore critical that sustainable levels of water quality be maintained and restored where already compromised. The country does not have adequate guidelines and standards for water quality, however, generic guidelines have been developed by international agencies such as World Health organisation (WHO), Food and Agriculture Organisation (FAO) among others.

Policy Statement:

Minimum standards and guidelines of river water and end-user water conforming to national and international norms shall be developed and enforced.

Objective:

To develop and implement guidelines to provide for water quality standards for irrigation, domestic, aquatic, ecosystems and health in Eswatini.

Strategies:

- a) Expedite signing and ratification of international treaties, protocols and conventions relating to water, trade and environmental management that are beneficial to the country.
- b) Develop and enforce national water quality standards in consultation with other stakeholders, guided by international benchmarks.
- c) Set and monitor quality standards and regulations for any return flows.
- d) Consider both the water quantity and quality when issuing water permits for irrigation.
- e) Raise awareness on water quality management among the population industry and existing water related institutions. Where possible promote self-test kits for household level and educate users on cost effective water treatment methods
- f) Establish and facilitate accreditation of water laboratories for conformity assessment in collaboration with international entities.

4.2.4.3 Water Quality Management in Trans-boundary River Basins and Aquifers

All the river basins (and some aquifers) in Eswatini are shared with neighbouring countries, therefore, the Government is under obligation to protect her citizens from pollution arising from transboundary waters, as well as prevent pollution that might antagonise its neighbours.

Policy Statement:

The NWA shall enter into agreements with other riparian states to collectively prevent and/or control cross border pollution of surface and groundwater resources and endeavour to comply at all times.

Objectives:

- a) To promote and uphold the water quality in trans-boundary river basins and aquifers.
- b) To guard against pollutions of trans-boundary water resources.

Strategies:

- a) Comply with agreements with riparian states to collectively prevent pollution of shared watercourses. These agreements shall encompass amongst others agreed river water quality standards, monitoring and evaluation systems and conflict resolution structures and processes.
- b) Establish forums for collaborating on issues relating to trans-boundary water quality management.
- c) Raise awareness on water quality management of trans-boundary river basins and aquifers among the population, industry and existing water related institutions.
- d) Establish new and strengthen existing structures governing water resources management through decentralised structures to protect the country's rivers.

4.2.4.4 Managing Water Quality for International Trade

International trade is increasingly placing much more emphasis on responsible management of water resources for the general good of the world and its inhabitants regardless of location. The country has to take precaution to ensure that the quality of water for the production of commodities into the world markets is within predetermined international and bilateral benchmarks. The country will continue to pursue water quality policies that foster wide acceptance of products into the world markets. These include the SADC Water and Trade Policies and related Protocols, the Dublin Principles and others.

Policy Statement:

The NWA shall sign and ratify international treaties, protocols and conventions relating to water, trade and environmental management that are beneficial to the country and enhance water quality and peaceful coexistence with other countries.

Objective:

To ensure proper water quality for international trade.

Strategies:

- a) Expedite signing and ratification of international treaties, protocols and conventions relating to water, trade and environmental management that are beneficial to the country.
- b) In collaboration with accreditation bodies, establish and facilitate accreditation of accredited water laboratories for conformity assessment.

4.2.4.5 Managing water quality for domestic use

There are many domestic uses for water in Eswatini. Water is mainly used for irrigation in agriculture, animal husbandry, water for industrialization, household activities, drinking among other uses. It is the government of Eswatini's responsibility therefore to ensure that the quality of water for domestic use is improved and maintained throughout Eswatini.

Policy statement:

Proper management of water quality for domestic use shall be maintained by the NWA.

Objective:

To provide for ways of ensuring proper management of water quality for domestic use.

Strategies:

- a) Develop and implement laws that provide for adequate domestic water quality standards.
- b) Develop guidelines for setting domestic water quality standards, monitoring and evaluation.
- c) Promote self-test kits for household level and educate users on cost-effective water treatment methods
- d) Procure equipment for assessing water quality in Eswatini.
- e) Train personnel and communities in water quality management.

4.2.4.6 Managing Waste

Some developed countries are producing more waste than they have sites for its disposal. Some of them offer financial incentives to governments or individuals to accept the waste to the detriment of the country and neighbours. This needs to be prevented and enforced.

Policy Statement:

The NWA shall take all necessary measures to prevent waste generation and improper disposal of waste, which have the potential of affecting watercourses.

Objective:

To minimize generation of waste and ensure proper treatment of all waste prior to discharge into water bodies in Eswatini.

Strategies:

- a) Ensure that the disposal of wastes shall be in accordance with the relevant international conventions, such as Bamako, Basel, Rotterdam and Stockholm Conventions.
- b) Develop and enforce legislation to minimise generation and disposal of waste.
- c) Take all necessary measures to prevent the illegal use of Eswatini's territory for the disposal of imported wastes, which have the potential of affecting watercourses.
- d) Promote the recycling and reuse of waste by both communities and industries.
- e) Raise awareness on proper disposal of waste and hazardous materials.

4.2.5 Control of Alien Invasive Species

4.2.5.1 Control of Alien Invasive Species

Alien invasive species are increasing rapidly throughout the country, including along watercourses. The most common are of the *Chromo Lena* and *Lantana* species, guava, and black wattle. These reduce surface runoff and river flows and decrease water for development. They also crowd out natural vegetation and negatively affect biodiversity and habitat. As a result, the former two (commonly known as *sandanezwe*) have been declared a “national disaster”; however, the enforcement of legal framework governing these species is inadequate.

Policy Statement:

The Government and other relevant institutions shall enact and enforce laws and regulations to control the management, entry, and spread of alien invasive species.

Objective:

To control the entry and spread of invasive species that have a negative impact on water catchments such as reduction of water quantity and ecosystem functions.

Strategies:

- a) The DWA shall align the country's legislation with international policies and laws, such as the SADC Water Policy, SADC Protocol on Shared Watercourses and global biodiversity conventions such as Convention on Biological Diversity, Convention to Combat Desertification.
- b) The DWA shall collaborate with relevant stakeholders in the enactment and enforcement of laws and regulations to control the entry and spread of alien invasive species.
- c) The DWA shall strengthen the legal framework governing the control of alien invasive species and reinforce its enforcement along watercourses.
- d) The DWA shall strengthen and/or establish programmes for early detection removal and control of alien invasive species and bush encroachment, with priority along watercourses.
- e) The DWA shall collaborate in the eradication of alien invasive species already in the country and prohibit entry of non-economical species.
- f) The DWA shall provide both incentives and sanctions to enable proactivity by individuals, industries and communities in the control of invasive alien species at local levels.
- g) The DWA shall cooperate and collaborate with neighbouring countries in the control and eradication of these species, particularly, those that are transmitted in water.

4.2.5.2 Raising Awareness on Alien Invasive Species

Government is committed to the eradication of non-economic alien invasive species. Some alien invasive species (e.g., pines and gum trees (Bhunya and Pigg's Peak)) are of some economic value to the country. The entry of non-economical species shall be prohibited, and efforts made to eradicate those already in the country. Such efforts would be effective through grassroots mobilisation. The obligation on land-users for control and eradication has not been clearly spelled out. This policy seeks to close the perceived gap.

Policy Statement:

It shall be the responsibility of users of water and land along natural watercourses to control alien invasive species with the ultimate goal of total eradication of those of no economic benefit.

Objective:

To promote awareness of alien invasive species in Eswatini.

Strategies:

- a) The DWA shall strengthen and/or establish programmes at individual and community levels to remove and control alien invasive species and bush encroachment, with priority along watercourses.
- b) The DWA shall collaborate with all water-users in the eradication alien invasive species already in the country and prohibit entry of non-economical species.
- c) The DWA shall provide both incentives and sanctions to enable proactivity by individuals and communities in the control of invasive alien species at local levels.
- d) The DWA shall cooperate and collaborate with neighbouring countries in the control and eradication of these species as most of the species are transmitted in water.
- e) Disseminate published materials about different alien invasive species and various measures to be put in place to manage them.

4.2.6 Protection of wetlands

4.2.6.1 Management and Protection of Wetlands

Natural wetlands in Eswatini are a national asset and shall be declared as such and be protected from destruction. Like rivers, wetlands are a habitat of diverse flora and fauna species; however, wetlands are not well managed in the country. Reduced flows due to water allocation or uncontrolled use thereof pose a threat to these assets. The construction of water infrastructure does not adequately provide for their (wetlands') sustenance. It should be noted that the damage to wetlands in Eswatini is quite astonishing, for example, more than 50% of the City of Mbabane is built on the biggest wetlands in the country. A delicate balance needs to be struck between the need to scratch for survival and the need for a sustainable water resource base and biodiversity.

For socio-economic reasons it might not be possible to declare all wetlands as protected, however, the use of such wetlands shall be regulated by means of both legislation and incentives. The incentives will enable poor groupings to protect them without completely losing their livelihood. Examples of incentives include community tourism projects and "work for water" initiatives.

Policy Statement:

The Government shall enact legislation and provide incentives and penalties for the conservation of wetlands by landowners and users.

Objectives:

- a) To strengthen the legal framework providing for the management and protection of wetlands.
- b) To ensure proper management and adequate protection of wetlands.

Strategies:

- a) Comply with the obligations of promoting the conservation of the wetlands under the Ramsar Convention on Wetlands International Importance, 1971.
- b) SNTC develop the policy, legislation and guidelines for wetlands management.
- c) Make provision for the continued functioning of these wetlands during water allocation evaluation and infrastructural development.
- d) Promote an integrated approach to catchment management and sustainable land utilisation.
- e) Protect wetlands and restrict their use as sources of irrigation water - provide alternative fuelwood and water sources for communities.
- f) In collaboration with SNTC, raise awareness among rural communities on wetlands and catchment management information on the importance of protecting the natural environment.

4.2.7 Public Safety from Water Related Disasters

4.2.7.1 Protecting Population from Water Related Disasters

It is the responsibility of every government, Eswatini included, to protect their citizens from hazards/risks and their impacts. This duty extends to safety from water related disasters such as floods and droughts. Water-related hazards impact through floods, mudslides, storms and related heat waves, cold spells, droughts and waterborne diseases which account for significant losses to sustainable development gains. While the government has the primary responsibility to reduce risks before disaster strikes, every Liswati has an inalienable right to know about their vulnerability to pending or potential disasters.

Policy Statement:

The public has a right to know about potential disasters that might affect their lives and preventative actions to take to ensure their safety from water related disasters. Government will ensure public preparedness and resilience through the responsible Authority.

Objectives:

- a) To strengthen the disaster management institutions in order to ensure public safety from water related disasters.
- b) To develop a comprehensive disaster management plan, with integrated systems to address water related disasters in Eswatini.
- c) To improve water security and mitigate adverse effects of floods and droughts, large and strategic water reservoirs will be constructed and maintained in suitable areas around the country.

Strategies:

- a) The DWA shall prepare catchment/basin management plans to prevent water related disasters.
- b) The DWA shall develop guidelines for disaster risk reduction systems tailored to specific needs of each community and applying a gender-responsive approach or to update existing systems in the same manner.
- c) The DWA shall develop and strengthen mechanisms to inform the public about potential water related disasters that might affect their lives and ensure their protection by the responsible Authority.
- d) The DWA shall establish a network on water-related disaster management, bringing together government institutions, teaching / research institutions, NGOs, in line with the general rules on disaster risk reduction.
- e) The DWA shall develop floodplain zoning, get community buy-in, and ensure that people do not settle in flood zones.

- f) The DWA shall raise awareness of risks arising from water resource development structures that present previously non-existent risks.
- g) The DWA shall collaborate with the national entities (NDMA) and develop flood forecasting and EWS. In the event of predictable water related disasters, take all reasonable and necessary measures to make the public aware of any pending disaster.
- h) The DWA shall participate in the coordination of disaster management, mitigation and relief efforts.

4.2.7.2 Communication with Stakeholders on Water Related Disasters

Predicting water related disasters is the major basis for public safety. The Government is duty bound to establish and maintain effective forecasting systems such as weather forecasting.

Policy Statement:

The Government is committed to improve the country's capacity in predicting water related disasters and communication of information to the public.

Objective:

To promote the communication of water related disasters with the various stakeholders.

Strategies:

- a) DWA to collaborate with national entities, SADC region, the African continent and the global community in sharing information about pending water related disasters.
- b) DWA to improve the country's capacity in predicting water related disasters and communication of information to the public.
- c) DWA to develop a Water Related Disaster Communication Strategy.
- d) DWA to set up structures to warn other countries of disasters that have cross border implications.

4.2.7.3 Consolidating Integrated Disaster Management Systems

The country has a disaster management system, which unfortunately are in their infancy stages of development. There is, however, a slight conflict between the regional coordination of the disaster management activities and the water resources management approach of decentralizing management to basin level. Some of the river basins cut across at least two regions. In this regard, the SADC Protocol provides for river basin commissions, which should mitigate the alleged fragmentation. A comprehensive disaster management plan, with integrated systems, is required to address this apparent gap and fragmentation. Therefore, the proposed integration in the disaster management policy and other sectors' policies, including that of the water sectors requires effective coordination.

Policy Statement:

The Government shall coordinate the development and implementation of a comprehensive Water Related Disaster Management Plan.

Objective:

To consolidate integrated disaster management systems

Strategies:

- a) The DWA, NWA, and RBA will work closely with the NDMA to implement a comprehensive Water Related Disaster Management Strategy and Action Plan, with integrated systems, to harmonise disaster management systems.
- b) Develop Dam Disaster Preparedness Plan for every reservoir and regularly monitor implementation.
- c) Harmonize river basin information for incorporation into the regional disaster management strategies.

4.2.7.4 Combating Climate Change and its negative impacts

There is strong scientific evidence that the global climate is changing and that the social and economic costs of slowing down global warming and of responding to its impacts will be considerable. Vulnerability to a changing climate such as changes in temperatures and availability of precipitation will lead to reduced agricultural yields, increased desertification and bush fires, more intense storms, and reduced biodiversity, which have the potential to threaten water resources. Scenarios have been modelled in the country where annual run-off has been projected to decrease within a range of 2% to 6% in a normal year and even higher in drier years. The effects of climate change are already manifesting in the country impacting at both macro and local levels.

Policy Statement:

The NWA shall develop a sustainable climate resilient integrated water management strategy in order to mitigate and adapt to climate change.

Objective:

To minimise the negative impact of climate change on water resources.

Strategies:

- a) Develop appropriate integrated adaptation strategies for climate change, following the recommendations and findings of the United Nations Framework Convention on Climate Change (UNFCCC) and other related forums.
- b) In collaboration with other stakeholders, promote the application of the concept and methodology of agro-ecological zoning, and ecosystem-based adaptation and revise the system periodically in order to respond to climate change. Promote and implement IWRM Strategy that will also address integrated river basin development and protection of water catchment areas.
- c) The filter of climate change should be applied to all decision-making processes outlined within the policy so as to ensure the long-term sustainability of investments as well as to reduce the sensitivity of development activities to current and future climatic conditions.
- d) Adapt strategies such as increasing water storage, better water-use efficiency, proper demand management, incorporating coping strategies for climate change, and enhancing the capabilities of community to adopt climate resilient technological options shall be formulated.
- e) Integrate climate change measures into national policies, strategies and planning.
- f) Promote mechanisms for raising capacity for effective climate change-related planning and management, including focusing on women, youth and local and marginalized communities.
- g) Conduct research to determine effects and impacts of climate change on water resources. Investigate and assess the extent to which ecosystems may be able to cope with climate change. Integrate into water resources planning outputs of research on climate change.
- h) Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning.
- i) Enhance the adoption of rain harvesting technologies.
- j) Undertake focused monitoring to ensure the efficacy of water adaptation approaches over a long-term.
- k) Implement best catchment and water management practices to ensure the greatest degree of water security and resource protection under changing climatic conditions and, in particular, investment in water conservation and water demand management.

4.3 International Cooperation in Water Resource Management

This section contains policy statements and proposed strategies covering Eswatini's commitment to play a significant role in international water bodies, cooperative mechanisms in shared watercourses and use of water as an instrument for peace. Eswatini is signatory to several international and regional instruments and thus bound by a wealth of good practice that can foster harmonised cooperation. In both the international and regional treaties and agreements, strategies covering Eswatini's commitment to play a significant role in international water bodies, cooperative mechanisms in shared watercourses and use of water as an instrument for peace are embodied.

4.3.1 Regional and International Cooperation

4.3.1.1 Cooperating in Regional and International Water Resources Management

All instruments that govern the management and development of water resources to which the country is signatory and/or ratified shall endeavour to ensure full compliance, thus, fostering the spirit of international and regional cooperation, and economic integration in water resources management. It is through cooperation with other countries that Eswatini can benefit in terms of sharing experience and capacity building for effective water resources management and development.

Policy Statement:

The Kingdom of Eswatini is committed to comply with and implement all water related international and regional conventions, protocols and policies that she is signatory to and/or has ratified.

BOX 3: OBJECTIVE OF THE PROTOCOL ON SHARED WATERCOURSES IN THE SADC REGION.

The overall objective of the Protocol is to foster closer cooperation for judicious, sustainable and co-ordinated management, protection and utilisation of shared watercourses and advance the SADC agenda of regional integration and poverty alleviation. In order to achieve this objective, the Protocol seeks to:

Promote and facilitate the establishment of shared watercourse agreements and Shared Watercourse Institutions for the management of shared watercourses;

Advance the sustainable, equitable and reasonable utilisation of the shared watercourses;

Promote a co-ordinated and integrated environmentally sound development and management of shared watercourses;

Promote the harmonisation and monitoring of legislation and policies for planning, development, conservation, protection of shared watercourses, and allocation of the resources thereof; and

Promote research and technology development, information exchange, capacity building, and the application of appropriate technologies in shared watercourses management."

Objectives:

- a) To strengthen co-operation with riparian states in pursuant of the principles of equitable and reasonable utilization of internationally shared and trans-boundary surface water and aquifer resources.
- b) 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

- a) Strengthen institutional and policy framework for supporting integrated approach to management and development of internationally shared and trans-boundary water resources, including aquifers.
- b) Consolidate and strengthen internationally shared and trans-boundary agreements for all shared surface waters and aquifers.
- c) Provide guidance for the management of internationally shared and trans-boundary water resources and benefit sharing mechanisms.
- d) Cooperate with riparian states in the development, optimal utilization and protection of internationally shared and trans-boundary water resources without compromising national sovereignty.
- e) 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.
- f) Ensure compliance to all instruments that govern the development and management of trans-boundary water resources.

4.3.2 Participating in International and Regional Forums on Water Resources

The fora facilitate internationally, continentally and regionally water resources management and development provide an opportunity to strengthen capacity in addressing water issues. This platform allows for opportunities to learn and share ideas with other countries and/or organisations.

Objectives:

- a) To participate international and regional fora of water resources management.
- b) To learn and benefit from international and regional fora of water resources management.

Policy Statement:

The NWA shall endeavour to contribute, learn, and benefit from international, continental, and regional water initiatives.

Strategies:

- a) Promote constructive linkages with other African structures, platforms, and initiatives, particularly those related to the African Union, NEPAD and the African Ministers Council on Water (AMCOW). Structures, such as Global Water Partnership (GWP).
- b) Promote participation in international, continental and regional forums.
- c) Rigorously pursue best practices in accordance to international principles and national strategies.

4.3.3 Cooperation in Trans-boundary Water Resources Management

4.3.3.1 Collaborating in Trans-boundary Water Resources Management



FIGURE 4 THE TRANSBOUNDARY INCOMAPUTO RIVER BASIN

The Protocol on Shared Watercourses in the SADC Region, the Regional Water Policy (RWP), the Regional Water Strategy (RWS) and other shared watercourse agreements provide a broad framework for cooperation and strategic direction for the water sector in the region to achieve the goal of poverty eradication and socio-economic development, especially in shared

watercourses. It is binding to all Member States, and together with the RWP and RWS are fundamental tools for cooperation in trans-boundary water resources management. Eswatini signed and ratified the Protocol due to its importance in guiding Member States in the cooperation in shared watercourses.

Policy Statement:

The Protocol on Shared Watercourses in the SADC Region, Regional Water Policy (RWP) and Regional Water Strategy (RWS) and other shared watercourse agreements to which Eswatini is party, shall be the basis for cooperation, collaboration, compliance and implementation of shared watercourse agreements, with other watercourse states in trans-boundary water resources management.

Objective:

- a) To utilize these resources in an optimal and sustainable way, while paying special regard to vital human needs and to the interests of the other watercourse states.
- b) To promote collaboration in trans-boundary water resources management between Eswatini and the other riparian states.
- c) To promote joint planning and implementation of water resources development within Eswatini's shared watercourses.

Strategies:

- a) Raise awareness among the populace on the shared watercourse agreements.
- b) Harmonise and align national instruments to regional and international shared watercourse agreements / protocols.
- c) Participate and cooperate in the planning, development, management, utilisation and protection of water resources in the shared watercourses.
- d) Explore further possible equitable sharing opportunities for the country from existing agreements on cross border flow volumes.
- e) Cooperate in all shared watercourses agreements to which Eswatini is party, as a basis for cooperation in transboundary water resources management.

4.3.3.2 Compliance to Shared Watercourse Agreements

Eswatini has signed bilateral and tripartite agreements with Mozambique and South Africa on water resources development and management of rivers of common interest. Eswatini perceives these agreements as vital instruments for guiding developments as it avails an opportunity to work together and also know what is at stake for Eswatini in terms of water budget.

Policy Statement:

The NWA shall, in collaboration with the other Watercourse States monitor the compliance and implementation of shared watercourse agreements, which

have been collectively signed and/or ratified.

Objective:

To enforce compliance to shared watercourse agreements.

Strategies:

- a) Strengthen the forums that foster cooperation between Eswatini and her neighbours.
- b) Establish and join established River Basins Organisations (RBOs) in shared watercourses.
- c) Comply with agreements relating to shared watercourses.
- d) Promote cooperation in water resources development and management, including twining arrangements with other shared watercourse institutions in the region and internationally.
- e) Ensure that the water resources within the country's territory are protected from over-utilisation and pollution by neighbouring states.
- f) Monitor the compliance and implementation of shared watercourse agreements, in collaboration with the other Watercourse States, which have been collectively signed and/or ratified.

4.3.3.3 Creation of Twining Arrangements in Trans-boundary Water Resources Development and Management

There are opportunities that exist in capacity building, whereby experiences between Watercourse States are shared. As such, twining arrangements between shared watercourse institutions regionally, continentally as well as internationally is an opportunity, emphasised.

Policy Statement:

Within the context of shared watercourses, Eswatini in collaboration and/or jointly with the other Watercourse States shall promote cooperation in water resources development and management, including twining arrangements with other shared watercourse institutions in the region and internationally.

Objective:

To promote the creation of twining arrangements in trans-boundary water resources development and management.

Strategies:

- a) Establish twining arrangements between Eswatini and institutions in trans-boundary watercourse states.
- b) Pursue opportunities of access to resources and benefit sharing within watercourse

states, for example, access to the sea.

4.3.4 Water resources information management

4.3.4.1 Management of Water Resources Information

Water resources data is very critical for directing the country's economic development, hence the need to ensure that the country has accurate data and comprehensive information on water resources. Many investment decisions pivot around water resources data (quantity and quality). Not only are up-to-date datasets a requirement, equally important is historic data.

Eswatini should therefore ensure that data acquisition and its management thereof is given the highest priority using the latest, appropriate, and affordable technologies in database management as decision support tools. Information related to water shall be made available to stakeholders, where applicable.

Policy Statement:

The NWA shall establish efficient water resources data and information acquisition and management systems, which take cognisance of other sectoral needs as well as regional and river basin levels' needs for improved cooperation.

Objectives:

- a) The NWA to establish protocols and mechanisms for information acquisition, storage and dissemination across sectors and among stakeholders.
- b) The NWA to develop adequate institutional, human capacity and avail financial resources to support implementation of "Information, Education, and Communication" programs.
- c) The NWA to develop and maintain a comprehensive information database in support of water resources management and developments.
- d) The NWA to ensure that information is easily available to facilitate an equitable and sustainable allocation of the country's water resources.
- e) The NWA to ensure the sharing of timeously relevant available information and data regarding the hydrological, hydro-geological, water quality, meteorological and environmental condition of shared watercourses - but would require clear intention of the use of such information.

Strategies:

- a) The NWA will integrate data into the planning and allocation framework through an integrated water, land cover and land-use database.
- b) The NWA will develop strategy to operationalize an integrated national and international forecast system that will improve the national capacity for predicting water-related disasters e.g. floods.
- c) The NWA will build capacity for the development and management of water resources information.

- d) The NWA will establish information dissemination mechanisms and enable dissemination of water resources information to stakeholders (where applicable).
- e) The NWA will undertake and regularly update an inventory and assessment of available hydrological, hydro geological, water quality, meteorological, environmental and water quality monitoring systems and data.
- f) The NWA will establish a centralized clearing house mechanism for integration, management and dissemination of water related data with web-based access.
- g) The NWA will publish an Annual Report providing a summary of the water resource situation, including a summary of permits issued and revoked during the year.
- h) The NWA will implement a multi-sectoral approach in data acquisition to achieve cost effectiveness. This will offset the high costs associated with data acquisition equipment and whose output can be used by other sectors.
- i) The NWA will integrate other sectoral data sets (e.g., meteorology) to those of water sector to maximise the benefits.
- j) The NWA will develop and implement mechanisms to recoup costs incurred in generating water resources data and information, where relevant/applicable. The intention of the use of such information would have to be indicated.
- k) The NWA will maintain an up-to-date water resources management information system.

4.3.4.2 Ensuring Compatibility of Water Resources Information

Knowledge of Eswatini's water resources is of paramount importance in the country's development endeavours. However, it is a fundamental principle that the applied methodologies and procedures are accurate and compatible with the methodologies other similar systems of those the country may have to share the data with. For sharing and exchanging data and information, it is a very critical factor that the acquisition and management systems are compatible with those of the targeted stakeholders, including those in Watercourse States (Mozambique and South Africa). The cost of automated electronic equipment for data acquisition is generally very high, hence the need to ensure that such stations are well utilised by integrating other sectoral data sets such as that of meteorology to maximise the benefits. A multi-sectoral approach in data acquisition is vital in terms of cost effectiveness.

Policy Statement:

To ensure an efficient transfer and sharing of data and information in the Water Sector, the NWA shall adopt compatible systems for data and information acquisition and management in collaboration with other relevant sectors as well as agreed regional and/or shared watercourses standards.

Objective:

To foster compatibility of water resources information in Eswatini.

Strategies:

- a) NWA to use common and/or compatible procedures and calibrated methodologies, and where necessary involve other Watercourse States to carry out water resources management in the country.
- b) DWA to implement a multi-sectoral approach in data acquisition to achieve cost effectiveness.
- c) DWA to integrate other sectoral data sets (e.g., meteorology) to those of water sector to maximise the benefits.
- d) DWA to create a clearing house to manage dissemination of data and information.

4.3.4.3 Sharing of Contemporary Water Resources Information

Data and information are a powerful tool for decision making subject to adequate interpretation. However important, data and information can also be used for non-constructive motives. There is therefore a need to justify the necessity for such information. Regular flow of information, for example, flood data during periods of high flows, would enable the public to be better informed and participate in water resources management. Readily available information instils confidence, especially among the poor who seldom have the means or the knowhow to obtain such information through official channels.

It is also recognised that there are cost implications associated with data acquisition, thus attracting some contributory charges from those who may need such information depending on circumstances. To have a comprehensive understanding of a water related situation, there is a need to involve other sectors such as meteorology, EEA, and EWSC, which poses essential water resources data and information essential for stream flow forecasting.

Policy Statement:

Eswatini is committed to share timeously relevant available information and data regarding the hydrological, hydro-geological, water quality, meteorological and environmental condition of shared watercourses.

Strategy:

- a) The NWA shall ensure that the people of Eswatini have access to relevant and understandable water resources information impacting on their health, safety, and economic interests.
- b) The DWA shall create structures to facilitate timeously sharing of relevant available information and data.
- c) The DWA shall develop and implement mechanisms to recoup costs incurred in generating water resources data and information, where relevant/applicable. The intention of the use of such information would have to be indicated.
- d) DWA to develop and maintain an up-to-date water resources management information system to be used for all water management activities (use, biodiversity, flow rates, users, ecosystem needs etc.).

4.4 Water Resources Development and Management



FIGURE 5 AERIAL VIEW OF THE MAGUGA DAM ON THE KOMATI RIVER

This section contains policy statements and proposed strategies of the country's commitment to IWRM, development priorities, stakeholder participation from planning to daily management of water development projects. Policy pronouncements covering water demand management and dealing with affected communities are made in this section. Specific pronouncements dealing with the need for environmental impact assessments, strategic environmental assessments, and environmental audits are also made. The section also deals with the financing of water resource development.

4.4.1 Integrated Water Resources Management Planning

4.4.1.1 Promoting IWRM in Planning, Development, and Management of Water Resources

Integrated planning is a fundamental requirement of IWRM. Noting that water is cross cutting in nature, serious challenges and opportunities for cooperation between various sectors utilising water (consumptive and non-consumptive) in their operations emerge. To take advantage of the opportunities and address the challenges will entail both vertical (across different levels of society) and horizontal (across different sectors) integration in all relevant sector institutions in the SADC region. Unless water resources are developed and managed in an integrated manner, the full benefits of IWRM cannot be realised. Therefore, basing the planning of water resources development and management on the basin as a whole ensures

greater attention to the on-going processes and interactions that take place within the watercourse.

Policy Statement:

A comprehensive framework for management of the water resources shall be developed by the NWA taking into account catchment management of water resources, stakeholder consultation and involvement, assessment, monitoring, water conservation, and preservation of its acceptable quality and quantity in an efficient and equitable water allocation to all users and disaster preparedness.

Objective:

- a) To promote IWRM in planning, development and management of water resources in Eswatini.
- b) To promote and implement the development of an integrated catchment management system and improve accessibility and utilisation of water resources for various uses;
- c) To promote the development and implementation of water source protection plans prior to infrastructure development of all water supply systems.
- d) To ensure improved access to water and sustainable development of the water resources;
- e) To ensure inter-sectoral linkages in the management of the water resources so as to support cross-sectoral development needs and maximise the economic benefits accruing there to.

Strategies:

- a) The DWA will develop systems to IWRM across all the sectors of human endeavour, land-use and the environment.
- b) The DWA will promote the coordinated development and management of water and related resources in order to maximise the resultant socio-economic welfare in an equitable manner.
- c) The DWA will promote cooperation between various sectors utilising (consumptive and non-consumptive) water in their operations.
- d) The DWA will promote both vertical and horizontal integration in all relevant sector institutions.
- e) The DWA will promote adherence to good catchment management practices, such as integrated planning, holistic and pro-poor approaches and sustainable development.
- f) The DWA will develop, implement and review the Integrated River Basin Management Plan.
- g) The DWA will prepare water source protection plans to ensure good water quality, water quantity and livelihood improvement.
- h) The DWA will develop and promote best practices of efficient and appropriate watershed management to maximize water yields and quality.

- i) The DWA will institute measures for managing water related disasters and stresses within the National Disaster Management Plan, arising from climate change, floods, droughts and demographic trends.
- j) The DWA will engage with the conservation sector to identify critical ecosystems at risk and recommend remedial measures along with sources of funding.
- k) The DWA in cooperation with EWSC and EEA (both of whom have responsibility for monitoring water quality in terms of legal instruments) shall develop and maintain a water quality assessment system.

4.4.1.2 Promoting River Basin Planning in Water Resources Development and Management

Within a river basin, water flows from the furthestmost point (on the upper boundaries of the basin) to the lowest point. There are physical interactions between activities on land and water systems, between activities upstream and downstream, and between surface water and groundwater. Basing the planning of water resources on the basin as a whole ensures greater attention to the on-going processes and interactions that take place within the watercourse.

The basin is a “natural” boundary and most suitable for planning, whether or not it crosses internal administrative boundaries or international borders. Adoption of River Basin Approach to planning water resources development and management shall become key. The NWA already established River Basin Institutions (RBIs) in the five (5) river basins in recognition of this phenomenon, which will also be responsible for providing technical guidance in formulation of catchment / basin management plans.

Policy Statement:

The NWA shall adopt a river basin approach in the planning, development, and management of water resources.

Objective:

To promote river basin planning in water resources development and management in Eswatini.

Strategies:

- a) Develop and apply river basin approach and integrated planning in the development and management of water resources.
- b) Establish river basin institutions and enhance their capacity to develop and manage water resources in their river basins utilising resources earned from water fees and other sources of funds.
- c) Expedite the development of multi-stakeholder river basin institutions and ensure their functionality.
- d) Engage service providers to provide technical guidance on the formulation and content of basin /catchment management plans.

4.4.1.3 Joint Planning and Implementation of Water Resources Development and Management

Eswatini has shown her commitment in cooperating and collaboration with her neighbours in water resources development and management. The resultant of such a commitment is the various tripartite and bilateral transboundary water Agreements. These Agreements articulate very well the issue of notifying and engaging other Watercourse States on any development of a significant magnitude, e.g., construction of reservoir above 250,000 m³.

Policy Statement:

The NWA is committed to promote joint planning and implementation of water resources development within the country's shared watercourses. The NWA will be transparent and shall notify and/or engage in dialogue with Watercourse States, who may not necessarily be proponents of the project.

Objective:

To promote joint planning and implementation of water resources development and management.

Strategies:

- a) Notify and engage other Watercourse States on any development of a significant magnitude.
- b) Strengthen execution of water resources plans resulting from joint planning of water resources developments within a shared watercourse.
- c) DWA to empower the NWA with broad regional understanding of regional water instruments, like the SADC protocols and strategies.
- d) Develop a technically competent cadre of officers to engage professionally and technically with regional partners and contribute to such plans in a constructive informed manner.

4.4.1.4 Promoting Conjunctive Use of Surface and Ground Water

In a river basin, surface water and groundwater systems are closely related. Base flow of most rivers is highly dependent on groundwater and in some cases; pumping groundwater depletes the base flow. Surface irrigation yields return flows, which affect base flows. Consequently, the interaction between surface and groundwater, and the potential of conjunctive operation, need to be carefully considered in the management of both systems. Opportunities exist in recharging groundwater with surface and atmospheric water.

Artificial recharge of groundwater has several advantages, which include using the aquifer as a storage facility, reducing the salt contents of the groundwater, etc. However, extreme caution should be taken to avoid contaminating groundwater with pollutants.

Policy Statement:

The planning, development and management of watercourses will consider the integrated use of atmospheric, surface and groundwater resources, the reuse of water, artificial aquifer recharge, proper pollution management and the provision of environmental requirements.

Objective:

To promote conjunctive use of surface and ground water in Eswatini.

Strategies:

- a) Investigate potential for recharge of groundwater with surface water, particularly in the Lowveld– critical for future climate change impacts.
- b) Promote the integrated use of surface and ground water resources and other water conservation measures.
- c) Prepare an inventory of ground water-use and potential.

4.4.1.5 Developing Capacity in Water Resources Management

Training in IWRM is currently limited in the local institutions. Such training is currently accessed in other countries in the SADC region and abroad. Self-sufficiency in such training is not essential. Nevertheless, it is sufficient to have professional development course given by local institutions if applicable.

Policy Statement:

Training of sufficient personnel in Integrated Water Resources Management (IWRM) shall be promoted.

Objective:

To enhance the development of capacity in water resources management in Eswatini.

Strategies:

- a) Develop capacity in the application of IWRM.
- b) Mobilize funding for training in IWRM.
- c) Solicit support for the local tertiary institutions to strengthen training in water resources and IWRM.

4.4.2 Water Demand Management

4.4.2.1 Promoting Water Demand Management and Conservation

It does not make sense to address water demand issues by increasing the supply side without exploring possibilities of managing (reducing/controlling) the demand. It has been proven that huge savings accrue to countries that explore and implement proper Water Demand Management (WDM) strategies. Efficient water-use technologies are key WDM strategies and yield even better results if used conjunctively with good application methods. For example, good irrigation scheduling would improve irrigation efficiency significantly even if a less efficient irrigation system is used. For large water distribution infrastructure in towns and cities, any intervention that reduces unaccounted for water-use that is mainly due to leakages, would reduce the demand significantly. Research has shown that reducing the water pressure at night in the pipes reduces leakages significantly.

Policy Statement:

Water Demand Management will be pursued in Eswatini as a fundamental requirement for integrated planning and management of water resources in the country.

Objectives:

- a) To ensure efficient use of Eswatini's water resources through promotion of water demand management measures.
- b) To ensure the conservation and protection of Eswatini's limited water resources for current and future generations.

Strategies:

- a) The NWA will develop and adopt water conservation and demand management principles, concepts and measures, each with supporting incentives.
- b) The NWA will develop review and strengthen legal instruments and standards to be used as tools to promote water conservation.
- c) The NWA will integrate water conservation and demand management principles for allocation criteria, planning and (design norms (standards/best practice)) standards and codes.
- d) The NWA will develop and implement multi-tiered tariff structure and economic instruments to promote water conservation and demand management measures.
- e) The NWA will develop and implement a multi-tiered tariff structure to be applicable during the drought periods in order to promote water conservation and penalise luxurious water-use, while providing water-use for basic needs.
- f) The NWA will promote water conservation and demand management principles are reflected in EIAs, feasibility studies, designs and plans for all water development and infrastructure activities.
- g) The NWA will identify measures and instruments for integrating water conservation and demand management measures for existing water infrastructure.

- h) The NWA will explore and implement water demand management strategies to realise significant savings in water and financial resources.
- i) The NWA will promote public awareness on the benefits of implementing WDM strategies.
- j) The NWA will promote collaboration in the application of water demand management between water planners and water-users to avail more water for further allocation.
- k) The NWA will utilise existing capacities of water infrastructure more efficiently as part of the process of augmenting water supply before embarking on a process of developing more water infrastructure.
- l) The NWA will promote the integration of indigenous knowledge in water conservation and demand management in Eswatini, with all water resources management strategies to ensure sustainability.

BOX 4: WORLD COMMISSION ON DAMS (WCD) REPORT

STRATEGIC PRIORITIES

- Gaining Public Acceptance.
- Comprehensive Options Assessment.
- Addressing Existing Dams.
- Sustaining Rivers and Livelihoods.
- Recognising entitlements and Sharing Benefits.
- Ensuring Compliance.
- Sharing Rivers for Peace and Development.

4.4.2.2 Promoting Re-use of Water

The reuse of water is not a new phenomenon in Eswatini. In areas of water scarcity, water that has been used to wash dishes, clothes, etc., has been then used for watering some plants or to do other activities that do not require high quality water. Treatment of wastewater by adding ash as a flocculent and letting the suspended solids to settle down (coagulate) has been widely used in Eswatini due to water scarcity.

Policy Statement:

Re-use of water shall be promoted to counter scarcity of water.

Objective:

To provide avenues for the promotion of opportunities for water re-use in Eswatini.

Strategies:

- a) Promote re-use of water right from household levels.
- b) Promote the treatment of wastewater to determined standards for re-use.
- c) Create incentives for the re-use of water in all the various sectors.

4.4.3 Water Infrastructure Development and Management

4.4.3.1 Promoting Integrated Planning and Utilization of Water Infrastructure

The SADC region has very little stored water; hence its vulnerability to drought and limited capacity to mitigate flood situations. Eswatini is in the same situation in terms of stored water alongside a high dependence on water resources for socio-economic development. The current reservoirs in Eswatini cannot mitigate all the floodwater; hence the need to develop more reservoirs to meet the demand. A general problem is that large reservoirs, for example, for hydro-electricity schemes, have invariably served as single-purpose developments. In planning such initiatives, scant attention has been paid to the potential for the co-development of additional consumptive and non-consumptive use initiatives. Once a large dam has been built on a river, flood control is an important benefit. Enforcing good catchment management practices is vital for viability of mainstream reservoirs.

Dams may have varying impacts on the environment, and the society. Negative impacts include inundation of productive farmlands, habitats, cultural sites, and displacement of communities. In some instances, there may be a concomitant increase in diseases such as malaria. Comprehensive and objective assessment of the economic, social, and environmental impacts should be carried out and adequate mitigation measures put in place.

Policy Statement:

Integrated planning, development, and management of dams will be promoted to optimise the use of water resources, maximise derived benefits (such as hydropower, tourism, flood control, irrigation and water supply) and consider both positive and negative externalities.

Objective:

To promote integrated planning, development and management of water resources infrastructure.

Strategies:

- a) The NWA will develop a Master Plan on dam infrastructure development to ensure full water supply coverage for primary use.
- b) The NWA will design and operate all dams, whether large or small, to maximise multi-purpose uses wherever these are financially, physically, and environmentally feasible in accordance with internationally recognised best practice such as World Commissions on Dams (WCD) report and SADC guidelines on dams.
- c) The NWA will develop regulations to guide the development, management, and multi-purpose use of reservoirs.
- d) The NWA will strengthen dam safety considerations through development of appropriate safety guidelines, as well as the establishment of institutional capacities for enforcement of such guidelines.

- e) The NWA will develop operating rules for the various uses of reservoirs.
- f) The NWA will promote the construction of dams for integrated multiple uses.
- g) The NWA will involve all relevant authorities in the regulation of all dams.
- h) The NWA will carry out comprehensive and objective pre and post assessment of the technical, economic, social, and environmental impacts and put in place adequate mitigation measures.

4.4 3.2 Participation of all Stakeholders in the Planning and Development of Water Infrastructure

The Government of Eswatini has shown an undoubted commitment for the participation of all stakeholders in decision-making processes across sectors as enshrined in the Water Act and other relevant legislation (e.g. Environmental Management Act). All sectoral policies, legislation and other instruments involve stakeholders from the initial stages to final products. This should be further encouraged across sectors. However, it is also recognised that some disadvantaged groups are not well represented in such fora hence the need to strengthen and empower such vulnerable groups to effectively participate in decision-making.

The principle of consultation and participation of stakeholders is one of the key IWRM principles. This principle is aimed at ensuring that those who will be affected by the proposed development have an opportunity to influence the outcome and safeguard their interests. Consultations will be carried out at basin or community levels through any appropriate channels and Government should facilitate such consultations.

Policy Statement:

The NWA shall facilitate the participation of all stakeholders in decision-making processes for Water Infrastructure development and, where appropriate, with adequate facilitation and empowerment of affected communities and vulnerable groups to ensure their effective participation in decision-making.

Objective

To promote stakeholder's participation in the planning and development of the Country's water infrastructures

Strategies:

- a) The NWA will promote the development and implementation of water infrastructure projects through a participatory process, especially of affected communities.
- b) The NWA will ensure the effective participation of stakeholders, particularly affected communities and marginalised and vulnerable groups to partake in the decision making of the development of water infrastructure.
- c) The NWA will sensitize and encourage of effective participation of all people in water resources management decisions.

- d) The NWA will create an enabling environment for effective participation of all people at all levels of water resources management.
- e) The NWA will create synergies for civil society organisations participation in water resources management.

4.4.3.3 Operating Reservoirs Optimally to Maximize Benefit from Water Infrastructure

There is need to operate optimally Eswatini's limited dam infrastructure for maximum benefits, which could be achieved through the development of clear guidelines and/or rules for operating each of the dams. This is not an easy task though, since there is an inherent conflict in terms of the uses, i.e. for hydropower generation and irrigation uses, the dams must be as full as possible for improved security whilst for flood mitigation it must be as empty as possible to provide enough buffering capacity. The Komati River Basin provides operation rules for both Maguga and Driekoppies Dams, which were developed and adopted in 2002 with the overall aim of optimising the releases.

Policy Statement:

Following the provisions of the Protocol on Shared Watercourses in the SADC Region, Eswatini shall endeavour to operate her dams in a way that will optimise the socio-economic and environmental benefits and further mitigate impact on flooding downstream.

Objective:

To ensure maximization of the benefits from Eswatini's water infrastructure.

Strategies:

- a) The NWA will optimally operate the dams in the country to optimise the socio-economic and environmental benefits and further mitigate impact on flooding downstream.
- b) The NWA will develop clear guidelines and/or rules for operating each of the dams.

4.4.3.4 Compensation of Communities Affected by Water Resources Development

IWRM seeks to maximise the economic and social benefits arising from any water resource development project. Furthermore, the Southern African Water Vision calls for social justice and economic benefits for present and future generations. These objectives require appropriate legislation to attain. Therefore, the provisions of this policy oblige Eswatini to exercise social responsibility and promote the development of the affected communities. The affected communities may include communities in and outside the borders of the country. Factors to receive attention include establishing measures for compensation and resettlement of those directly affected by water development. Compensation mechanisms should be enshrined in legislation and policies that govern resettlement.

This principle has already been applied in Eswatini and has yielded very good results. Good examples are the Komati Downstream Development Project (KDDP) and the Lower Usuthu Smallholder Irrigation Project (LUSIP) where the principle was applied with success.

Policy Statement:

The NWA shall protect all citizens affected by development of water infrastructure through enacting appropriate legislation and developing guidelines that shall provide equitable compensation of affected communities, so that they will not be worse off as a result of the project.

Objective:

To provide adequate compensation to any person affected by the development of water infrastructure in Eswatini.

Strategies:

- a) The NWA will develop appropriate legislation, regulations and guidelines for resettlement planning that shall provide international best practice for compensation of affected communities, so that affected community's livelihoods are restored.
- b) The NWA will establish guidelines for compensation and resettlement of communities directly affected by water resources development.

4.4.4 Financing Water Resource Development and Management

4.4.4.1 Financing Water Infrastructure

Financial mechanisms for water resources management will be put in place to ensure availability of adequate funds on a sustained basis. Key sectors of the economy such as manufacturing, tourism and agriculture significantly contribute to the foreign exchange through the exploitation of the water resources. The water sector has a very high potential for increasing national economic development. Therefore, this potential has to be underlined with adequate budgetary allocation. Increased financial resources are needed for infrastructure development, capacity building, and institutional development as well as for research and technology development.

Policy Statement:

The NWA shall endeavour to provide adequate financial resources for national projects for water resources development and management.

Objective:

To mobilise finances in order to fund water infrastructure in Eswatini.

Strategies:

- a) The NWA will streamline resources from Government and development partners, including nongovernmental organizations and the private sector for water resources management based on the sector wide approach (SWAP).
- b) The NWA will define and apply fees and charges for water abstraction and effluent discharge.
- c) The NWA will conduct feasibility studies before implementation of any water resources infrastructure development.
- d) The NWA will facilitate the participation and contribution of communities and the private sector in water resources development, through among others public private partnerships.
- e) The NWA will provide adequate funds to finance development of water infrastructure as well as capacity building, institutional development, research and technology development.
- f) The NWA will facilitate recovery of costs incurred in establishing the water infrastructure with due cognisance of the social responsibility to alleviate poverty.
- g) The NWA will explore means to raise finances from the capital markets in the country to fund water resources development and management.
- h) The NWA will mobilise resources from development financial institutions (local, regional and international) to fund capital water projects and programmes by Government ministries and agencies, aimed at providing water resource at strategic locations.
- i) The NWA will provide Government guarantee for loans raised by water development agencies and utility companies to finance water supply and sanitation networks.
- j) The NWA will encourage the active participation of philanthropic agencies to finance water resource development in the country, particularly in least developed areas.

4.4.4.2 Promoting Cost-Recovery

The promotion of cost recovery will improve the efficiency of water allocation and lead to increased revenue for the sector institutions.

Policy Statement:

For financial sustainability of water resources development and management, costs for managing the resources shall be recovered.

Objectives:

- a) To ensure an effective cost recovery system which promotes equitable water pricing throughout Eswatini.
- b) To ensure cost effectiveness in the management of water resources.

Strategies:

- a) The NWA will establish mechanisms for cost recovery. Effect user fees in respect of water resources development and management. However, ensure that the pricing considers the special requirements of the poor and the vulnerable in society.
- b) The NWA will determine, adopt and apply the principle of least-cost planning to find the least expensive, appropriate and sustainable way of meeting a demand for water for any particular use to reduce costs of infrastructure development.
- c) The NWA will promote cost recovery policies at national level or within a shared watercourse.
- d) The NWA will use of local resources in the development and management of water resources, where possible.

4.4.4.3 Adopting Least-Cost Planning

The principle of least-cost planning, which aims to find the least expensive way of meeting a demand for water for any particular use, shall be adopted to reduce costs of infrastructure development. Cost reduction strategies, emphasizing optimisation of existing capacities (through rehabilitation and performance improvement), prior to the expansion of the capacity of the facility, least cost designs, and water demand management should be seen as important measures for increasing financial resources for water resources development and management.

Policy Statement:

Planning and operational mechanisms shall be instituted to facilitate cost reduction in the management of water resources.

Objective:

To promote the adaptation of least-cost planning mechanisms for water resources in Eswatini.

Strategies:

- a) The NWA will adopt and apply the principle of least-cost planning to find the least expensive way of meeting a demand for water for any particular use to reduce costs of infrastructure development.
- b) The NWA will encourage the use of local resources in the development and management of water resources, where possible.
- c) The NWA will determine and implement cost reduction strategies to contribute to increasing financial resources for water resources development and management.

4.4.4.4 Promoting Partnerships among Stakeholders

Public Private Partnerships (PPPs) provide an opportunity to leverage private sector technical and managerial expertise, as well as finance, in the development and management of water resources and associated services. The recipe for success in meeting the objectives of the NDS and the SDGs is through establishing partnerships between government and International Cooperating Partners (ICPs) who may provide technical expertise and finance to enhance the developmental agenda. As such, this option may be considered where capacity is limited in water sector institutions. However, this requires the establishment of appropriate regulatory and management frameworks to ensure adequate provisions for service delivery to the poor and disadvantaged.

The development of partnerships between stakeholders in the water sector (i.e., civil societies, non-governmental organisations, financial intermediaries as well as communities) will enhance financial and material support for IWRM programmes and activities. In turn, this will serve to enhance the sustainability of programmes. Such partnerships may require the creation of networks and/or watercourse level forums to facilitate the involvement of these groups.

Policy Statement:

Partnerships between government, private sector, cooperating partners and civil society shall be established where these could contribute to efficient management of water resources, skills transfer, delivery of services and higher inflow of investment capital to the sector.

Objective:

To lead to efficient management of water resources, delivery of services and a higher inflow of investment capital to the water sector through public-private partnerships in Eswatini.

Strategies:

- a) The NWA will promote the establishment of partnerships between government and private sector where they could contribute to efficient management of water resources, the delivery of services and lead to higher inflow of investment capital to the sector.
- b) The NWA will mobilise and establish partnerships with communities, civil society organisations and non-governmental organisations to support the development and management of water resources in the country.
- c) The NWA will strengthen and maintain partnerships between national government and external development agencies on water development and management.
- d) The NWA will create mechanisms for streamlining support from the various financing partners to develop partnerships between national government and private sector for water resources development projects.

4.5 Stakeholder Participation and Capacity Building



FIGURE 6 – AN ABECO TANK FOR POTABLE WATER SUPPLY

This section contains policy statements and proposed strategies to address the identification of stakeholders, awareness building and training. Some statements advocate for some forms of affirmative action to redress past imbalances. The role of women in water management is specifically pronounced. Other vulnerable groupings are also addressed.

4.5.1 Effective Public Participation in Water Resource Management

4.5.1.1 Promoting Participation of all Stakeholders in Water Resource Management

Historically, water management in Eswatini was a centralised and almost exclusive role of the Government. The country is committed to the participatory approach in managing the resource, as is the trend in the world. The Government needs to create an enabling environment for the stakeholders to be educated and to form and ultimately finance their own water management structures.

It is recognised that Government has limited resources and capacity to promote stakeholder participation and large infrastructure developments. In view of Government's limited resources and capacity, it is an option to form public-private partnerships to augment Government efforts. Non-governmental organisations and the private sector are recognised as critical role players in water management and the provision of additional infrastructure to meet the ever-increasing demand for water. The fundamental role of Government is to create an enabling environment and facilitate the positive role played by the partners.

Policy Statement:

The NWA shall create an environment that enables all stakeholders (government, civic organisations, private sector and NGOs) to play a meaningful informed role at all levels of the management of water resources in the country.

Objective:

To encourage the participation of all stakeholders in the decision-making processes for water resources development and, where appropriate, with adequate facilitation and empowerment of affected communities and vulnerable groups to ensure their effective involvement in decision-making.

Strategies:

- a) The NWA will ensure a participatory process with all stakeholders, especially with the affected communities, marginalised and vulnerable groups in the development and implementation of water infrastructure projects.
- b) The NWA will facilitate effective participation of stakeholders, particularly affected communities and marginalised and vulnerable groups to partake in the decision making of the development and implementation of water infrastructure.
- c) The NWA will create forums for meaningful participation of all stakeholders.
- d) The NWA will mobilise resources to support stakeholder participation.
- e) The NWA will develop capacity to empower stakeholders for effective participation.
- f) The NWA will conduct stakeholder analysis to define roles of stakeholders.
- g) The NWA, in conjunction with the stakeholders will ensure effective participation in trans-boundary river institutions.

4.5.2 Gender Mainstreaming

4.5.2.1 Gender Balance in Water Resources Development and Management

With respect to gender mainstreaming Eswatini signatory to gender conventions and subscribes to the Dublin Principles which recognise the role played by women in water resource management. Despite the obvious role of women as custodians of water, the country still lags behind in the involvement of women in key decision-making structures. Gender inequality is an impediment towards the attainment of sustainable national development. A

critical area in addressing this inequality is equal access to education as envisaged in SDG 5. On the same token, it is recognised that already Eswatini has made some great strides in addressing this gender imbalance.

The Government of Eswatini fully recognises the need for equal and full participation of women and men at all levels of development. This also extends to water resources development and management within the water sector. Government is committed to ensuring that women, men, girls and boys have equal opportunities to participate as equal partners in all spheres of life, including decision making, and have equal access to the development and management of productive resources.

Policy Statement:

Water Sector shall strive to achieve gender balance in the development and management of water resources.

Objective:

To ensure balanced gender recognition at all levels, stages and aspects of water resources management in Eswatini.

Strategies:

- a) Ensure a gendered water resources development and management agenda in Eswatini.
- b) Enhance access to education for women and girl child to resources to improve quality of life, without prejudicing the boy child and men.
- c) Involve women, men, and youth in the development and implementation of policies, processes, and activities at all levels, in line with the principles, goals, and objectives of gender mainstreaming.
- d) Consider persons with disabilities in the planning, development, and management of water resources.

4.5.2.2 Role of Women in Water Resources Development and Management

Women in Eswatini are underrepresented at different levels of leadership and decision-making. Women's limited participation is associated with socio-cultural perceptions and inhibitions that authority is the natural preserve of men (Eswatini National Gender Policy, 2009). The inadequate participation of women in decision-making indicates that women's concerns at different levels are either ignored or not dealt with fully.

Eswatini is fully committed to the principle that women have a role to play in the provision, management and safeguarding of water. Therefore, women will be fully involved in the development and implementation of policies, processes and activities at all levels, in line with the principles, goals and objectives of gender mainstreaming.

Policy Statement:

The role played by women in water resources management is recognised and women shall be afforded full involvement and accorded equal opportunities at all levels.

Objective:

To promote, encourage and recognise the role of women in water resources management in Eswatini.

Strategies:

- a) The NWA will ensure that women have access to water for productive use.
- b) The NWA will proportionally involve women in key decision-making structures and all levels of leadership in water resource management.
- c) The NWA will break all barriers that might prejudice the participation of women in leadership roles.
- d) The NWA will develop capacity programmes focussed on the development of women's participation in water resources management.
- e) The NWA will assess and assign roles and responsibilities to women according to their capabilities.

4.5.3 Capacity Building and Training

4.5.3.1 Developing Capacity through Training in Water Resources Management

The NWA recognises the shortage of trained professionals in the area of water resources management. Exacerbating the situation is Eswatini's brain drain that has seen Emaswati live the country in search of better opportunities elsewhere. Therefore, the Government will develop the human, technical, and managerial capacity of institutions involved in water resources management at central and local levels to provide the necessary capacity for the sustainable management of the country's water resources.

Policy Statement:

The NWA together with other stakeholders shall actively undertake local human resource development and retention for the water resource management institutions.

Objectives:

- a) To promote the training of sufficient personnel in Integrated Water Resources Management (IWRM) in Eswatini.

- b) To improve the technical capacity and competence of water sector personnel in Eswatini.

Strategies:

- a) The NWA will conduct periodic comprehensive capacity building needs assessment for the water resources management sub-sector at national, provincial, district, and local levels.
- b) The NWA will mobilise resources to train a greater number of professionals in the field of water resources management.
- c) The NWA will form public-private partnerships to create an environment that enables retention of the best brains in the field.
- d) The NWA will facilitate human resource development through information exchange, inter-sector and inter-country secondments, south-south cooperation's twinning arrangements, and staff exchange.
- e) The NWA will focus research on water issues in the country when undertaking water courses in other countries.
- f) The NWA will retain human resource and strengthen institutional memory within the water resources sector.
- g) The NWA will include human resources development in national planning for water resources management.
- h) The NWA will solicit support for the local tertiary institutions to strengthen training in water resources and IWRM. Further, establish a mechanism to introduce relevant curricula and training on water resources management at school level.
- i) The NWA will conduct a capacity needs assessment in the water sector.
- j) The NWA will develop and implementing a comprehensive sector capacity building programme.
- k) The NWA will improve staffing levels through filling of existing vacancies and recruiting competitive new staff in critical specialized areas.
- l) The NWA will identify partners and service providers to assist with the capacity building.

4.5.3.2 Conducting public education and awareness

To be able to receive the full support for the operationalization and implementation of this policy, public education and massive awareness has to be carried out throughout the country. The people should have the knowledge about the policy to be able to put in practice its objectives, goal and principles.

Policy statement:

Public education and awareness raising about integrated water resources management shall be promoted.

Objective:

To promote public education and awareness of the masses about the principles of integrated water resources management.

Strategies:

- a) The NWA will create an enabling environment for public education and awareness of the principles of integrated water resources management.
- b) The NWA will design and implement a public education and awareness plan for integrated water resources management.
- c) The NWA will allocate specific funds to carry out public education and awareness.

4.5.4 Research, Technology Development and Transfer**4.5.4.1 Promoting Research and Technology Development**

Collaborative research in the region will be more efficient than “operating in silos”. Most of the information generated in one country applies to several other countries. Moreover, river basins transcend political boundaries hence studies will not be complete if confined to one country. Eswatini researchers will therefore be encouraged to collaborate with international counterparts. The SADC region is already committed to a regional perspective in water research. This perspective is in line with the principles of the UN Convention on the Law of Non-Navigational Uses of International Watercourses, which promotes sharing of information especially among riparian states.

Policy Statement:

The NWA will establish appropriate research and development capacity to address its water related challenges and further the goals of economic growth, diversification and poverty eradication

Objectives:

- a) To establish collaborative research with other riparian states in water resources management of trans-boundary shared water resources.
- b) To promote coordination, cooperation and communication in water related research and development.
- c) 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.
- d) To promote effective transfer of information and technology while also enhancing knowledge and capacity building within the water sector.

Strategies:

- a) The NWA will promote demand-driven research and technology development that

aims to do things in an easier, efficient, affordable and effective manner.

- b) The NWA will 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 the government's allocations, royalties and water-user fees.
- c) The NWA will establish a platform to facilitate strategic partnerships among national and international institutions, academia and the private sector to strengthen information, research and capacity.
- d) The NWA will carry out research for the benefit of the water sector stakeholders and the public and not just for the sake of academic interest and publications.
- e) The NWA will establish water research centres in partnership with relevant stakeholders, i.e., public and private sectors and other partners.
- f) The NWA will promote applied research in water resources management.
- g) The NWA will include research in national planning for water resources development and management.
- h) The NWA will promote collaboration between water and research institutions.
- i) Include research in national planning for water resources development and management.
- j) The NWA will promote collection, collation and analysis of data concerning the occurrence, flow, characteristics, quality and use of any water.
- k) The NWA will promote systematic gauging and recording of rainfall and of the volume, flow and quality of other water.

4.5.4.2 Enhancing Access to Water Resources Research Information

Often times, research results are rendered worthless when the users cannot access them. The public domain information in the database has to be accessible to all water sector institutions and individuals. Information to be captured shall have been defined in a National Water Strategy and/or by the National Water Authority or other relevant institutions in the water sector.

Policy Statement:

The NWA, in collaboration with other stakeholders, shall establish a reliable database that will make information accessible to users.

Objective:

To enhance access to water resources research information in Eswatini.

Strategies:

- a) The NWA will develop a reliable database that will make research information accessible to users.
- b) The NWA will create platforms to ensure access to public domain information in the database for all water sector institutions and individuals.

- c) The NWA will define information and associated format captured by the database

4.5.4.3 Appropriate Water-use Technology

Efficient water-use is sometimes hampered by lack of appropriate technology and with the water-users not being aware of the available technological options.

Policy Statement:

Water-users shall be encouraged to source and share appropriate water-use technology.

Objective:

To promote appropriate efficient and environmentally friendly water-use technology.

Strategies:

- a) The NWA will raise awareness on available water-use technology and the benefits thereof.
- b) The NWA will promote the improvement, development and sharing of indigenous and localised technology in the water sector.
- c) The NWA will promote innovation in the design, development and use of appropriate technology.
- d) The NWA will form public-partnerships to enable stakeholders to source and disseminate appropriate technology in water resource.

4.6 Institutional Framework

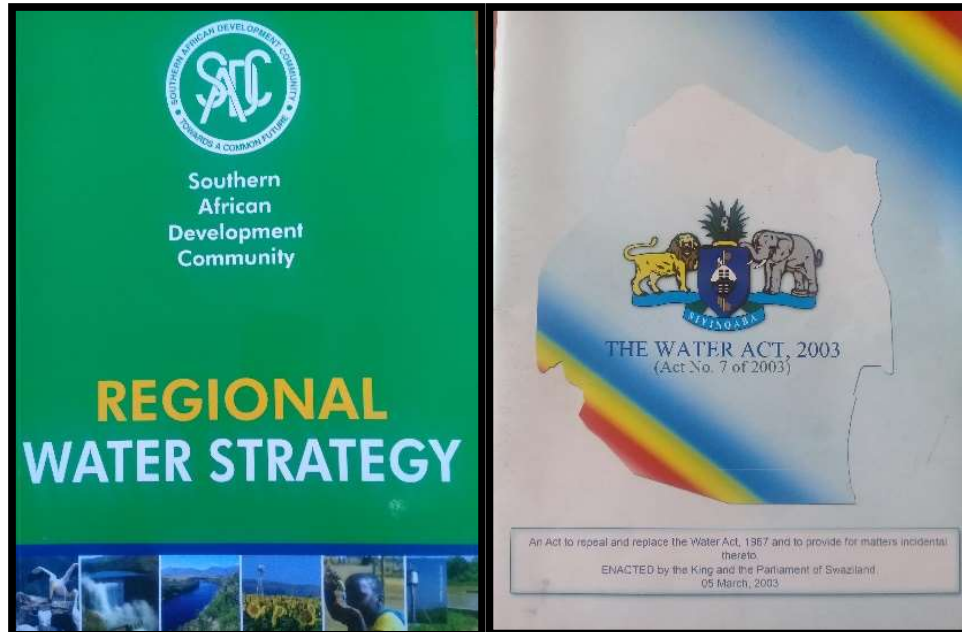


FIGURE 7: REGIONAL WATER STRATEGY AND ESWATINI WATER ACT

This section contains policy statements and proposed strategies that enunciate the desired water resource management structures and prescribe the decentralisation approach.

The National Water Authority (NWA) is responsible to advise the Minister on policy directions relating to water affairs at national level. It is also responsible to coordinate the work of different boards, water sector agencies, and international water commissions. The Ministry of Natural Resources and Energy's Department of Water Affairs (DWA) is the secretariat for the NWA, and it provides technical support and advice to the NWA. It is composed of the Water Resources Branch, the Rural Water Supply Branch, and the Geological Surveys Unit.

Other ministries recognised as key to water resources development and management are the Ministry of Agriculture, the Ministry of Economic Planning, and Development, and the Ministry of Health. The Ministry of Agriculture has a Land and Water Development section that is responsible for designing and construction of small irrigation dams. The Environmental Health Department of the Ministry of Health is responsible for the construction of pit latrines and providing hygiene education on proper use of drinking water and sanitation facilities. On a smaller scale, the department is also involved in spring protection. The Ministry of Economic Planning and Development is responsible for allocating resources to national policy objectives and priority development initiatives and for co-ordination and monitoring of the technical and financial implementation of all the development plans and programmes.

The Eswatini Water Services Corporation is a parastatal organization that is responsible for operation and maintenance of water and sewage facilities in urban areas of the country. The Rural Water Supply Branch of the Department of Water Affairs on the other hand is responsible for design, construction and maintaining water supply schemes in rural areas. The

Eswatini Water and Agricultural Development Enterprise facilitate small-scale irrigation for commercial purposes.

The other private irrigation water service providers are Mhlume Water Company, Big Bend Canal Users Association, Inyoni Yami Eswatini Irrigation Scheme and Komati River Basin Authority. These service providers supply bulk water for irrigation within different basins. The Mhlume Water Company, Inyoni Yami Eswatini Irrigation scheme and Komati River Basin Authority supply water to irrigators within the Komati river basin.

River Basin Authorities have been established. A River Basin Authority consists of representatives of all the relevant water sectors in the basin, and the members are nominated by basin stakeholders. The River Basin Authorities report to the National Water Authority. The specific duties of the River Basin Authority are to develop and manage a River Basin Management Plan, allocate water within river basin, to monitor water-use and pollution and to collect levy and water-use charges. The Irrigation Districts are responsible for efficient utilization of water within their sub basin. They ensure that everyone takes water according to the permitted volumes and they encourage efficient use of the available resource in the local area. It is the responsibility of the Ministry to establish Irrigation Districts upon recommendation of the NWA. Two thirds of the permitted users of water in an area have to partition the NWA to incorporate an Irrigation District. The Irrigation District reports to the River Basin Authority. A Water-users Association can be formed by permit holders in a defined area with the objective of maximizing the benefits from such permits to members of the association is not a statutory body.

Bilateral and multilateral donor institutions that support Eswatini in the water sector include the United States Agency for International Development (USAID) Republic of China on Taiwan, United Nations Development Programme (UNDP), United Nations Children Fund (UNICEF), World Health Organisation (WHO) and the European Union (EU). In addition, there are several NGOs operating in the country that have interest in water issues and include Water Aid, World Vision, and African Corporation Alliance Trust (ACAT). Such interest varies between advocacy and improving rural water supplies and sanitation coupled with small-scale agriculture. The traditional leadership that consists of chiefs and indunas who administer customary laws, play an important role in utilisation and management of water resources though they are often ill-equipped to handle the technical complexities of water management.

4.6.1 Water sector institutions

4.6.1.1 Establishing Water Sector Institutions

National water sector institutions will be geared towards achieving the ends of Integrated Water Resources Management and Development and aligning themselves with regional structures, in particular the SADC Secretariat and more specifically the Water Division of Directorate of Infrastructure and Services.

Policy Statement:

Water sector institutions shall be established with the primary objective of planning coordinating, development of stakeholder participation, decentralising responsibilities for water resources development and management and ensuring efficient service delivery.

Objective:

To establish appropriate institutional frameworks for the proper management of water resources within Eswatini.

Strategies:

- a) The NWA will formulate relevant legislation(s) that define the functions and powers devolved to established water sector institutions.
- b) The NWA will establish a supreme institution to oversee and guide the development and management of water resources in the country.
- c) The NWA will institute river basin institutions to ensure devolution of powers in the development and management of water resources.
- d) The NWA will form localised water-user groupings for effective development and management of water resources and to enhance stakeholder participation.
- e) The NWA will promote coordination, cooperation and information dissemination and exchange amongst water sector institutions and stakeholders including traditional chiefs.

4.6.1.2 Domestic Water Supply and Sanitation of Service Providers

Water supply and sanitation schemes in rural communities generally face the challenges of sustainability and viability. To ensure sustainability, water service providers may take over the operation and maintenance of these schemes or provide a bulk supply to distribution networks. Most of these schemes, however, are not constructed to the required standard and

BOX 5: PROVISIONS OF THE PROTOCOL ON SHARED WATERCOURSES IN THE SADC

Shared Watercourse Institutions

Watercourse States undertake to establish appropriate institutions such as watercourse commissions, water authorities or boards as may be determined.

The responsibilities of such institutions shall be determined by the nature of their objectives which must be in conformity with the principles set out in this Protocol.

would need to be rehabilitated and upgraded prior to being taken over. To ensure viability, Government may be required to provide a subsidy to the service provider.

There is need to liberalise the water supply and sanitation industry to improve the quality of service delivery. Monopoly creates a serious drawback in innovative ideas and is likely to keep tariffs above the market prices, yet liberalisation creates a competition amongst service providers, thus works as a self-tariff regulatory mechanism.

Policy Statement:

The NWA shall use due regulation and coordination to form and liberalise domestic water supply and sanitation services entities that will be entrusted with the overall responsibility of developing and managing water resources in Eswatini.

Objective:

To ensure the provision of quality domestic water supply and sanitation services throughout Eswatini.

Strategies:

- a) The NWA will create an enabling environment for the liberalisation and coordination of water supply and sanitation services entities.
- b) The NWA will develop regulations and guidelines for the liberalisation and coordination of water supply and sanitation service entities.
- c) The NWA will pay a fair compensation to water supply and sanitation service providers in lieu of rehabilitation and upgrading costs and a subsidy where the schemes are not viable
- d) The NWA will develop standards and guidelines for quality service delivery.
- e) The NWA will develop guidelines for ensuring coordination and sustainability of institutions.

4.6.1.3 Development of a National Water Resources Strategy Plan

Every agency, department or establishment that desires to engage in a water resources development programme or project shall ensure that the proposed developments are in line with the overall plans and requirements set out in the Resources Master Plan and will invoke IWRM principles. Agencies involved in projects that are of a trans-boundary nature shall ensure that they adhere to the principles of equity and sustainability, and in compliance with all principles of IWRM.

Policy Statement:

There shall be a National Water Resources Strategy Plan that will guide all water resources development and management in the country based on the principles of IWRM.

Objective:

To ensure the development of an efficient national water resources strategy plan to be implemented throughout Eswatini.

Strategies:

- a) The NWA will formulate and implement the River Basin Management Plan, which shall be based on the IWRM principles.
- b) The NWA will review the River Basin Management Plan every three years.
- c) The NWA will engage stakeholders in the review and implementation of the River Basin Management Plan.
- d) The NWA will create mechanisms for updating and periodically reviewing River Basin Management Plan to ensure that it is responsive to the demands of time.
- e) The NWA will oversee that entities engaged in the development of water resources adhere to the dictates of the River Basin Management Plan.

4.6.1.4 Promoting Good Governance in Water Resources Management

There is need to inculcate the principles of good governance in the development and management of water resources. Water sector institutions tasked with this responsibility have to commit to the implementation of good governance to enhance integrity and accountability in the water sector.

Policy Statement:

Water sector institutions shall develop, promote, continuously review and monitor water governance performance targets and indicators at their respective levels of authority.

Objective:

To promote good governance in water resources management throughout Eswatini.

Strategies:

- a) The NWA will define appropriate performance targets and indicators to monitor effectiveness in service delivery at all levels and promote adherence to these.
- b) The NWA will promote adherence by water sector institutions to the principles of good governance, transparency, accountability, efficiency and accessibility.
- c) The NWA will promote coordination, cooperation and information dissemination and exchange amongst water sector institutions and stakeholders.

4.6.1.5 Progressive decentralization

The Conventions on Biodiversity and the Convention on Wetlands of International Importance (Ramsar Convention) require, among others, that action ought to be undertaken at the lowest practicable level. This means that the responsibility of managing natural

resources, including water resources ought to be devolved to water resources users, as far as practicable, including communities. Devolving greater management responsibility to water-users takes advantage of the social capital provided by water-users and community groups and uses it as an input into the management of water resources. The Water Act of 2003 created basin level structures (River Basin Authorities, Irrigation Districts and Water-user Associations) with significant powers to manage the resource. However, the institutions have limited human and financial capacity of effectively manage water resources at the basin levels.

The traditional chiefs in Eswatini are responsible, through traditional powers vested in them by the Eswatini Administration Order, for raising local resources and coordinating delivery of basic services. Therefore, they are important in the management of water resources within their jurisdictions.

Policy statement:

The NWA shall support water management resources at the basin levels in Eswatini.

Objective:

To strengthen the role of water resources management institutions at the basin levels in Eswatini.

Strategies:

- a) The NWA will develop legislation of water resources management at the district levels;
- b) The NWA will develop technical capacity of River Basin Authorities, Irrigation Districts and Water-user Associations in water resources management.
- c) The NWA will provide adequate financial resources to River Basin Authorities, Irrigation Districts and Water-user Associations to manage effectively water resources at the basin levels.
- d) The NWA will develop and implement basin level management plans.
- e) The NWA will develop guidelines for involving traditional chiefs in water resources management at the basin levels.
- f) The NWA will raise awareness of traditional chiefs on water resources at the basin levels management needs and priorities.

4.7 Water Pricing

This section contains policy statements and proposed strategies that pronounce water-pricing structures for various uses and levels, including issues of cross-subsidisation in various forms to ensure sustainability of water assurance and supply services.

Water is valued as an economic resource and when exploited for any kind of productive use it attracts costs associated with its storage infrastructure, management, conveyance,

purification, and monitoring its use.

Moreover, many resources are committed in setting up water infrastructure to make water available to water-users. In this regard, charges such as levies and tariffs are inevitable to all consumers of the water resource to meet and/or recover the costs of providing and managing the water resource. The only exception where no charges will exist is in the case of abstracting water for primary purposes. Figure 2 below demonstrates the various water charges within a water cycle in a catchment that are proposed in this National Water Policy.

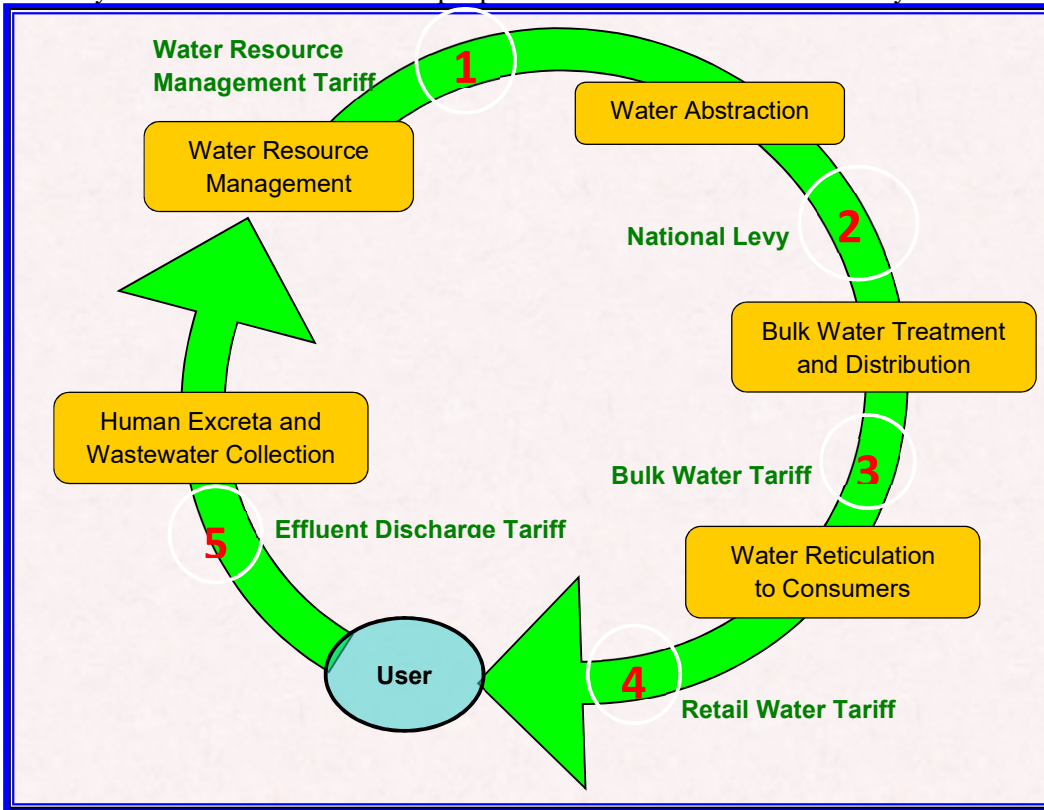


FIGURE 8: WATER PRICING MECHANISM AND THE WATER USE CYCLE IN A CATCHMENT

The use of economic and financial instruments in water resource management and development is critical in providing sources of funds to raise finance for water infrastructure provision, manage basin and catchments, upgrading and expansion as well as maintenance. They are also critical in rationing water usage since it is becoming a scarce commodity, and charging for pollution since the environment is vulnerable to pollution.

This water policy advocates for the enactment of charges, which will encompass water resource management tariff, national levy, groundwater abstraction levy, bulk water tariff, retail water tariff and effluent discharge tariff. The charges are aimed at facilitating development and management of the wider catchments by entities entrusted with overseeing development within the rivers' basins and will go a long way towards ensuring equitable distribution of water throughout all sectors of the economy. The NWA entrusted with overseeing the development and management of water resources in the country will be able to generate resources from the National Levy to be charged from all entities abstracting water from the

natural environment. RBIs will be able to finance their operations from Government sources and through the proposed levies and tariffs and recover the costs of reticulating water. Entities entrusted with managing and operating water infrastructure will be able to recover costs of reticulating water to consumers through the proposed tariffs. The proposed charges are intended to be cost effective and not be a disincentive for any entities requiring utilization of water for the production of economic and social goods.

4.7.1 Water Permit Fees and Levies

4.7.1.1 Water Abstracted for Primary Purposes

All water found in the country is a national resource, with no private right of property. It will not be necessary for any person or community to obtain a permit for the use of water for primary purposes. Therefore, no levy shall be charged to water abstracted for primary purposes. Concerning water abstraction, the non-refundable application fee will be for the intended water-user, but not for primary purpose. This non-refundable application fee shall also apply to the drilling of boreholes by companies and/or individuals applying for drilling. Upon successful application for a borehole-drilling permit, there will be a groundwater abstraction permit fee.

Policy Statement:

No levy shall be applied to water abstracted for primary purposes, hence, community-based organisations, NGOs and Government agencies supplying water for primary purposes shall be exempted from water abstraction levies.

Objective:

To promote abstraction of water for primary purposes.

Strategies:

- a) No levy applied on water abstracted for primary purposes. But care to be taken not to preclude cost recovery.
- b) Develop guidelines for monitoring the abstraction of water to determine eventual use.

4.7.1.2 Abstracting Groundwater for Primary Purposes

Normally, there is no permit required for the use of water for primary purpose. However, due to the complex nature of groundwater a permit is required to help the resource manager understand the resource, and thus be in a position to advise the borehole water-users on the resource sustainability and quality status. The need for a permit warrant that a small levy be paid to recover the costs of producing such a permit and to meet somehow the cost of management and/or monitoring the resource. This will be a once off payment. However, if

the use of groundwater is for other purposes other than primary purpose, the provisions for surface water under this chapter shall apply where appropriate. Primary purposes include though not limited to drinking water and irrigation of small gardens.

Policy Statement:

A groundwater abstraction levy shall not be charged if the use of groundwater is for primary purpose, but a small fee for processing a groundwater abstraction permit and groundwater monitoring shall be paid as a once off payment when collecting the permit.

Objective:

To promote abstraction of groundwater for primary use.

Strategies:

- a) Do not apply any levy on groundwater abstracted for primary purposes.
- b) Charge for a groundwater abstraction permit as part of management costs. It has to be noted that this is not a levy charged for abstraction of groundwater.
- c) Keep records of groundwater permits to assist in the management of the resource as well as advising borehole water-users on the sustainability and quality status of the resource.

4.7.1.3 Payment of Application Fee

Concerning water abstraction, the non-refundable application fee will be for the intended water-user, but not for primary purpose. This non-refundable application fee shall also apply to the drilling of boreholes by companies and/or individuals applying for drilling. Upon successful application for a borehole-drilling permit, there will be a groundwater abstraction permit fee.

Policy Statement:

A non-refundable application fee shall be charged on all applicants applying for a water abstraction permit and/or borehole-drilling permit.

Objective:

To determine and charge appropriate application fee.

Strategies:

The NWA will develop water-pricing regulations that will determine application fees.

4.7.1.4 National Levy for Abstracting Water

Water is valued as an economic resource and consequently there are costs incurred to make the resource available to users. A lot of resources (i.e., capital, operational and maintenance) are committed in setting up the water infrastructure (such as reservoirs, weirs, canals) and to maintain and operate it. It is therefore essential that a National Water Levy be charged to meet costs towards the development, maintenance, and operation of the national water infrastructure. The National Water Levy shall be used for servicing the operations of the NWA and for the management of the water resource at the national level. The levy shall be charged to water abstraction permit holders and shall be proportionate to the amount of water stipulated in the water permit.

Policy Statement:

A National Water Levy shall be charged to all water abstracted by permit holders for commercial activities and will be proportional to the amount of water stipulated in the water permit.

Objective:

To ensure realisation of revenue from abstraction of water through the national levy in order to facilitate the activities of the National Water Authority.

Strategies:

- a) The NWA will develop water-pricing regulations, which will determine the National Levy.
- b) The NWA will develop guidelines for monitoring the abstraction of water to determine volume of water abstracted.
- c) The NWA will pay all the mandatory levies and charges due before commencing on the intended activity upon successful application for a water abstraction permit.
- d) The NWA will revenue from water levies should be ring fenced, i.e., used for water resource development and management only.

4.7.1.5 Incentives for Abstracting Flood Water

Water conservation is promoted; hence, the construction of private reservoirs to augment the existing water storage infrastructure in the country shall be encouraged. Based on such infrastructure, a motivation not to charge the National Levy will be provided. However, it is recognised that the challenge for River Basin Authorities would be the monitoring the abstraction of floodwater into the infrastructure to qualify for the levy exemption. It is thus expected that a mechanism would be developed for each case for the conditions to abstract flood water such as the threshold water level above which the reservoir owner may be allowed to abstract the flood water by the RBA, ID and/or Project Board.

Policy Statement:

As an incentive to conserve water the National Levy shall not be charged on flood water, above a defined threshold, abstracted to be stored in a private reservoir.

Objective:

To encourage the conservation of water throughout Eswatini.

Strategies:

- a) The NWA will put into place mechanisms to monitor abstraction of flood water into infrastructure to qualify for exemption.
- b) The NWA will develop guidelines to determine the water threshold above which reservoir owner(s) may be allowed to abstract the floodwater.

4.7.2 Water Tariffs

4.7.2.1 Paying Tariffs by Water-users and Water Service Providers

To manage the water resource in a basin requires resources. The water resource management charge will go a long way in financing the operations of the River Basin Authorities who have the responsibility of development and management of water resources. The water-users are to be charged based on the amount of water they are permitted to abstract and collected by River Basin Institutions or any delegated authority.

Policy Statement:

Water tariffs shall be charged on all users for abstraction of water from the country's watercourses.

Objective:

To put in place a proper system of water pricing throughout Eswatini.

Strategies:

- a) The NWA will develop water-pricing regulations, which will determine the relevant tariffs for different uses, i.e., water resource management tariff, bulk water tariff and retail water tariff.
- b) The NWA will develop guidelines for monitoring the abstraction of water to determine volume of water abstracted.
- c) The NWA will be paid by the developer for all the mandatory levies and charges due before commencing on the intended activity upon successful application for a water abstraction permit.

4.7.2.2 Tariffs for Effluent Discharges

An entity engaged in industrial use or local authority use (domestic purposes), which intend to discharge pre-treated effluent directly into a watercourse, shall ensure that a pollution effluent control permit has been obtained after paying effluent discharge charges.

The effluent to be discharged shall at all times be within the maximum stipulated limits of water quality parameters as provided in the effluent control permit or as stipulated by the relevant authority as stipulated in legislation. The effluent discharge tariff is meant to cover costs associated with the monitoring compliance with the above provisions. This shall inevitably require a measuring device to determine the amount of effluent discharged so that at the end of the permit duration, compliance with regards to the total discharged volume will be ascertained.

Policy Statement:

There shall be an effluent discharge tariff which shall be paid when collecting an Effluent Control Permit and subsequent renewals, whose charge shall be proportional to the volume of effluent to be discharged and whose quality shall at all times meet the stipulated thresholds.

Objective:

To ensure realisation of revenue from effluent discharges to facilitate the treatment of water into which such effluent has been discharged.

Strategies:

- a) The NWA working with the SEA will develop regulations, which will include charges to be imposed for the discharging of effluent.
- b) The NWA working with the SEA will ensure payment of an effluent discharge tariff upon issue of an Effluent Control Permit and subsequent renewals, whose charge shall be proportional to the volume and chemical constituents of the effluent to be discharged and whose quality shall at all times meet the stipulated thresholds.
- c) The NWA working with the SEA will develop guidelines to ensure that discharged effluent is within stipulated limits of water quality objectives.
- d) The NWA will invoke penalties such as such as suspension, cancellation of the permit, submission of a plan to remedy the contravention, minimising the adverse effects, to name a few, upon conclusive failure to comply in any of paying of fees, exceeding the volumetric and quality discharge limits.

4.7.2.3 Promoting Cross-Subsidisation

The cost of providing potable water supply services varies widely amongst water schemes depending on the nature of the scheme which may include, size, spatial settlement, geographical location with respect to the water source, the method used for pressuring the water and the cost of purifying the raw water. These variations may easily hike up the cost of providing the service; hence inhibit provision of such services to some communities.

An argument for cross-subsidisation is being advocated, whereby the tariffs to be paid by the communities who are serviced by expensive water supply schemes shall be subsidized by slightly hiking the tariffs of the other highly economical areas that are supplied with potable water. This is an effort to offset the higher charges that may need to be paid by the communities serviced by more expensive water supply schemes in a bid to fulfil the social responsibility of providing access to potable water to all communities.

Policy Statement:

Potable water tariffs paid to commercial service providers shall be uniform throughout the country irrespective of the exact cost of providing the service through a mechanism of cross-subsidisation.

Objective:

To promote the principle of cross-subsidization throughout Eswatini.

Strategies:

- a) The NWA will promote cross-subsidisation to subsidise tariffs to be paid by communities serviced by expensive water supply schemes by slightly increasing the tariffs of the other highly economical areas that are supplied with potable water.
- b) The NWA will develop regulations on water pricing to facilitate application of cross-subsidisation mechanisms.

4.7.2.4 Differential Charges for Water

It has been contended in some sections of this policy that water for domestic and industrial purposes takes precedence over the other uses. Consequently, the tariff for such high assurance water shall attract higher charges (tariffs and levies) than the other uses. The same is true for water for stock watering and water for irrigation purposes. Charges for non-consumptive water-uses including hydropower generation shall attract least charges (levies and tariffs) compared to all other uses.

Policy Statement:

Determination of water abstraction tariffs shall be influenced by the type of water-use (domestic & industrial, hydropower & non-consumptive uses, livestock watering, and for irrigation purposes). For water resources development projects for poverty alleviation the beneficiaries may not necessarily pay the full cost of the resultant water infrastructure.

Objective:

To ensure that high assurance water tariffs attract higher charges than other users within Eswatini.

Strategies:

- a) The NWA will charge higher tariffs for high assurance water supply such as industry as compared to non-consumptive use and irrigation use.
- b) The NWA will develop legislation to ensure the realisation of the objective of this policy.
- c) The NWA will facilitate recovery of costs incurred in establishing the water infrastructure with due cognisance of the social responsibility to alleviate poverty.
- d) The NWA will increase allocation of financial resources from Government resources to fund capital works of projects and programmes in the water sector.
- e) The NWA will promote Public Private Partnerships (PPPs) in financing and implementing large water projects aimed at alleviating poverty, where contribution of affected communities in terms of establishing large water infrastructure is minimal.

4.7.2.5 Charges for Poverty Alleviation Projects

Many large water projects aimed at alleviating poverty are largely financed by Government with very minimal contribution by the beneficiaries in terms of establishing the large water infrastructure.

Policy Statement:

For water resources development projects for poverty alleviation the beneficiaries may not necessarily pay the full cost of the resultant water infrastructure.

Objective:

To set standard charges aimed at poverty alleviation in Eswatini.

Strategies:

- a) The NWA will facilitate recovery of costs incurred in establishing the water infrastructure with due cognisance of the social responsibility to alleviate poverty.
- b) The NWA will increase allocation of financial resources from Government resources to fund capital works of projects and programmes in the water sector.
- c) The NWA will promote Public Private Partnerships (PPPs) in financing and implementing large water projects aimed at alleviating poverty, where contribution of affected communities in terms of establishing large water infrastructure is minimal.

5. POLICY IMPLEMENTATION

5.1 Water Allocation Principles

There are no permanent water rights but all rights on water are vested in the state to protect and manage its use as a common good. The process for allocation of water should be in accordance with the following principles:

5.1.1 Provisions for domestic needs

First priority in water allocation is to meet the domestic water demand. Therefore, water allocation for the domestic needs of a community should be reserved within the total available from each water resource.

5.1.2 Provisions for resource management and environment

Allocations will be reserved to ensure the continued viability of the resource and for the conservation of the environment. Allocations for water courses will include provision of a minimum flow to maintain water quality and aquatic eco-systems.

5.1.3 Water for Production

Allocations will consider the socioeconomic value of the use and optimal development of the water potential (e.g. hydropower schemes), and the impact on the water resource.

5.1.4 Market-based allocation principles

Over a period of time a market-based approach to water allocation will be developed. This approach puts to practical use the principle of "water as a social and economic good." The water available to be allocated in this manner is determined based on an understanding of the available yield less any allocation reserved for domestic needs and for ecosystem maintenance. During the transition period leading to the establishment of a market-based allocation process, actions will be taken to determine the yield of each resource at its present level of development, and the allocations necessary to provide for domestic needs and for resource management. From this information, the amount available for allocation using a market-based approach shall then be determined. These steps will be taken with full stakeholder involvement, emphasizing the continued security of existing allocations.

5.1.5 Response to emergencies (droughts and floods)

Assessment will be made of the response of the water resource in line of emergencies of the water-uses, which draw upon the resource. This will indicate whether a detailed strategy in response to emergency situations should be formulated. Such a strategy may involve limiting total allocations in perpetuity or reducing the allocations of selected categories of users during these periods and in consultation with the relevant sectors.

Crises such as drought and floods need to be managed and coordinated on an interdepartmental basis because multiple efforts are needed to support affected communities. The NWA shall undertake to collect data and information and disseminate it for public awareness and safety.

5.2 Water Legislation

To implement the National Water Policy appropriate legislation and supporting regulations have been enacted. More specifically, the objectives of the new water legislation are as follows:

- (i) to promote the rational management and use of the water resources of Eswatini,
- (ii) to promote the provision of a clean, safe and sufficient supply of water for domestic purposes to all persons,
- (iii) to provide for the constitution and devolution of water supply and sewerage undertakings,
- (iv) to allow for the orderly development and use of water resources for purposes other than domestic use, such as the watering of livestock, irrigation for agriculture, industrial, commercial and mining uses, the generation of hydroelectric or geothermal energy, navigation, fishing, preservation of flora and fauna, cultural and spiritual uses, and recreation in ways which minimize harmful effects to the environment, and
- (v) to control pollution and to promote the safe storage, treatment, discharge and disposal of waste which may pollute waters or otherwise harm the environment and human health.

In brief the Water Act, 2003 is the fundamental code from which all aspects of water resources management derive: administration; water resources planning; role of the Water Action Plan; authorization of hydraulic works and uses of water; waste discharge permits; water abstraction permits; variation and cancellation of water rights; financial provisions; powers and duties, as well as appeals and offenses.

A set of supporting regulations, which operationalize the statutes, are grouped under the following headings:

- (i) Water Resources Regulations.
- (ii) Water Supply, Abstraction and Use Regulations.
- (iii) Sewerage Regulations, and
- (iv) Waste Discharge Regulations.

5.3 Priority Action Programme

5.3.1 Water Resources Management

In accordance with the grouping of strategies presented in chapter 4, three main components are needed to achieve the policy goal of sustainable water resources management:

- (i) an enabling environment, which is a framework of national, regional and international legislation, regulations and local by-laws for promoting sound

- management of the water resources and constraining potentially harmful practices,
- (ii) an institutional framework that allows for capacity building and close interaction between national, district and community levels, and
 - (iii) management framework for planning and prioritization capabilities that will enable decision makers to make choices between alternative actions based on agreed policies, available resources, environmental impacts, and the social and economic consequences. To prioritize and make rational planning decisions, certain tools are crucial:
 - An information system, within which information on the quantity, quality, utilization and environmental condition of water resources can be collected, analysed and disseminated; and
 - Water resources assessments, which evaluate the impact of proposed interventions on the hydrological regime and water quality, such as water abstractions or waste discharges.

Policy implementation will involve the successive detailing of policy from the level of intent and formulated strategies (as given in this document) through the structuring and implementation of actions required in achieving intended policy outputs and impacts.

5.3.2 Water Supply and Sanitation

The Ministry of Natural Resources and Energy with the assistance of other line ministries and relevant donor agencies, NGOs and the local authorities, will develop a comprehensive plan and strategy for the sustainable provision of water and sanitation services, incorporating on-going programmes and corroding existing imbalances (inequities) and gaps. The plan will provide a broad water sector vision and will have institutional capacity building and human resource development as its cornerstone.

5.3.3 Sectoral Water-use Policies and Plans

The concerned ministries of Eswatini will develop specific and detailed policies e.g. for agricultural production, energy (hydropower generation), forestry, which must be consistent and compatible with this Policy. They will also develop relevant policies, implementation and action plans.

5.3.4 Policy Dissemination and Impact

For this policy to be implemented it must be widely disseminated and discussed and all concerned parties made aware of the policy objectives, principles, strategies, procedures and desired impact.

5.3.5 Monitoring of Policy Implementation

An important function at central level by the Department of Water Affairs (DWA) will be - whilst devolving implementation and management to the lowest appropriate levels - to ensure

that what happens at these levels meets the required standards and follows stated objectives and strategies.

The policy is aimed at opening up the arena for a large number of participants to engage in the tasks of managing water resources and developing basic water and sanitation services. For this to be effective, it will be necessary to monitor and regulate their performance. Further-more, to know and assess the impact of the policies and strategies, it is important that a monitoring and evaluation mechanism is established and well-functioning. The key monitoring agent will be DWA.

The objective of monitoring and evaluation is not primarily punitive but supportive. The objective is to ensure that goals are met, which is best achieved through support and cooperation, rather than through coercion. Where the reason for non-achievement or non-compliance is attributed to lack of managerial or administrative capacity, DWA will seek to provide assistance to build such capacity.

To fulfil its monitoring and evaluation role DWA must define a set of performance indicators to be able to gauge progress and effectiveness of the various strategies put forward in this Policy. For this purpose, a basic list of monitoring indicators covering the three main components of activities, i.e. supporting the enabling environment, creating the institutional framework, and enhancing management planning and prioritization capabilities, is given below.

5.3.6 Enabling environment

Monitoring indicators concerning the provision of an enabling environment by:

- (i) initiation and approval of the necessary legislation bye-laws and regulations at all levels,
- (ii) establishment of management systems and institutions for water supply and resources management functions at local levels,
- (iii) acceptance of responsibilities by local administrations - shown by budget allocations and priorities in committee structures,
- (iv) other sectoral water-uses policies established.

5.3.7 Institutional Framework

Monitoring indicators for the provision of the institutional framework by:

- (i) Establishment of the National Water Authority as a body corporate under the Water Act, 2003.
- (ii) Establishment of the Water Apportionment Board which has power to appoint an advisory committee under the Water Act, 2003.
- (iii) Establishment of the River Basin Authorities which are to be established by the minister upon recommendation by the Authority.
- (iv) The joint water commission established by the governments of the Republic of South Africa, the Komati Basin Water Authority established by NWA of Eswatini and the Republic of South Africa.

- (v) Establishment of the Department of Water Affairs within the Ministry of Natural Resources and Energy.
- (vi) Establishment of Irrigation Districts as bodies corporate by the Minister.
- (vii) Formation of Water-user Associations and Water and Sanitation Committees and their functioning,
- (viii) Training related to integrated extension services taken-up: membership, attendance, quality of participation, and follow-up,
- (ix) Sector planning strengthening in DWA and effective coordination mechanisms.

5.3.8 Management Planning and prioritization

Monitoring indicators for Eswatini as facilitator of:

- (i) rehabilitation and expansion of water resources information services: reliability of data, speed of processing, and efficiency mechanisms, of dissemination.
- (ii) setting up water abstraction and waste discharge permit systems: efficacy of procedures, reactions of permit holders, and impact on affected sources,
- (iii) operation of enforcement and mediation mechanisms: number and types of cases, utilization of agencies (Local Councils, Magistrate Courts, Chiefs, Elders, etc.), and reactions of disputants,
- (iv) improved access to water and sanitation facilities, reduced water borne diseases and functioning O&M systems.

This list is not exhaustive; it only incorporates indicators related to development of the overall water resources management structure. More specific monitoring indicators have to be defined, e.g. to monitor progress in developing the domestic water supply sector on a national basis vis-a-vis the overall sector goals (coverage level target and functionality of systems).

6. GUIDELINES FOR IMPLEMENTATION OF THE POLICY

6.1 Strategic and Action Plan Formulation

Currently, there is the Water Act of 2003 which oversees the development and management of water resources in the country. This Act has established a supreme body, known as the National Water Authority (NWA), responsible for water resources development and management in the country.

The overall implementation of the National Water Policy (NWP) shall be the task of the NWA. The Department of Water Affairs (DWA), as the implementing arm of NWA, shall provide executive services to the NWA. The implementation shall be through the River Basin Management River Basin Management Plan. The River Basin Management Plan shall contain an inventory of the total water resources of the country and present a comprehensive programme of action in which the maximum value can be obtained from this resource for the benefit of the people of Eswatini.

The strategic elements outlined in the NWP need to be further elaborated and defined with respect to responsible actors, financial requirements, timeframes, monitoring and evaluation processes. It is essential that effective coordination and commitment to implement be guaranteed between government institutions and also between all actors and stakeholders within the water sector, involved in the implementation of the NWP.

6.2 Policy Implementation Responsibilities and Institutional Framework

The involvement of all stakeholders is paramount in the implementation of the NWP. It is the responsibility of the NWA to enable full participation and ownership by every stakeholder. Action is indispensable in the implementation of the NWP.

Accordingly, any involvement of or support by key stakeholders in executing the NWP will require active participation, commitment and empowerment throughout the entire process.

This Policy is one of government initiative in area of natural resources and it will require a special implementation and strategic plan, not only to create awareness of its importance, but also to inform and educate stakeholders on its key provisions and the opportunities it creates for their participation. The following measures are proposed for the dissemination of the policy as soon as it is approved by both Cabinet and Parliament:

- Ministry to arrange a formal and high-level function to launch the policy. Invite Distinguished Guest to preside over the event;
- Disseminate copies of the NWP document as widely as possible to relevant stakeholders;
- Ministry to plan for a one-day seminar for Members of Parliament and other public leaders to discuss the most important components of policy,

implementation, funding and their personal roles as public leaders, in promoting the sustainability and conservation ethics;

- Plan a similar one-day seminar for private sector, civil society, local leaders and development partners.

The following institutions and stakeholders shall undertake responsibilities and tasks towards executing the NWP.

6.2.1 Executive and Legislative Arms of Government

The Government, through Cabinet, will have the mandate to approve the NWP and oversee its implementation through the Ministry responsible for water (MNRE) and monitoring adherence to and achievements of the policy pronouncements.

Parliament will be responsible for the enactment of new and/or amendment of existing laws for alignment with the NWP and associated River Basin Management Plan, and also approving budgetary allocations for NWA, as well as monitoring the use of resources through established parliamentary structures, particularly the Portfolio Committees and Public Accounts Committee (PAC).

6.2.2 Ministry Responsible for Water (currently Natural Resources and Energy)

The Ministry responsible for water (MNRE) will be the overall custodian of the NWP and will oversee the implementation, monitoring and evaluation of the NWP. MNRE will also oversee all governance issues related to water resources development in the country. Specifically, the Ministry has the following responsibilities under this Policy:

- In consultation with other stakeholders formulate, a National water resources management strategy and plan that will facilitate the proper management, development and utilisation of the resource in accordance with the provisions of this Policy;
- Ensure effective implementation of the National Water Policy through the use of monitoring indicators;
- Coordination of all policy implementation functions of a sector and cross sector nature;
- Ensure the monitoring and evaluation of the implementation of this Policy through collaborative and consultative arrangements; and
- Prepare an annual and budgeted NWP Implementation Action Plan that sets out how the MNRE will implement the policy strategies, who it will be working with, how it will monitor and how it will evaluate the outcomes.

The under listed stakeholders will undertake the stipulated roles:

a) Ministry of Natural Resources and Energy

- Pursue political acceptability of NWP to Government;
- Advocate and promote NWP through networks and strategic partnerships;
- Enable implementation through the NWA and DWA;
- Identify and mobilise resources (finance and human) to implement NWP;
- Provide guidance and support for implementation and management of the NWP;
- Promote collaboration among stakeholders to achieving targets of the NWP;
- Oversee progress of implementation and management; and
- Communicate and liaise with other stakeholders, particularly Government Principal Secretaries of other Ministries, about the existence and importance of the NWP.

b) Department of Water Affairs

- Assume overall responsibility for the implementation and management of the NWP. This will include implementation, enforcement and monitoring adherence to the National Water Policy, Water Legislation and River Basin Management Plan;
- Communicate the intent, content and relevance of the NWP to stakeholders inside and outside of Government, particularly Shared Watercourse States;
- To identify and mobilise financial and human resources required to implement the NWP; and
- Prepare a monitoring and evaluation framework to ensure the policy strategies are implemented efficiently.

c) Attorney General

- To provide advice and support where new legislation and/or amendment of existing legislation.

d) National Water Authority

- To facilitate the process of approval of the NWP by the relevant structures;
- To implement the NWP;
- To advise the Minister on the need to review policy related water affairs;
- To coordinate the work of different institutions involved in the implementation of the NWP;
- To prepare, adopt, and subsequently update, the River Basin Management Plan;
- To advise the Minister on the appointments of persons to serve in the Joint Water Commission or any other international or national water commission which may be established;
- To advise the Minister on the promulgation of regulations respecting the setting of fees or charges for covering operation, cost and maintenance of government works, application fees, fees for appeals or charges for use of water;
- To oversee the work of and provide policy criteria and direction to the Board and to Project Boards, River Basin Authorities and task forces and to approve their budgets before they are submitted to the Minister;
- To advise the Minister on policy directions relating to water affairs;

- To co-ordinate the work of different boards, water sector agencies and international water commissions;
- To recommend policy with respect to the issue, renewal, amendment or cancellation of permits;
- To monitor and recommend policy direction and guidelines to the Eswatini members of the Tripartite Permanent Technical Committee and the Joint Water Commission and any other international water commission;
- To review and consider recommendations from the Tripartite Permanent Technical Committee, the Joint Water Commission and any international water commission and to make recommendations thereon to the Minister;
- To determine the proper management of works and ensure that periodic safety inspections are made of all works;
- To consider, approve, amend or reject development proposals for the development of water resources which may have a significant impact on the use of water resources;
- To recommend to the Minister the adoption of water quality objectives;
- To recommend to the Minister time limits for renewal of permits;
- To cause to be maintained, expanded and continued, the collection of hydrological, meteorological or other water related data and to arrange for the collecting and making available to the Authority, to the Board and to the public of all such data as may be obtained;
- To do such other things as the Minister may in writing assign to the Authority.

e) River Basin Authorities

- To prepare and maintain periodically a Basin Management Plan that includes issues such as water availability, water quality, water-user database, ecosystem and habitat status, urban demands, industrial demands, in-flows, out-flows
- To facilitate implementation of the NWP at river basin level;
- To develop and keep a data base of basin information, including water availability and water demand data, and to monitor and keep record of changes in water conditions in the basin;
- To issue, amend and renew or suspend water permits;
- To impose water restrictions on all water-users in times of declared water shortage;
- To investigate the need for water resources development and management and to advise the Authority on the need to appoint Project Boards;
- To investigate the need for inter-basin transfers, to negotiate it with other basin authorities, and to advise the Authority in respect thereof;
- To monitor and control water quality and enforce effluent regulations;
- Subject to the approval of the Authority, to levy and collect rates and charge to defray part or all costs of the River Basin Authority;
- To have authority over Irrigation Districts, Project Boards and User Associations.

f) Irrigation Districts

- To exercise control over the operation and maintenance of works in the district and the distribution of permitted volumes of water in accordance with permits and for the benefit of persons in the district and such other functions as may be set out in the notice of incorporation.
- To exercise such powers of the Board with respect to the enforcement of permits or this Act as the Board may in writing delegate, including the power to appoint water bailiffs or inspectors;
- Take all reasonable steps to avoid the waste or misuse of water;
- Levy and collect rates and charges, subject to the approval of the Board, to defray the costs of the district;
- Maintain true accounts of its receipts and expenditures and to make them available for inspection by the Board and the electors; and
- Hold general meetings of eligible electors at least once per year and at such meetings disclose its accounts and a statement of its activities.

g) Water-users Associations

- To pool some or all of the permits held by the members and to distribute the
- permitted water equitably and in accordance with the objectives of the association, provided the total quantities permitted by all the permits are not exceeded;
- Appointing water bailiffs with authority to enforce the terms of the permits or of the distribution under the pooled arrangements;
- Appointing inspectors with authority to enforce the provisions of this Act.

h) Private Sector

The role of the private sector is critical in enhancing the development and management of water resources in Eswatini. The private sector will be encouraged to invest in the water sector as they derive economic benefits from the exploitation of water resources in the country. At the same time, they will be expected to contribute to improving the livelihoods and sanitation conditions of the people in their employ.

i) Water-users

To align the activities of water-users with the strategies of the NWP.

6.2.3 Ministry of Finance - Facilitate the mobilisation of resources, in conjunction with other relevant institutions and donors, to fund the implementation of the NWP.

6.2.4 Ministry of Economic Planning and Development - Provide advice on the appraisal of water related projects supported by the NWP towards achieving the NDS target of sustainable development of the country.

6.2.5 Ministry of Agriculture - Ensure that water resources are utilised efficiently within the stipulations of the NWP while implementing projects aimed at increasing agricultural production and productivity.

6.2.6 Ministry of Tourism and Environmental Affairs - Monitor the development of water resources following legally sanctioned requirements under the Environmental Management Act, to ensure such developments contribute positively to the resilience of the environment.

6.2.7 Ministry of Commerce, Industry and Trade - Ensure alignment with strategies of the NWP as investors pursue their business interests in the country.

6.2.8 Deputy Prime Minister's Office / National Disaster Management Authority - To ensure water related disaster risk reduction and management incorporates pronouncements of the NWP.

6.2.9 Non-Government Organisations

To integrate strategies of NWP and other water related plans in their development activities.

6.2.9 Donors and Financing Agencies

Donors and financing agencies will use the NWP and resultant River Basin Management Plan as a framework for identifying fundable and beneficial activities channelling development assistance to the country.

6.3 Monitoring and Evaluation

The objective of monitoring and evaluation at all levels will be to ensure that the NWP (and associated River Basin Management Plan) are on track and remain flexible to adapt promptly to changing circumstances and priorities.

A monitoring and evaluation system will be developed by the NWA to monitor and evaluate the implementation of the NWP. The operational details will be outlined in the River Basin Management Plan. Identified stakeholders entrusted with the implementation of the NWP shall be involved in developing monitoring indicators and communicating such to relevant stakeholders through progress reports in implementing the NWP and advising on remedial measures that warrant action to correct any undesirable deviation from the objectives and set targets.

The policy will need to be reviewed periodically (preferably every after three (3) years) by the stakeholders through Joint Sector Review and Sector Working Group meetings in order to monitor progress in the course of implementation, and to provide a basis for changes, if needed.

6.4 Legal Framework

A legal framework will be defined to support the institutional changes envisaged to implement the NWP and will identify stakeholders and stipulate their roles towards the implementation of the NWP. This NWP will be implemented within the framework of the National Constitution, Water Act, SADC Protocol on Shared Watercourses, International Treaties such as Helsinki rules, UN Convention on Non-Navigational Uses of Watercourses. All relevant legislation and associated regulations will be developed or reviewed where necessary to facilitate unhindered and trouble-free implementation of the NWP.

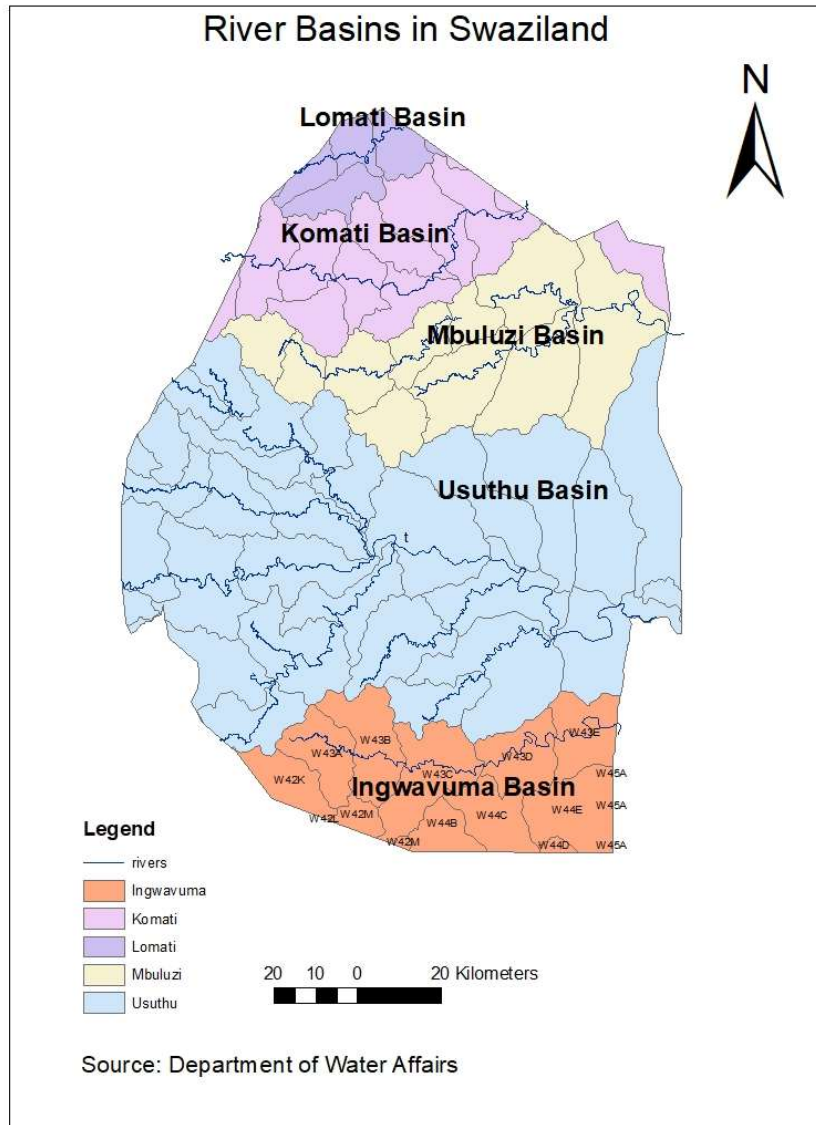
6.5 Resource Mobilisation

Government will commit to mobilise resources (finance, human, etc.) to fund the implementation of the NWP and the associated River Basin Management Plan.

Partnerships will be forged with development partners, regional, and international finance institutions and donor agencies to raise indicated capital funds to finance the development and management of water resources in the country as per the desired output of the NWP.

ANNEXES

Annex 1: RIVER BASINS OF ESWATINI



Annex 2: SDGs and Implications for this NWP

Key issues and Policy Statements under this NWP have been developed in reference to attainment of the SDG Targets among others i.e. sustainable and equitable allocation and provision of water of appropriate quantity and quality; adapting to the effects of extreme climate events and; addressing issues related to the water governance framework.

The 17 Sustainable Development Goals and 169 targets seek to demonstrate the scale and ambition of this new universal Agenda. SDGs seek to build on the Millennium Development Goals (MDGs) and complete what MDGs did not achieve. SDGs are integrated and indivisible and balance the three dimensions of sustainable development i.e. the economic, social and environmental. Sustainable development is very strongly connected to the availability of sufficient and good quality water for the preservation of healthy ecosystems and is critical for socio-economic and human development thus the decision to incorporate a dedicated water goal i.e. SDG-6 (ensuring availability and sustainable management of water and sanitation for all) among the 17 SDGs. This is a clear recognition that water is not only part of many other SDGs but in many aspects their precondition.

Although the water perspective is dedicated to the water goal (SDG-6), potential interlinkages with other goals and targets, including, among others SDG-2 (food security), SDG-3 (health and wellbeing), SDG-11 (resilient cities), SDG-12 (sustainable consumption), and SDG-15 (freshwater ecosystems) has also been highlighted within the key issues and Policy Statements of this NWP.

This NWP will therefore contribute towards achieving SDG-6 but also further contribute towards the achievement of SDG-2, SDG-3, SDG-11, SDG-13, SDG-12 and SDG-15 where:

- By 2030, achieve universal and equitable access to safe and affordable drinking water for all (**Target 6.1**)
- By 2030, improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of untreated wastewater and substantially increasing recycling and safe reuse globally (**Target 6.3**)
- By 2030, substantially increase water-use efficiency across all sectors and ensure sustainable withdrawals and supply of freshwater to address water scarcity and substantially reduce the number of people suffering from water scarcity (**Target 6.4**)
- By 2030, implement integrated water resources management at all levels, including through transboundary cooperation as appropriate (**Target 6.5**)
- By 2020, protect and restore water-related ecosystems, including mountains, forests, wetlands, rivers, aquifers and lakes (**Target 6.6**)
- By 2030, expand international cooperation and capacity-building support to developing countries in water- and sanitation-related activities and programmes, including water harvesting, desalination, water efficiency, wastewater treatment, recycling and reuse technologies (**Target 6.a**)
- Support and strengthen the participation of local communities in improving water and sanitation management (**Target 6.b**)
- By 2030, ensure sustainable food production systems and implement resilient agricultural practices that increase productivity and production, that help maintain ecosystems, that strengthen capacity for adaptation to climate change, extreme weather, drought, flooding and other disasters and that progressively improve land and soil quality (**Target 2.4**).

The NWP will also complement the realization of the following SDGs.

- SDG 3 on ensuring healthy lives and promotion of well-being for all at all ages
- SDG 11 on make cities and human settlements inclusive, safe, resilient and sustainable
- SDG 12 to ensure sustainable consumption and production patterns particularly **Target 12.2** - By 2030, achieve the sustainable management and efficient use of natural resources
- SDG 13 to take urgent action to combat climate change and its impacts
- SDG 15 to protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss.

Annex 3: Cross-Sectoral Issues

A. Climate Change Resilience

The NWA shall establish systems and technology to monitor and observe water resources, to understand the water balance and perform water accounting, improve meteorological services, and observe and respond to climate variance and long-term impacts of climate change. For this purpose, The NWA shall:

- Prepare water and climate impact risk assessment and hazard mapping as part of District planning and basin management;
- Establish meteorological services to water-users, agriculture, industry, and communities to include Early Warning Systems and dynamic information networks;
- Establish a Climate Centre of Excellence to contribute to water observation and monitoring, and water resource management, planning and decision-making;
- Establish a water information management and custodial framework linking meteorological and climate services, agro-meteorology, water balance monitoring, groundwater, supply, and abstraction demand.
- Investment in high water-use efficient irrigation systems;
- Conducting public awareness campaigns to ensure that the public is enlightened on climate change issues, including mitigation and adaptation measures

B. Contribution of the Private Sector

Eswatini's sustainable development must be linked on the best use of local natural resources. Water resources and services, it generates represent a wonderful natural asset, which has a great potential to create business and opportunities for investment. This policy is based on the principle that "Water is an economic good". One of the primary uses of water is as an input into production in agricultural, industrial, mining, tourism and other commercial sectors. Consequently, where benefits can be generated without compromising the integrity of the ecosystems, they will be shared equitably. This Policy advances new strategies, that link protecting water resources with human needs and harness the investment opportunities offered by water resources management to generate economic benefits, which shall be equitably shared.

To achieve the objective, The NWA shall therefore:

- Promotion of public private partnerships in infrastructure development following established guidelines.
- Provide policy and fiscal incentives for developing business models for marketing water resources services, or more efficient water-use technologies.
- Develop water resources-based investment and business opportunities, especially in developing technologies, water recycling technologies, technologies that are using water more efficiently.
- Stress and make a better case for the value and economic importance of the conservation and sustainable use of water resources.
- Support the development and promotion of business and water resources initiatives and provide appropriate incentives to develop public-private partnerships in the conservation and sustainable use of water resources.

C. National Strategic Planning and Development

The development of water resources has been sector-oriented (e.g. energy, agriculture) rather than integrated. This has hindered the realisation of the overall objective of using water for socio-economic development. Therefore, formulation of comprehensive water development plans aligned with national development priorities and that allow regular reviews during implementation within the framework of IWRM shall be encouraged. This practice is expected to result in informed decision-making for improved infrastructure development. In order to achieve this, the following measures shall be implemented:

- Catchment management plans shall be elaborated with an integrated multi-sectoral approach;
- Water resources planning, and development shall be based on accurate and reliable information;
- Water resource management and development shall be carried out on the basis of catchment boundaries;
- Develop a water infrastructure development strategy that will attract public investment as well as encourage public private partnerships; Provide incentives for public private partnerships on infrastructure development; and
- Encourage use of water recycling including sustainable wastewater reuse to increase water availability.

D. Stakeholder and Community Level Participation

Water resources shall be managed through MNRE. River catchment and sub-catchment organs and water-users associations shall support the MNRE. Water development and management should be based on a participatory approach, involving users, planners and policy-makers at all levels. The water-users association shall be the lowest organ for community participation. This includes water resources investigation, planning, implementation, operation and maintenance of schemes. The views of stakeholders are valuable in influencing decisions that affect communities in water resources management and development. This enhances the sense of community ownership in the provision of water services. To achieve this, the following measures shall be implemented:

- Use participatory approaches to create awareness on important water issues to mobilise support from the general public and policy and decision makers on the best practices for management and development of the water resources;

- Women shall play a central part in the provision, management and safe-guarding of the water resources;
- Train communities in community water project identification, formulation and implementation to equip them with appropriate knowledge and skill;
- Encourage the establishment of water-users associations with clearly defined roles;
- Introduce participatory approaches in water resources management programs, including the enhancement of the role of members of the disadvantaged groups, youth and other members of local communities; and
- Promote the introduction of appropriate technology for the disabled.

E. Administration of Water Permits

Water permits play a key role in water sector development through their impact on the usage of water in the economy. An efficient system for administration of water permits is a prerequisite for efficient resources allocation, guarantees reasonable returns to water suppliers, and encourages conservation of water resources. To the extent possible, the acquisition of permits should reflect both the social and the economic value of water resources and promote efficient use of the resource by the permit holders. However, these permits should be based on the principles of fairness and equity, and hence should promote efficiency, and sustainability in the utilisation of water resources for overall national social and economic development. To achieve this, the following measures shall be undertaken:

- All domestic and non-commercial uses of water resources will not be required to acquire permits;
- Development of a national strategy that aims to promote efficiency and sustainability in water-use;
- Wealth creation and empowerment of the disadvantaged shall be a primary objective in the implementation of the strategy; and;
- The process of facilitating use of water resources through the issuance of water permits shall consider the sustenance of administrative services for granting of permits.

F. HIV/AIDS and Water Resources

The HIV/AIDS pandemic has impacted negatively on the water sector and has contributed to the low human resource capacity and productivity in the sector. There is need to maintain and strengthen existing programmes to minimise the negative impact of HIV /AIDS. This Policy shall be complemented by the National Aids Policy in its implementation.

G. Gender and Water Resources

The management and development of water resources from the lowest to the highest decision-making levels require effective participation by both genders. It is well recognised that, women play a vital role in the provision, management and safeguarding of water. As custodians of natural resources, it is imperative that they take proactive decisions on how these resources are managed and developed. In order to achieve this, the following measures shall be implemented:

- Accelerate the representation of women at all levels and in all spheres of water resources management;

- Ensure gender balance by defining the key roles played by women, men and children so that there is no gender discrimination in the ownership, management and sharing of benefits of various water schemes operated by communities;
- Gender mainstreaming in water sector programmes will be articulated with the full involvement of women in the course of implementation of the Policy; and
- Appropriate and gender sensitive technology shall be introduced.

H. Research and Development

The sustainable management of water resources is largely dependent on maintaining and developing recognised capabilities in the field of water resources research. The NWA shall therefore develop research capabilities in water resource management and shall implement the following measures:

- Extending the traditional fields of water research to include investigative studies in social and financial issues, integrated catchment management, policy analysis and development, decision support systems, capacity building, ecosystem structure and functional development practices;
- Encouraging interdisciplinary and participatory research approaches that provide linkages between technology and communities;
- Reviewing and updating data and information on land- water resources and related socio-economic issues, with emphasis on land and water conservation, water-use efficiency, user-friendly affordable technologies, and drought-resistant crops; and
- Supporting the standardisation of methods of data collection and processing both at national, regional and international levels.