

THE KINGDOM OF SWAZILAND



MINISTRY OF TOURISM AND ENVIRONMENTAL AFFAIRS

NATIONAL CLIMATE CHANGE POLICY

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LIST OF ACRONYMS

ADP	Ad hoc Working Group on Durban Platform for Enhanced Action
CAADP	Comprehensive Africa Agriculture Development Programme
CASP	Comprehensive Agricultural Sector Policy
CC	Climate Change
CCA	Climate Change Adaptation
CDM	Clean Development Mechanism
CERs	Certified Emission Reductions
CH ₄	Methane
CBD	Convention on Biological Diversity
CBOs	Community Based Organizations
CCD	Convention to Combat Desertification
CHP	Combined Heat and Power
CO ₂	Carbon Dioxide
COMESA	Common Market for Eastern and Southern Africa
COP	Conference of the Parties
CSO	Civil Society Organizations
CTCN	Climate Technology Centres and Network
DPMO	Deputy Prime Minister's Office
DNA	Designated National Authority
DOE	Department of Energy
DRR	Disaster Risk Reduction
EAC	East African Community
EU	European Union
EWS	Early Warning Systems
FANRPAN	Food, Agriculture and National Resources Policy Analysis Network
GCF	Green Climate Fund
GCOS	Global Climate Observing System
GDP	Gross Domestic Product
GEF	Global Environment Facility
GHG	Green House Gases
GOS	Government of Swaziland
HFC	Hydroflourocarbons
IDP	Irrigation Development Program
IPCC	Intergovernmental Panel on Climate Change
IPP	Independent Power Producers

IWRM	Integrated Water Resources Management
JICA	Japan International Cooperation Agency
JJA	June-July-August
KDDP	Komati Downstream Development Project
KOBWA	Komati Basin Water Authority
LPG	Liquid Petroleum Gas
LULUC	Land Use, Land Use Change
LUSIP	Lower Usuthu Small Irrigation Program
MAM	March-April-May
MDGs	Millennium Development Goals
MEPD	Ministry of Economic Planning and Development
MET	Meteorology Department
MNRE	Ministry of Natural Resources and Energy
MOA	Ministry of Agriculture
MOE	Ministry of Education
MTEA	Ministry of Tourism and Environmental Affairs
NAMAs	Nationally Appropriate Mitigation Actions
NAP	National Adaption Plans
NAIP	National Agriculture Investment Plan
N ₂ O	Nitrous Oxide
NCCC	National Climate Change Committee
NCCP	National Climate Change Policy
NCCSAP	National Climate Change Strategy and Action Plan
NCCU	National Climate Change Unit
NEF	National Environment Fund
NDE	National Designated Entity
NDMA	National Disaster Management Agency
NDMP	National Disaster Management Plan
NDS	National Development Strategy
NDTF	National Disaster Task Force
NGOs	Non-governmental Organizations
NMCP	National Malaria Control Programme
ODA	Official Development Assistance
PPCU	Public Policy Coordination Unit
PRSAP	Poverty Reduction Strategy and Action Plan
RECs	Regional Economic Communities
REDD+	Reduced emission from deforestation and forest degradation-plus
PPMV	Parts Per Million per Volume
PPP	Public Private Partnerships

RD&D	Research, Development and Demonstration
RSSC	Royal Swaziland Sugar Corporation
SADC	Southern African Development Community
SADP	Swaziland Agricultural Development Programme
SCCF	Special Climate Change Fund
SDRRNAP	Swaziland Disaster Risk Reduction National Action Plan
SEA	Swaziland Environmental Authority
SERA	Swaziland Energy Regulatory Authority
SEAP	Swaziland Environmental Action Plan
SIDP	Small Irrigation Development Project
SNDMP	Swaziland National Disaster Management Plan
SNTC	Swaziland National Trust Commission
SON	September-October-November
SRTT	Special Report on Technology Transfer
TEC	Technology Executive Committee
SVAC	Swaziland vulnerability assessment committee
SWADE	Swaziland Agricultural Development Enterprise
UN	United Nations
UNCBD	United Nations Convention on Biological Diversity
UNDP	United Nations Development Programme
UNCCD	United Nations Convention on Combating Desertification
UNCED	United Nations Conference on Environment and Development
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
WHO	World Health Organization

*Statement by the Honourable Minister of Tourism and
Environmental Affairs*

1 INTRODUCTION

1.1 *Background*

Climate change is now widely recognized as the most significant challenge facing the globe. Climate change refers to an on-going trend of changes in the earth's general weather conditions as a result of an average rise in the temperature of the earth's surface often referred to as global warming. This rise in the average global temperature is due, primarily, to the increased concentration of gases known as greenhouse gases (GHGs) in the atmosphere that are emitted by human activities. These gases intensify a natural phenomenon called the "greenhouse effect" by forming an insulating layer in the atmosphere that reduces the amount of the sun's heat that radiates back into space and therefore has the effect of making the earth warmer.

While weather changes on a daily basis, climate represents the statistical distribution of weather patterns over time and on a global scale has changed only very slowly in the past – usually over periods of tens of thousands of years or even millions of years which allows time for the earth's bio-physical systems to adapt naturally to the changing climatic conditions. Currently, the global climate is changing much more rapidly as a result of global warming, leading to, among others, rising temperatures, changes in rainfall patterns, more frequent floods and droughts and increased frequency and intensity of extreme weather events. The rapid rate of climate change does not allow the earth's biophysical systems to adapt to these changes naturally.

Climate change is a global problem and requires a global solution. In recent years, addressing climate change has been high on the international policy agenda. There is now consensus that to prevent global warming from reaching dangerous levels, action is needed to control and mitigate GHG emissions and stabilize their atmospheric concentration within a range of 450-550 ppm (IPCC, 2007). More recently, the fifth assessment report of the Intergovernmental Panel on Climate Change (IPCC, 2013), observes that unless something is

urgently done to reduce emissions of GHGs by both developed and developing countries there is likelihood for global average temperature to increase by 4°C by the year 2100 (IPCC, 2013). A 4°C warmer world will experience more intense rainfall and more frequent and more intense droughts, floods and other extreme weather events.

Swaziland, like many countries in Africa, has contributed least to GHG concentrations in the atmosphere, and yet, it faces some of the worst consequences and generally has the least capacity to cope with climate change impacts. Swaziland is highly vulnerable and exposed to the impacts of climate change due to her socio-economic and environmental context. Climate variability, including the increased frequency and intensity of extreme weather events, will disproportionately affect the poor. Furthermore, climate change will have adverse effects on water, food, fuel, health, education and access to social services. Thus, building resilience of her populace and the economy is of utmost priority if Swaziland is to achieve her quest towards sustainable development and poverty eradication.

This National Climate Change Policy aims to provide the enabling policy framework to guide Swaziland to address the challenge posed by climate change. The framework, also, provides enabling environment for communities and investors to take advantage of the opportunities presented by climate change to invest in activities that work to eliminate poverty and build a climate-resilient Swaziland. By assisting vulnerable communities and economic sectors in coping with climate variability and extremes, Swaziland will be strengthening her resilience to the long-term and uncertain impacts of climate change. Thus, Swaziland has no choice but take urgent actions to adapt to climate change, build resilience especially in key climate sensitive sectors and minimize the costs of the unavoidable impact of GHG emissions already locked into the climate system. While adaptation is the priority, Swaziland also has an important role to play in contributing to global GHG mitigation efforts.

1.2 *Swaziland's Approach to Climate Change*

The Government of the Kingdom of Swaziland has adopted an integrated approach toward enhanced resilience in addressing the challenge posed by climate change. The integrated approach is intended to ensure that responses to climate change by different actors and stakeholders are coordinated and integrated into the country's social and economic development. This will avoid compromising Swaziland's development priority needs and quest for the achievement of sustained economic growth and poverty eradication. Integrated approach will enhance synergies in the implementation of the three Rio Conventions, namely: (1) the United Nations Framework Convention on Climate Change, (UNFCCC), (2) the Convention on Biological Diversity (CBD) and (3) the Convention to Combat Desertification (CCD).

1.3 *Stakeholder Participation and Consultation*

The process of formulating this Policy was coordinated by the Meteorology Department (UNFCCC national focal point) with guidance from the Ministry and the multi-sectoral National Climate Change Committee in accordance with the Government of Swaziland Policy Development Guidelines (April 2011) issued by the Public Policy Coordination Unit. The process was highly consultative as it involved consultative meetings with a wide range of stakeholders, ranging from government ministries, parastatals, civil society organization (CSOs), non-governmental organizations (NGOs), community-based organized (CBOs), private sector, the media, academia and individuals.

2 PROBLEM STATEMENT AND RATIONALE

Climate change is already affecting Swaziland and the key sectors of her economy. Some of the climate change impacts being experienced include inter alia: significant variations in precipitation patterns, higher temperatures and increasing in frequency and intensity of severe weather events such as droughts, floods and cyclones.

These changes negatively impact agricultural yields, biodiversity, forest harvests and availability of clean water. Bearing the brunt of all these are the majority of the rural poor who depend on climate-sensitive sectors such as agriculture, forestry and traditional fishing for much of their day-to-day needs. For

Anticipated impacts of climate change in sub-Saharan Africa

- Decreased rainfall, increased temperature and evaporation in dry areas.
- Frequent drought spells leading to severe water shortage and increased risk of crop failure.
- Change in planting dates of annual crops.
- Increased fungal outbreak and insect infestations due to change in temperature and humidity.
- Decrease in forest area and area under cultivation.
- Decline in livestock production.
- Increased risk of food shortage and famine.
- Reduction in ecosystem integrity and resilience, and decline in biodiversity.
- Increased potential of malaria transmission and burden on the country's health care.

Source: UNEP 2003, 2006; Cooper et al, 2008.

example, in 1984 *Cyclone Domonia* affected more than 400 000 people and caused damage worth millions of Emalangenis. Houses and fields were flooded and washed away and a number of people and livestock drowned. Infrastructure such as roads, electricity and telephone lines were damaged. In addition, more than one quarter of the population needed emergency food aid in 2004-05 because of extreme drought conditions. Unfortunately, these impacts and extreme weather events are predicted to worsen in the future due to increased warming and changes in precipitation patterns.

With changes in the global climate system likely to span into the next century, geography, economy, population patterns and immense poverty will continue to make the country especially vulnerable to climate change. Human health, biodiversity, agricultural production, food security, water and energy will be imperilled as natural disasters worsen and migration grows – intensifying stresses on urban centres.

2.1 *Emerging Impacts of Climate Change on Key Sectors of the Economy*

2.1.1 *Agriculture and Food Security*

The agricultural sector is a critical mainstay of local livelihoods and contributes approximately 9.5% of the country's gross domestic product (GDP). The sector is highly vulnerable and particularly sensitive to climate change, including periods of climate variability. Increasing heat and water stresses and extreme weather events such as droughts, cyclones, floods and extreme heat and cold as well as climate-associated pests and diseases are likely to contribute to the decline in agricultural production potential.

It is predicted that yields for staple cereals especially maize will fall sharply with 1-2°C changes in temperature and more erratic rainfall patterns. Consequently, it is predicted that the Highveld will be unsuitable for growing maize by the year 2050. Similarly, other crops and vegetables will be affected. The forecast reduction in maize yields, indicates a likely negative impact on the country's food security and signifies a likely need for increased imports of this staple crop with associated higher prices. The poverty stricken will find it increasingly difficult to grow or purchase this staple food, leaving them highly vulnerable to food insecurity.

Livestock production is also not spared and can be affected by climate change in a number of ways. Heat can directly reduce animal activity, feeding, growth and productivity, and it can also impede reproductive activity. Increased water deficit stress can diminish forage and feed productivity, thus reducing animal growth and milk and egg production. Climatic conditions can change vector- and

disease – transmission and incidence, the effects of which may be exacerbated by direct heat stress. Extreme weather events and inundation attributable to climate change may reduce forage and feed production areas and increase mortality. The is, therefore, urgent to build resilience in the agriculture sector to cushion the country from the vulgarities of climate change.

Building resilience in the agriculture sector poses enormous challenges in the face of climate change. It requires reducing vulnerability by minimizing the impacts of climate change and raising adaptive capacity. In order for the agriculture sector to meet the food and income needs of current and future generations in the face of climate change, actions need to be taken and strategies implemented, both autonomously by individual farmers, and collectively by government, community groups and institutions.

2.1.2 Water Resources

Climate change will affect the water availability and use of water resources in Swaziland due to changes in precipitation and run-off patterns, and changes in demand driven, among other things by the climatic changes. Stream-flow of rivers in the country is projected to decrease by 40% by 2050. This implies that many smaller rivers or their tributaries may permanently dry up due to decline in precipitation. This is likely to adversely affect irrigated agriculture, domestic and industrial use and hydropower generation capacity due to reduced river flows. Consequently, such areas like the Lowveld Region will be adversely affected as they lack the capacity to cope with change in runoff regimes and where the risk of loss of perennial water is high. These challenges will be aggravated by periods of prolonged droughts and floods.

Given that annual crops depend on water supply in growing seasons, seasonal changes of hydrological variables under climate change are of particular importance for agricultural water users. Changes in precipitation patterns would necessitate changes in crop varieties, planting dates and cropping patterns placing new requirements on the farmers and agricultural research and development as well as the extension services. With increasing demand for water and areas

under water stress projected to increase affecting hundreds and thousands of the rural poor, this will pose a challenge to the country's attainment of sustainable growth.

The country, therefore, faces the challenge of how best to manage its water resources to ensure future water demand can be met as water stress or shortage and the decline in agricultural production would pose a serious threat to the country's food security and to lives and livelihoods, especially of the rural poor. Consequently, improvement in water infrastructure and management especially watershed management can potentially mitigate the adverse effects of climate change.

2.1.3 Biodiversity and Ecosystems

Biodiversity is an important resource for the Swazi people. Uses are consumptive (food, fibre, fuel, shelter, medicine, etc.) and non-consumptive (ecosystem services and the economically important tourism industry). Given the dependence on natural resources, the majority of the rural poor are vulnerable to the biodiversity loss. Yet biodiversity hotspots are under threat from multiple stressors, of which, climate change is one of the several pressures.

The impact of climate change on humans will also be compounded by climate change-induced alterations of the ecosystems, thus affecting the delivery of the ecosystems goods and services necessary to human life support systems. Commercial forests are also likely to be impacted. Furthermore, with the shift in rainfall patterns and increased temperatures, areas where commercial forestry was traditionally undertaken may no longer be suitable. In effect new areas will have to be identified for advancing commercial forestry.

Increased wild fires resulting from heat stress and prolonged droughts will accelerate biodiversity and forest loss. Forest and savannah fires contribute to climate change, both by causing loss of vegetation and soils that serve as carbon stocks and by releasing of carbon (and other greenhouse gases) to the atmosphere by burning. As global warming increases, these fires are likely to get more intense and extensive and may result in significant ecosystem

changes that would affect biodiversity through species loss or changes in species composition, particularly with spread of invasive species.

2.1.4 Health

Majority of Swazi people live in rural areas, most vulnerable to risk of climate change, as their marginal income provides little or no access at all to safety nets to protect against the threats posed by changing conditions. Some of the possible direct threats that climate change could pose on human health include morbidity and mortality due to thermal stress (that is, caused by heat stress and cold stress); vector-borne infectious diseases (for example, malaria and dengue); diarrhoea and malnutrition. According to the World Health Organization (WHO) outbreak of human diseases such as malaria, dengue, diarrhoea, cholera, typhoid and other vector-borne diseases coincide with the occurrence of extreme climate events such as droughts and floods.

2.1.5 Tourism

Tourism accounts for 2.8 per cent of the country's GDP and has the potential to grow. Swaziland's tourism is largely based on wildlife and the traditions and culture of the Swazi people. High levels of floral and faunal species diversity exist in various protected areas in the country. Recurrent droughts and flash floods are likely to affect these resources significantly. Wildlife in protected areas is surrounded by a plethora of human activities. Fragmentation and concentration of wildlife in Lowveld and Highveld make them highly vulnerable because the habitats will not respond quick enough to a changed climate. As a result, wildlife will not be able to migrate to more suitable climatic conditions because of limited corridors between protected areas.

The Swazi culture and tradition is also a key factor contributing to tourism. Traditional and cultural events such as the reed dance and the marula festival attract tourists to the country. Since these events

are dependent on certain plant species and animal species, they are therefore vulnerable to changes in the climate.

2.1.6 Energy

Most of Swaziland's energy is derived from fossil fuels, biomass and hydropower. The fossil fuel sources include, crude oil, coal and natural gas. Biomass especially wood fuel constitutes about 90 per cent of the total final consumption. Biomass is still the main fuel for cooking and heating in rural households and is also the primary source of electricity self-generation in the sugar, pulp and saw mill industries. Biomass availability is affected by climate change. This is mainly through loss of the resource due to drought and overexploitation. Regarding hydropower, it is anticipated that Swaziland will experience a reduction in stream-flows and hence available water for hydropower generation. Changes in the frequency and severity of storms in Swaziland have and will continue to cause serious damage to the electricity infrastructure and this result in disruptions to energy supply.

2.1.7 Infrastructure

Climate change has negative impacts to infrastructure. Such infrastructure include: roads and highways, bridges, buildings, parks, etc. A higher frequency of droughts and severe precipitation events will increase the risk of flooding and erosion. In urban areas, flooding risk is higher since impervious surfaces amplify flooding risks by diverting storm water into concentrated flows. Flooding and erosion damage transportation infrastructure, household infrastructure, interfere with traffic, and cause economic disruption. More frequent flooding also poses numerous public health concerns that require investment in infrastructure to avoid.

2.1.8 Traditions and customs

Climate change has the potential to negatively impact on Swaziland's tradition and cultural practices, events and festivities since they are based on biodiversity and predictability of the weather. Examples of practices, events and festivities likely to be affected include: *umhlanga* (reed dance), *lusekwane* (sacred shrubs dance), *incwala* (traditional national prayer), *buganu* (marula) festivals, *butimba* (national hunt) and *kwetfula* (gift presentations to Chiefs). In addition, most Swazi rural homesteads still practice the indigenous methods of constructing their homes using grass, sticks, logs and mud. Increased frequency and intensity of droughts may affect availability of such materials for building as well as for weaving traditional handicrafts.

2.2 Summary of National Emissions

During the time when this policy was formulated, the last official GHG emissions inventory for Swaziland was completed for the year 2000 for the Second National Communication. Based on the greenhouse gas inventory on this report in 2000, Industrial processes (mostly HFCs) and waste were the largest emitters accounting for more than two-third of the national emissions, mainly due to emissions from HFCs and methane from solid waste disposal. Agriculture was the main emitting sector accounting for approximately 8%, followed by energy 6.7% and land use change 5.6%. The current total country emissions, account for far less than one per cent of total global emissions.

While Swaziland has little historical and current greenhouse gas emissions the country recognizes that national emissions will increase with population and economic growth. Hence a low carbon climate resilient development pathway is required to ensure that the country remains a low emitter as it develops and takes steps to reduce vulnerability to climate change.

NATIONAL RESPONSES TO ADDRESS CLIMATE CHANGE

3.1 *Policy and Strategic Response*

3.1.1 *National Climate Change Strategy and Action Plan*

The Government with support from the United Nations Development Programme (UNDP) and the Common Market for Eastern and Southern Africa (COMESA) developed a National Climate Change Strategy and Action Plan (NCCSAP) for the period 2015-2020. The main objective of the NCCSAP is to provide for a systematic approach to deal with the adverse effects of climate change in a manner that contributes to the achievement of sustainable development, eradication of poverty and the enhancement of adaptive capacity for the country and her people. The NCCSAP is the implementation framework for this policy.

3.1.2 *National Climate Change Committee*

To ensure effective coordination of climate change across sectors, in 2010, the Government established a multi-stakeholder National Climate Change Committee (NCCC). Members of the NCCC are drawn from government ministries and departments, private sector, CSOs and the academia. The NCCC is responsible for liaising and coordinating with other relevant stakeholders in guiding climate change initiatives in the country.

3.1.3 *Sectoral Policies and Legislation*

Since climate change impacts key sectors of the economy, it became necessary that climate change be mainstreamed across these

sectors. In this regard, the Government has put in place sectoral policies and legislation that address some of the challenges posed by climate change in the respective sectors. Examples of such policies and legislation include: Environmental Management Act, National Disaster Management Policy (NDMP), Swaziland National Disaster Management Plan (SNDMP), National Disaster Management Act (NDMA) and the Swaziland Disaster Risk Reduction Policy

Other relevant policies where climate change issues have been taken into account include the Comprehensive Agricultural Sector Policy (CASP: GOS MOAC, 2005), the National Food Security Policy for Swaziland (GOS-MOAC, 2006), National Biodiversity Conservation and Management Policy (draft, GOS-SEA, 2007), the National Biofuels Development Strategy and Action Plan (GOS-MNRE, 2008), the draft National Energy Policy Implementation Strategy (GOS-MNRE, 2009) and the National Education Policy (GOS-MOE, 2011).

3.1.4 Programmatic Interventions

3.1.4.1 Enhancing adaptation in the vulnerable sectors

(a) Integrated water resource management

Water is a key driver of economic and social development while it also has a basic function in maintaining the integrity of the natural environment. However water is only one of a number of vital natural resources and it is imperative that water issues are not considered in isolation. Managers, whether in the government or private sectors, have to make difficult decisions on water allocation. More and more they have to apportion diminishing supplies between ever-increasing demands. Drivers such as demographic and climatic changes further increase the stress on water resources.

The traditional fragmented approach is no longer viable and a more holistic approach to water management is essential. This is the rationale for the Integrated Water Resources Management (IWRM)

approach that has now been accepted. The IWRM is “a process that promotes the coordinated development and management of water, land and related resources, in order to maximize the resultant economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems.” In furthering the implementation of the concept of IWRM, the government under the GEF-SCCF-funded project entitled “Adapting national and transboundary water resource management in Swaziland” is implementing activities that enhance adaptation of the water sector from adverse impacts of climate change.

(b) Climate smart agriculture

(i) *Mainstreaming climate change in the National Agriculture Investment Plan (NAIP)*: Swaziland is in the process of formulating the National Agriculture Investment Plan (NAIP) under the continental agricultural framework – the Comprehensive African Agriculture Development Programme (CAADP). The main objective of CAADP is to accelerate economic growth, eliminate hunger, reduce poverty and enhance food and nutrition security, through agriculture-led development.

(ii) *Small scale irrigation*: The Lower Usuthu Smallholder Irrigation Project (LUSIP-GEF) is an intervention that is being implemented by the Swaziland Water and Agriculture Enterprise (SWADE) and targets to increase the area under irrigation in the drier part of the country. This increases the productivity of the land under cultivation while providing income to the small holder farmers.

(iii) *Enhancing uptake of climate smart agriculture and food security*: The EU-funded Swaziland Agricultural Development Project (SADP) aims to improve smallholder production and marketing systems that lead to sustainable food security and an improved quality of life for rural households in Swaziland. Among the activities of the project that are climate-change related is conservation agriculture, strengthening the agricultural extension system and crop diversification/market linkages. In addition, Swaziland is implementing a CSA project supported by the Food, Agriculture and Natural Resources Policy Analysis Network (FANRPAN). The project’s objective is to strengthen agricultural practices that sustainably

increase productivity, are climate resilient (adaptation), reduce/remove greenhouse gases (mitigation), and enhance achievement of national food security and development goals.

(c) Early warning and risk management

Natural hazards especially extreme weather events such as droughts and floods pose a significant threat to Swaziland. The severity of disaster impacts depends on the nature of the hazard, the existing levels of vulnerability and the extent of exposure to disaster events. In order to help the country respond to both short-term/rapid onset climate hazards as well as long-term/slow-onset hazards, the government through Komati Basin Water Authority (KOBWA) in collaboration with the Swaziland Meteorology Department (MET) is strengthening climate information systems (weather stations and river gauging stations) in the catchment as part of the development of an early warning system against floods. This will ensure that there is a comprehensive system in the country for risk reduction as well as emergency preparedness and rapid response and recovery to natural disasters.

This is complemented by the Japan International Cooperation Agency (JICA)-funded project on strengthening National and Community Systems for Effective Disaster Risk Management being implemented by the National Disaster Management Agency (NDMA), under the Deputy Prime Minister's Office (DPMO) that seeks to conduct national risk assessment; build early warning system and monitoring of disaster risks; improve emergency preparedness and response capacities, thus ensure security for the population and sustainable development for the country.

(d) Energy efficiency and Energy Security

The major challenge for Swaziland is how to achieve sustained and rapid economic growth for alleviating poverty while reducing the intensity of energy use, increasing energy efficiency and moving to cleaner energy sources. There are two aspects to energy security: first, the objective of ensuring that all who need energy services have access to them, which is important to ensure social inclusion and to fight poverty; and, second, the objective of maintaining an uninterrupted supply of energy. This requires a robust energy infrastructure and access to a variety of primary energy sources. Thus, the country's strategy is that of increasing energy efficiency and meeting energy needs through energy mix from diversified energy sources. This is to be achieved by working with Independent Power Producers (IPP).

Investments in IPP clean electricity generation will contribute to security of supply, climate change mitigation, economic growth, trade competitiveness, poverty reduction and food security in the region. The USAID Trade Hub's Clean Energy team is supporting the efforts towards clean energy development in Swaziland in collaboration with the Swaziland Energy Regulatory Authority (SERA) and the IPPs. As a consequence, the Department of Energy, with support from the USAID Trade Hub, is developing a Renewable Energy and IPP Policy to guide and expand the role of the private sector in developing the country's renewable energy sources and diversification of energy supply and nature of energy production. In addition, the Royal Swaziland Sugar Corporation Limited (RSSC) and other sugarcane companies under the Clean Development Mechanism (CDM) are involved in a programme that aims to facilitate a switch from using coal as a source fuel to bagasse (biomass) through cogeneration plant).

(e) Biodiversity conservation

To enhance biodiversity conservation, the Swaziland National Trust Commission (SNTC) through a GEF-funded project is implementing a project that aims to enhance partnerships and provide the tools for utilizing scientific rigor in planning and executing biodiversity management in the country. This will support the creation of new protected areas and enhancing interconnectedness of protected areas.

(F) Sustainable Land Management

The Lower Usuthu Sustainable Land Management Project (LUSLM) that is funded by GEF through IFAD is aiming at reducing land degradation, biodiversity loss and mitigating climate change through the application of sustainable land management practices which will contribute to mitigation of, also adaptation to, climate change. It, also, promotes eco-friendly and climate smart agriculture, in particular conservation agriculture that improves agricultural gains in the face of harsh climatic conditions

4 GOAL, OBJECTIVES AND GUIDING PRINCIPLES

4.1 Vision

A climate resilient and a low carbon Swaziland

4.2 Goal

The goal of this Policy is to build a climate resilient nation and its economy and facilitate low carbon development in a manner that promotes national priorities of inclusive growth and sustainable development.

4.3 Objectives

The objectives of this Policy are to:

- (a) Provide enabling policy framework for effective implementation of climate change adaptation and mitigation measures.
- (b) Enhance climate-resilient and inclusive low-carbon green growth investments.
- (c) Promote public education, information and awareness on climate change.
- (d) Provide mechanisms for coordination and building of partnerships in addressing climate change.
- (e) Establish and maintain an effective institutional framework to mainstream climate change responses into relevant sectors and into planning, budgeting, decision-making and implementation, at both the national and community levels.
- (f) Incentivize private sector involvement in building climate change resilience and engaging in low carbon development opportunities.

4.4 **Guiding Principles**

The following guiding principles will underpin this Policy:

- (a) **Scientifically sound and appropriate information:** Planning, policy formulation and decision-making will be based on scientifically and technically sound data and information, while recognizing the value of traditional knowledge.
- (b) **Integrated approach:** Climate change requires multi-sectoral, multi-level and multi-disciplinary approaches in order to build into the national sustainable development objectives.
- (c) **Subsidiarity:** Actions to address climate change will be undertaken through decentralization and devolution of authority and responsibilities at the lowest level possible.
- (d) **Inter- and Intra-generational Equity:** Actions taken to address climate change will be based on a long-term objective where present generations make choices that will benefit future generations.
- (e) **Public Participation:** A coordinated and participatory approach to climate change should be enhanced to ensure that the relevant government agencies, regional and community institutions, private sector, civil society and communities are involved in planning and decision making processes.
- (f) **The Precautionary Principle:** Where there are credible threats of serious or irreversible damage associated with climate change, lack of full scientific certainty will not be used as a reason for postponing cost-effective measures to prevent such damage.
- (g) **Capacity Building:** Capacity building of the key stakeholders, including government agencies, regional and community institutions, private sector, academia and CSOs to address climate change will be continually enhanced.
- (h) **International Cooperation:** Multilateral, bilateral and regional agreements and instruments related to climate change should be domesticated and implemented.
- (i) **Strategic Partnerships:** The challenge posed by climate change cannot be addressed by government alone but will

require building of partnerships with relevant stakeholders, including local communities, traditional leaders, business community, CSOs and the academia and research community.

5 POLICY OPTIONS FOR BUILDING CLIMATE RESILIENT AND ACCELERATING LOW CARBON DEVELOPMENT

5.1 *Enhancing Adaptation and building resilience*

Although Swaziland has made significant efforts to implement adaptation measures to minimize the impacts of climate change, the current level of adaptation is still inadequate to cope with the future challenges of climate change. The ultimate objective, therefore, is to reduce the vulnerability and enhance the resilience of the communities and the economy to the impacts of climate change and disasters. Achieving enhanced resilience in the face of climate change will require enhancing the adaptive capacity of the country as well as implementing appropriate sectoral policies and investments.

The mal-adaptations should also be considered in dealing with adaptation measures. These are measures that do not succeed in reducing vulnerability but increase it instead. In this regard, there is need to develop and implement a national adaptation plan (NAP) to enhance investments in adaptation in the key areas, in particular, water resources, agriculture and food security, energy security, climate risk management, disaster risk management and resilience, forestry and health.

POLICY STATEMENTS

1. Mainstream climate resilience and adaptation into national and regional development plans, processes and implementation
2. Identify and implement priority adaptation actions across key social, environmental and economic sectors under the framework of a National Adaptation Plan to attain a systematic and positive impact in the short to medium term.

5.1.1 Water Resources

In terms of rainfall as a source of water, historical trends shows inter-annual variability with no distinct signs of climate change. However, tropical cyclone induced floods and severe droughts have affected the country in the past. In the future, floods, increased water stress and erratic rainfall patterns are the main concerns for Swaziland and this require both adaptation and mitigation strategies. Model simulation results reveal that there will be a decrease in the annual runoff volumes across all the sub-catchments of the country except for Usuthu River for two scenarios that were analysed. These scenarios are the dry and wet year scenarios. The decrease in the annual runoff in both scenarios suggests that there will be less water in the sub-catchments given climate change. This therefore implies increase in water stress in the future. These projections show the need for the country to invest in concrete climate change adaptation strategies in the water sector to tackle the projected vulnerabilities.

It is predicted that changing rainfall and river flow patterns will affect cropping systems and the prevalence of vector-borne diseases such as malaria; increased uncertainty and shifting crop water requirements will threaten poor rain-fed farmers in particular. This will be exacerbated by increase in frequency and intensity of droughts and floods. Such a shift in balance requires that water resources must be managed and water used in a manner that reflects water's variability, uncertainty, scarcity and abundance.

Policy Statements

1. Promote and implement Integrated Water Resources Management (IWRM) Strategy that will also address integrated river basin development and protection of water catchment areas.
2. Enhance the adoption of rain harvesting technologies.
3. Strengthen flood-warning system and improving flood-controlling facilities.

4. Undertaking focused monitoring and research in order to ensure the efficacy of water adaptation approaches over the long-term.
5. Implementing 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.

5.1.2 Agriculture and Food Security

Agriculture is highly dependent on specific climate conditions. Climate change could make it more difficult to grow crops, raise animals and catch fish in the same ways and same places as has been done in the past. The effects of climate change also need to be considered along with other evolving factors that affect agricultural production, such as changes in farming practices and technology. Successful adaptation to climate change will require flexible, risk-based approaches that deal with future uncertainty and provide strategies that are robust enough to cope with a range of possible local climate outcomes and variations.

POLICY STATEMENTS

1. Alter the timing and location of cropping activities and diversification and intensification of food and plantation crops.
2. Improve access and use of climate forecasting to reduce production risk and enhance the capacity to predict climate variability at seasonal and inter-annual scales
3. Develop and update short-, medium- and long-term adaptation scenarios using available risk and vulnerability studies to identify climate resilient options for agriculture in the country.
4. Improve the effectiveness of pest, disease and weed

management practices through wider use of integrated pest and pathogen management and use of varieties and species that are resistant to pests and diseases and are drought tolerant.

5. Improve of post-harvest and bulk handling services. Invest in and improve research into water, nutrient and soil conservation technologies and techniques, climate-resistant crops and livestock, as well as agricultural production, and financing models to promote the development of “climate-smart agriculture” that lowers agricultural emissions, is more resilient to climate changes, and maximise agricultural yields.
6. Invest in education and awareness programmes in rural areas and link these to agricultural extension activities to enable both subsistence and commercial producers to understand, respond and adapt to the challenges of climate change.

5.1.3 Energy security

Changes in temperature, precipitation and the frequency and severity of extreme weather events especially storms will likely affect how much energy is produced, delivered and consumed. Weather changes due to climate change also have closely related effects on water demand and supply.

POLICY STATEMENTS

1. Deploy energy-efficient technologies
2. Increase the share of renewable energy sources in the national energy mix and promote its use.
3. Improving universal access to modern energy services through increased access to electricity and cleaner cooking facilities.
4. Diversify energy supplies and diminishing dependence on limited traditional energy sources.

5. Enhance research and development, innovation, diffusion and deployment of renewable energy technologies.
6. Accelerate deployment plans and incentives for renewable energy such as mini hydro, solar, wind etc.
7. Expand co-generation, especially efficient combined heat and power (CHP) plants in the sugar industry to improve energy security and reduce outages.

5.1.4 Climate Risk Management, Disaster Risk Management and Resilience

Swaziland is exposed to various types of natural hazards and extreme weather events. The intensity and frequency of climate extreme weather events is expected to increase with climate change, potentially exacerbating the problem. Climate change can also further increase the vulnerability of communities even to the existing levels of hazards through ecosystem degradation, impacts on water supply and food security and changes to livelihoods. The continuing trend of rising disaster losses points to one clear message: much greater investment in resilience is needed. Such investment must assess risk, reduce risk and ensure that residual risk is managed as efficiently as possible.

POLICY STATEMENTS

1. Mainstream climate change into disaster risk management and enhance coordination between the two at the national and sub-national levels through explicit articulation of precise roles and responsibilities of different stakeholders. Improve capacity for access to and use of disaster and climate risk information, tools and methodologies into sectoral policies, development planning and decision-making.
2. Enhance disaster risk assessment of all new investments in the country.

3. Disseminate of information to improve awareness of climate risks to the general public and other stakeholders.

5.1.5 Forestry

For the past decades, forestlands have been under mounting pressure as more areas are converted to croplands and settlements. The potential effects of climate change on forest ecosystems are complex. At the level of organisms and species, changes in temperature, rainfall, wind and humidity are likely to affect many processes, including growth, reproduction, pollination, seed dispersal, phenology, pest and disease resistance and competitive ability. Habitat fragmentation and disturbance also create opportunities for invasive species. Management to help forests adapt to climate change will involve maintaining forest health and ecosystem diversity and resilience.

POLICY STATEMENTS

1. Improve forest monitoring and management systems, including the control of deforestation, reforestation and afforestation.
2. Prepare and implement aggressive plans for reforestation, afforestation and improved forest management.
3. Support the ecosystem-based approach recognizing that ecosystem services increase resilience.

5.1.6 Health

Rising temperatures and more frequent, persistent and intense extreme weather events will have significant implications for human health. While all populations are vulnerable to climate-induced health

risks, the populations most at risk include: the elderly, children, women and the rural poor as a result of their limited adaptive capacity. A wide variety of adaptation measures will be carried out to address the health risks from climate change. These measures fall into three broad categories: information and knowledge support, health system strengthening and infrastructure development and planning.

POLICY STATEMENTS

1. Strengthen data collection and analysis to support national adaptation strategies and risk management plans that address health vulnerabilities.
2. Incorporate early warning systems into disease surveillance and response systems.
3. Strengthen weather forecasting, early warning systems and local climate impact scenarios to ensure that information reaches the most exposed and vulnerable.
4. Develop health information systems to facilitate a better understanding of the relationship between climate, disease outbreak and response
5. Strengthen primary health care services to enhance the resilience of local communities to climate-related health risks.
6. Make hospitals and community clinics more climate-resilient through appropriate design and building materials

5.1.7 Biodiversity Conservation and Ecosystems

~~5.1.7~~ Climate change will compound the pressures on already stressed ecosystems that have resulted from the unsustainable use and inadequate management of many of Swaziland's ecosystems and so potentially reduce the quantity and quality of the services that ecosystems currently provide. Tourism in Swaziland is one of the economy pillars it leverages on the ecosystems and biodiversity sectors. Thus, climate change and climate variability could have a

profound effect on the tourism sector through impacts on ecosystems and biodiversity

POLICY STATEMENTS

1. Enhance the conservation of biodiversity and ecosystems by promoting and supporting both in situ and ex situ conservation.
2. Scale up investments in restoring and maintaining ecological infrastructure, with a focus on our highest value ecological assets such as biodiversity hotspots and wetlands.
3. Establish effective long-term biodiversity conservation, landscape management and natural resource management programmes that invest in the ecological infrastructure as a long-term endeavour
4. Expand the protected area network where it improves climate change resilience, and manage threatened biomes, ecosystems, and species in ways that will minimize the risks of species extinction.
5. Strengthen biodiversity management and research institutions so that they can monitor, assess and respond effectively to existing anthropogenic pressures together with the additional pressures that climate change presents.
6. Monitor and reduce the prevalence of invasive plant species

5.2 Mitigation and Low-Carbon Green Growth

Low-carbon green growth entails investments in a pattern of development that decouples economic growth from carbon emissions, pollution and resource use and promotes green growth through the creation of environment-friendly products that also improve people's quality of life. The ultimate objective, therefore, is to reduce GHG emissions and implement initiatives and actions that not

only reduce GHG emissions but also increase the sequestration and storage of GHGs. Decoupling emissions from economic growth requires a fundamental and wide-ranging response encompassing the public and private sector, targets and regulations as well as deep investment. Thus, mitigation and low-Carbon Green Growth provides an opportunity for the country to develop and implement nationally appropriate mitigation actions (NAMAs) in the key sectors of the economy, including agriculture, land use, land use change and forestry (LULUCF), energy, industry, transport, waste management and buildings. This will also require establishment of a comprehensive measurement, report and verification framework.

POLICY STATEMENT

1. Mainstream low carbon development options into the national planning processes and functions of the national and local governments.
2. Put in place mechanisms to establish a sustainable GHG inventory compilation to achieve efficient and effective collection, recording and sharing of GHG emissions data
3. Establish an enabling policy framework for low carbon and green investment, in key areas such as renewable energy, efficient transport and manufacturing, infrastructure development and sustainable agriculture.

5.2.1 Agriculture

Although the agriculture sector is a net emitter of GHG emissions, it is also has the mitigation potential. Emissions from agriculture come from four principal sectors: agricultural soils, livestock and manure management, rice cultivation and the burning of agricultural residues and savannah for land clearing. Therefore, emission reduction can be

achieved through effective changes in agricultural management practices that increase soil carbon, reduce methane emissions from rice paddies and wetlands and improve nitrogen fertilizer usage.

Policy Statements

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| 1. | Increase agricultural intensification and adoption of sustainable land management practices such as climate smart agriculture, conservation agriculture, among other practices. |
| 2. | Improve nitrogen fertilizer management and production. |
| 3. | Develop decision support tools for better in-put management |
| 4. | Establish monitoring systems for GHG emissions in agricultural systems |

5.2.2 Land Use, Land Use Change and Forestry

According to the second national communications, land use, land use change and forestry account for about 5 per cent of the total national GHG emissions. This calls for adopting approaches that arrest deforestation, enhance sustainable land management and conservation of forests and other natural resources that support local livelihoods. In addition to carbon sequestration, such approaches will strengthen resilience to climate change, maintain clean water supplies and protect biodiversity. Forests are important reservoirs, sources and sinks of carbon. Achieving climate change mitigation through forestry requires that forests be managed in ways that fundamentally reduce emissions.

POLICY STATEMENTS

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| 1. | Maintain and monitor forest carbon stocks. |
| 2. | Address adaptation and mitigation opportunities in LULUCF in an integrated approach |

3. Promote and implement judicious land use planning and zoning.
4. Maintain or increase the forest area through implementation of the SADC REDD+ Strategy, afforestation and reforestation.
5. Maintain or increasing carbon density (tons of carbon per hectare) through forest management, forest conservation, longer forest rotations, fire management and protection against insects.
6. Increase off-site carbon stocks in wood products and enhance product and fuel substitution using forest-derived biomass.
7. Raise awareness regarding forest fire prevention among communities.

5.2.3 Energy

Energy is a vital source of sustainable development yet this requires assured and affordable access to the energy resources necessary to provide essential and sustainable energy sources. Efficiency improvement and energy saving/conservation measures will have to be complemented by other low carbon technologies of clean and renewable energy. Renewable energy sources can play an important role in providing energy sources in a sustainable manner.

POLICY STATEMENTS

1. Provide infrastructure, networks and markets for renewable energy.
2. Increase uptake of renewable energy technologies and integration and increasing the share of renewable energy into present and future energy mix and systems

3. Improve energy efficiency
4. Provide appropriate fiscal and other incentives to support investments in renewable energy and more energy efficient capital stock.
5. Develop the skills to operate and maintain the renewable energy 'hardware'
6. Enhance research and development, innovation, diffusion and deployment of renewable energy technologies.
7. Enhance monitoring reporting and verification systems based on appropriate methodologies to account for GHG emissions in the energy sector.

5.2.4 Industry

^{5.2.4} According to the second national communications, industries accounted 45 per cent of the total GHG emissions emitted by Swaziland, making it the largest contributor. There are wide variety of industrial activities that cause GHG emissions and many opportunities to reduce them.

POLICY STATEMENTS

1. Upgrade to more efficient industrial technology and industrial processes that improve resource efficiency, productivity and competitiveness.
2. Increase industrial cogeneration and thermal cascading of waste heat.
3. Co-site of industries and allow the use of by-products as useful input and by integrating energy system

4. Fuel switch to less carbon intensive industrial fuels, including efficient use of biomass cogeneration systems in the pulp and paper, forest product and agricultural industries especially sugarcane.
5. Improve energy efficiency and sustainable industrial production
6. Establish and strengthen research, development and demonstration (RD&D) innovation centres to create and commercialize new low carbon industrial technologies.
7. Enhance monitoring systems based on appropriate methodologies to account for GHG emissions in the industrial sector

5.2.5 Transport

Transport investments are vulnerable to the effects of climate change. Such effects include changes in precipitation and increases in the frequency and intensity of storms, floods and droughts. Emissions from transport are the fastest growing source of CO₂ emissions globally. However, transport demand per capita in Swaziland is very low but it is expected to increase at a much faster rate in the next decades due to rising incomes and development of infrastructure. At the global level, it is predicted that by 2035, transport sector is expected to become the single largest GHG emitter, accounting for 46 per cent of global emissions, and by 2050 it is set to reach 80 per cent.

POLICY STATEMENTS

1. Improve vehicle standards, inspection and enforcement.
2. Improve design, construction and alignment of roads, railway track and transport infrastructure

3. Integrate land use and transport planning to create local clusters of economic activity that require less mobility
4. Shift to a more sustainable, energy efficient and environmentally friendly transport such as rail, ferries and non-motorized transport modes.

5.2.6 Waste Management

Greenhouse gas emissions from waste are a small contributor to the total national GHG emissions. At the global level it accounts for about 3 per cent of the total global GHG emissions. The methane from dumping sites and wastewater collectively account to 90 per cent of waste sector emissions. According to the Clean Development Mechanism and Joint Implementation of the Kyoto Protocol, there is a great potential for addressing methane emissions by reducing the amount of waste that ends up in the dumping site or a landfill.

POLICY STATEMENTS

1. Increase rates of waste minimization, recycling and combustion of waste-to-energy through incineration.
2. Implement affordable, effective, sustainable and integrated waste management strategies.
3. Enhance home composting at household level to turn generated waste into useful rich compost for vegetable gardens and agriculture.
4. Promote collection, archiving and maintenance of accessible database on quality, quantity and characterisation of waste for mandatory reporting at national level.
5. Promote fuel or energy generation from waste.

6. Improve the management of existing waste disposal facilities to control GHG emissions.
7. Improve monitoring systems based on appropriate methodologies to account for GHG emissions in the waste sector.

5.2.7 Building and Housing

Building sector contributes up to 30 per cent of global annual GHG emissions and consumes up to 40 per cent of all energy. Given the massive growth in new construction and the inefficiencies of existing building stock, GHG emissions from buildings will more than double in the next 20 years. Consequently, mitigation of GHG emissions from buildings must be a cornerstone of every national climate change strategy.

Policy Statements

1. Establish and implement a Green Building and Housing Code to set performance targets and indicators in building codes.
2. Promote better design and standard construction of houses, industrial areas and infrastructure
3. Design and implement energy efficiency measures and improve energy efficiency of household and business appliances.
4. Substitute fossil fuels with renewable energies in buildings.

6 MEANS OF IMPLEMENTATION

The country's priority is on reducing vulnerability and building resilience to the adverse effects of climate change. This can be done through strengthening of existing activities that address climate change and implementation of new tailor-made initiatives. Enhanced action and international cooperation, in particular support in relation to the provision of means of implementation, including technology development and transfer, climate finance and capacity building is necessary to achieve the country's climate goals.

6.1 *Research, Systematic Observation and Monitoring*

The ability to forecast weather, climate and natural hazards depends upon better understanding of the global climate system and its variability and change. Climate research and systematic observation (as well as indigenous knowledge) is critical in providing the scientific evidence and information to support decision-making.

A sure knowledge base from systematic observation and forecasting services is essential for the monitoring of the climate, including climatic change; to improve the understanding of the dynamics of the climate system and its natural variability; and provides input for climate models. The Convention urges international community to support and further develop climate research and systematic observation system. The Global Climate Observing System (GCOS) has been launched and Swaziland is participating through the MET.

While generating information is an important element of knowledge management the information will not have an impact unless it is processed, analysed and disseminated to those in need of it and in a format that is easily understood. Moreover, climate change science is continuously being updated, and new information and knowledge products in the form of coping strategies; technologies and monitoring mechanisms are continuously being developed at national, regional and global levels. These knowledge products do not necessarily find their way to potential beneficiaries, especially those at the forefront of climate change impacts.

POLICY STATEMENTS

1. Collect, manage and use accurate and scientifically sound climate change data and information.
2. Collect analyse and compile national periodic greenhouse gas inventory for all sectors as required by the National Greenhouse Gas Inventory Unit
3. Upgrade the National Meteorological Services national networks and infrastructure for provision of essential data for climate services including early warning systems.
4. Strengthen the capacity of the MET with efficient and sustained international space-based Earth Observing System through participation in GCOS and other processes
5. Build capacity of national climate experts and all key sectors on data collection, analyses, management and information sharing and climate observations, research, analysis and modelling
6. Improve understanding of climate knowledge by downscaling global and regional models to the national and local circumstances.
7. Enhance application of indigenous knowledge in the emerging research, systematic observation and monitoring.
8. Support research-oriented programs and activities of assessment of the socio-economic impacts on climate change adaptation

6.2 Technology Development and Transfer

“According to the IPCC Special Report on Technology Transfer (SRTT), in order to achieve the UNFCCC goal of stabilized GHG concentrations at such level as to avoid dangerous climate change, it will be necessary to acquire technological innovation, including rapid widespread transfer and implementation of technologies; and knowledge for mitigating GHG emissions”.

Promoting the effective development and transfer of environmentally sound technologies is critical in Swaziland’s quest towards achieving sustainable development in a climate-friendly manner. Furthermore the Convention urges developed countries to take practicable steps to promote and facilitate transfer of, or access to environmentally sound technologies and know how. To enable developing countries like Swaziland to access technologies, at the international level, Parties have established a mechanism to promote and facilitate technology development and transfer.

The mechanism is called the Technology Mechanism and comprises - Technology Executive Committee (TEC) and the Climate Technology Centre and Network (CTCN). The Technology Mechanism established in 2010 at the sixteenth Conference of the Parties is to facilitate enhanced action on technology development and transfer to support action on mitigation and adaptation. In Particular, CTCN is to stimulate technology cooperation and to enhance technology development and transfer. In addition, CTCN is to assist developing countries in strengthening their capacity to identify technology needs, and in the preparation and implementation of technology projects and strategies that support action on climate change.

POLICY STATEMENTS

1. Designate National Designated Entity (NDE)/focal point to enable the country to access technology development and transfer through the CTC and the Technology Information Clearing House.
 2. Periodically undertake, technology needs assessments to identify the needs, gaps and opportunities for technology development and transfer in key sectors of the economy
 3. Promote the establishment of Climate Technology Innovation Centers to foster, develop, test and deploy appropriate climate technologies to mitigate and adapt to climate change.
 4. Provide incentives to enhance public and private sector investments in climate smart technologies.
- Enhance support for locally relevant climate technology innovation.

6.3 *Climate Finance*

6.3 Climate finance is critical to addressing climate change. Given a business-as-usual scenario, climate change will threaten the significant gains made in poverty reduction over the years and disproportionately impact the life and well-being of vulnerable groups, including women, children and the elderly, and constrain progress toward achieving the UN Development Goals. Large-scale investments will be required to assist Swaziland to adapt and build resilience to the adverse effects of climate change and also reduce GHG emissions. Direct funding through the annual national budgets will remain inadequate.

However, under the UNFCCC, developed countries are obligated to provide financial support to developing countries like Swaziland to support adaptation and mitigation actions. In this regard, several climate finance mechanisms have been established under the Convention and its Kyoto Protocol. These include the Green Climate Fund (GCF) and the Adaptation Fund. In addition to the funds under the Convention and its Kyoto Protocol, other climate finance mechanisms exist such as the Global Environment Facility (GEF), The World Bank and through other multilateral, bilateral and private sector sources, including carbon market.

POLICY STATEMENTS

1. Ensure sustainable financing for climate change efforts from national budgets, regional and international sources.
2. Strengthen institutional arrangements that will enhance inter-agency coordination and integrate climate change into national development planning and budget.
3. Establish a national climate finance institution and strengthen existing financial arrangements to harness and manage climate finance.
4. Promote access and use of market mechanisms in mobilizing climate finance.
5. Enhance partnerships with development partners and the private sector to facilitate increased flow of climate finance into the country
6. Build capacity of government ministries and departments, parastatals, CSOs and private sector to ensure the absorptive capacity of available financial resources in implementing adaptation and mitigation actions

6.4 Capacity Building, Education and Public Awareness

The need for capacity building to assist developing countries like Swaziland to respond to climate change has long been recognized by the Convention. In addition, the IPCC observes that Africa is one of the most vulnerable continents to climate change and climate variability as a result of, inter alia, low adaptive capacity. Although increased knowledge for individuals through training remains essential part of capacity building, capacity development in climate change involves more than formal training, but includes human resource development, as well as organizational and institutional development needed to reduce the risk of disasters and build resilience of the economy and communities. Education and public awareness are important catalysts for the success of addressing climate change. Awareness on climate change risks and the need for action should be raised among key stakeholders, including government ministries, CSOs, private sector, communities and individuals.

POLICY STATEMENTS

1. Build capacity at all levels to design and implement climate change adaptation and mitigation
2. Develop and implement a national capacity building strategy and action plan.
3. Enhance national capacity on the aspects of measurement, reporting and verification (MRV), including GHG emissions and climate change actions.
4. Integrate climate change in school curricula, tertiary courses and vocational, non-formal education and training programmes.

- 5.** Establish a National Climate Change Knowledge Platform under the climate change Department assist in collating and disseminating information relevant to climate change adaptation and mitigation products. Support development of local and community-level knowledge (including indigenous and traditional knowledge) on adaptation to climate variability and climate change.

- 6.** Increase awareness and understanding of climate change impacts across all sectors and at all levels. Strengthen the capacity and ensure sufficient resourcing of new and existing institutions engaged in climate change response to perform clearly defined roles and functions.

6.5 Gender, Youth and Vulnerable Groups

Climate change affects men, women, youth and other vulnerable groups in different ways. Gender inequality is reflected in increased vulnerability, and support is needed to improve women's ability to respond to climate change. Unless the gender aspect is addressed directly in climate policy, climate change has the potential to increase the existing gender gap. It is important that women participate in planning processes of climate change programmes and policy development.

Many female and child-headed households are particularly vulnerable to climate change because they are not financially stable and therefore lack coping mechanisms. Lifestyle changes impacted by climate change, such as lack of food or housing because of extreme weather events, mean that some women and girls are forced to adopt unhealthy and unsafe "coping strategies" to sustain their families.

The youth constitute a higher proportion of the country's population and as they are the country's future, interventions tailored around them are important for the country. Decent jobs will be required for these citizens, with training needed to help future farmers increase productivity in a changing climate. Education needed to help young workers take advantage of new jobs and opportunities that emerge in the transition to a green economy.

Other vulnerable groups that are particularly vulnerable to the impacts of climate change are: the elderly, the sickly, migrant workers, the poor, etc.

POLICY STATEMENTS

1. Consider gender in the design of adaptation and mitigation strategies and programmes.
2. Engage women, youth and other vulnerable groups in climate change decision making and planning.
3. Improve understanding of the additional vulnerability caused by climate change over other poverty inducing factors, and reorient programmes to account for this improved understanding.
4. Add considerations of climate change vulnerability to existing programmes and activities to encourage adaptation that contributes to reducing vulnerability of women, youth, the elderly and children.
5. Develop, compile and share practical tools, information and methodologies to facilitate the integration of gender into all climate change-related policies, programs and plans.

6.6 *Environmental Impact Assessment*

The Environmental Impact Assessment (EIA) process has a key role to play in assisting Swaziland's efforts to minimise greenhouse gas emissions and adapt to our changing climate. Changes that may occur to primary and secondary climate parameters (temperature, wind characteristics, precipitation humidity) and also to relevant tertiary parameters over the life span of the project and its impacts (such as ecological conditions, growing season, groundwater elevation, etc.) can affect the functionality of the project and its ability to attain its outcomes. Changes to the project itself because of climate change over its life, which may significantly alter key characteristics of the project.

It is very important that at the early stages of any project, issues of climate change are considered to plan for the required mitigation actions that would reduce climate the climate induced impacts. On the other hand some projects may contribute towards greenhouse gas emissions, therefore measures should be taken to minimise the emissions.

POLICY STATEMENT

1. Ensure that climate change issues are mainstreamed in the EIA process.
2. Ensure integration of climate change risk and vulnerability assessment in Environment Impact Assessment and Strategic Environment Assessment.
3. Review the Environment Audit process for industries and other processes to incorporate climate change.
4. Develop standards and methodologies for quantifying the contribution of different projects to climate change.
5. Establish monitoring and verification modalities for EIAs.

7 LEGAL AND INSTITUTIONAL FRAMEWORK

7.1 Legal Framework

Swaziland has several environmental and sectoral policies and legislation but most of them have not integrated climate issues. This Policy aims to provide the framework for such integration. However, to give effect to the Policy, it is imperative that the country enacts Climate Change legislation. Such a legal framework would ensure that the climate change objectives embedded in the Policy are realized and elaboration of the legal mandate for all public organizations involved in the implementation of the Policy.

POLICY STATEMENTS

1. Undertake an audit of existing policies and legislation to ensure alignment with the objectives of the National Climate Change Policy.
2. Put in place overarching climate change legislation to provide the framework for coordinated implementation of climate change responses and action plan and integrate climate change resilience into all sectoral planning instruments.

6.2 Institutional Arrangement

The Ministry of Tourism and Environmental Affairs through the MET is the national focal point for the UNFCCC. Currently, there is no dedicated climate change Department/institution officially designated for climate change. Individual experts within the MET have been made responsible for specific tasks, including the focal points for UNFCCC, IPCC and the secretariat of the DNA.. Financial support is also a key barrier for the operation of the National Climate Change Committee.

POLICY STATEMENTS

1. Strengthen the internal capacity of the Ministry of Tourism and Environmental Affairs to address its existing and new tasks under the National Climate Change Policy
2. Establish a National Climate Change Department under the Ministry of Tourism and Environmental Affairs to coordinate mitigation and adaptation action, measure, report and verify climate change responses, facilitate and promote the use of carbon trading and off-set schemes.
3. Enhance institutional and technical capacity of the National Climate Change Department to serve effectively its roles as designated UNFCCC focal point, National Designated Authority under the green climate fund and as the Designated National Authority for CDM projects.
4. Strengthen the existing NCCC with a view to enhancing its performance and inclusive representation, including relevant ministries and departments, local communities, academia, gender and vulnerable groups and the private sector.
5. Establish a National Climate Change Research Group to coordinate research and development, promote innovation, for and generate knowledge on the basis of the progressing scientific knowledge on climate change and its impact on the country.
6. Establish a Greenhouse Gas Inventory Unit under the National Climate Change Department to prepare and update annually a national GHG inventory. The inventory should conform to the UNFCCC guidelines and any other COP decision and use IPCC 2006 GHG inventory methodologies or any other methodologies as recommended by the COP.

7.2 Partnerships and Stakeholder Involvement

The Government of Swaziland recognizes the diversity of climate change stakeholders. If the country is to succeed in addressing the challenges posed by climate change, then stakeholders' buy-in and continuous involvement are required to guarantee the sustainability of adaptation and mitigation actions. Key stakeholders include: government ministries and departments, municipalities, traditional leaders, private sector, CSOs, CBOs, academia, researchers and local communities. Partnership building is critical in addressing climate change challenge.

POLICY STATEMENTS

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| <ol style="list-style-type: none">1. Enhance the participation of different stakeholders in addressing climate change issues.2. Build capacity of the relevant stakeholders to effectively participate in addressing climate change3. Develop tools for building partnerships between the public-private and the civil society in addressing climate change. |
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7.3 International Cooperation

Swaziland is a signatory to the UNFCCC, the multilateral instrument through which countries are to address climate change issues. Swaziland, like many countries in Africa, has contributed the least to the problem of climate change, yet will suffer the greatest impacts. In this regard, international support in form of financial resources, technology development and transfer and capacity building remains crucial.

POLICY STATEMENTS

- 1.** Effectively participate in and contribute to international and Africa Region climate change negotiations, discussions, commitments and outcomes.
- 2.** Constitute and strengthen the capacity of a multi-disciplinary/multi-sectoral technical negotiating team to spearhead the country's participation in the UNFCCC processes.
- 3.** Enhance mutual cooperation between the GOS, development partners and other international and regional actors in investing in climate change adaptation and mitigation actions.
- 4.** Strengthen regional cooperation in dealing climate change through the regional institutions, including SADC and COMESA.

8 IMPLEMENTATION FRAMEWORK

8.1 Strategic Frameworks

8.1.1 National Climate Change Strategy and Action Plan

The Government of Swaziland considers climate change as a priority development concern and is committed to take urgent and long-term actions to reduce the vulnerability of its people and risks to national development. Therefore it is critical that a national climate change strategy and action plan be developed. The Strategy and Action Plan is an implementation tool with clear strategies and actions to be undertaken in addressing climate change adaptation and mitigation as well as means of implementation. The Strategy and Action Plan was developed through a consultative process that involved different stakeholders, including government ministries and departments, parastatals, CSOs, NGOs, private sector, academia, traditional leaders and communities. The Government of Swaziland commits itself to reviewing it periodically, but not later than every five years. Besides the overall NCCSAP, each sector will be expected to prepare and implement a sectoral climate change strategy and action plan so as to address the unique characteristics of the different sectors that impact or are impacted upon by climate change.

8.1.2 Low Carbon Development Strategy

Experiences abound demonstrate that it is possible to make development efforts that facilitate growth and poverty eradication, which are also environmentally sustainable. Such a development pathway is Low Carbon Green Growth. Forward-looking, low carbon/green growth strategies can help the country to harness the co-benefits associated with tackling climate change. Low-carbon green growth provides a unique opportunity to invest in a pattern of development that decouples economic growth from carbon emissions; pollution and resource use, and promotes growth through

the creation of environment-friendly products, industries and business models that also improve people's quality of life. Decoupling emissions from economic growth requires a fundamental and wide-ranging response encompassing the public and private sector. Swaziland will prepare a low carbon/green growth strategy as a way to transitioning from the current carbon-intensive development with new drivers of growth.

8.1.3 National Adaptation Plan

The priority of Swaziland's climate change efforts is adaptation to climate change. The UNFCCC has established the National Adaptation Plan (NAP) as a framework to facilitate adaptation planning at the national level. Accordingly, the Government of Swaziland will develop a NAP with a robust performance monitoring plan whose objectives will be: (1) to identify the level of climate risk which can be addressed given economic, social and environmental constraints of the country, (2) to reduce vulnerability to the impacts of climate change by building adaptive capacity and resilience, and (3) to facilitate the integration of climate change adaptation, in a coherent manner, into relevant new and existing policies, programmes and activities, in particular development planning and budgeting processes within all relevant sectors and at different levels, and (4) enhance implementation of adaptation actions that reduce vulnerability and build adaptive capacity and resilience.

8.1.4 Nationally Appropriate Mitigation Action Plan

Article 4.1 of the UNFCCC obligates all countries to take mitigation measures directed towards reducing GHG emissions. To give effect to this requirement, developing countries are expected to determine national sectoral policies and actions that reduce the GHG emissions. Given the negative impact of climate change on Swaziland, the country will put in place mitigation policies and actions that reduce vulnerability to climate change and support the achievement of national development goals with reduction of emissions as a co-benefit. The priority sectors will be: (1) energy, (2) industry, (3) agriculture, (4) Forestry, (5) waste management, and (6) transport.

Periodic reporting on the progress will be done through the Biennial review reports and the National Communications. However, for effective implementation of the NAMAs, adequate financing, technology development and transfer and capacity building will have to be provided by the international community. A robust domestic measurement, reporting and verification (MRV) framework and support received will be established.

8.2 *Clarifying Roles and Responsibilities*

The Policy establishes a number of institutions whose roles and responsibilities are as outlined in the Table below.

INSTITUTION/AGENCY	ROLE AND RESPONSIBILITIES
Ministry of Tourism and Environmental Affairs	<ul style="list-style-type: none"> • Custodian of the National Climate Change Policy and monitoring its implementation. • Coordinate with other relevant ministries at the national level on climate change matters. • Formulate Climate Change Bill and regulations to govern implementation of climate change related matters. • Mainstreaming of climate change into sectoral policies, planning and programmes.
National Climate Change Department	<ul style="list-style-type: none"> • A department under the Ministry of Tourism and Environmental Affairs • UNFCCC Focal point • DNA • Coordinate national mitigation and adaptation responses • National Climate Change

	<p>Knowledge Platform</p> <ul style="list-style-type: none"> • Coordinate, and prepare national reporting commitments under the UNFCCC, including National Communication, BURs and NDCs • Work with stakeholders to implement the National Climate Change Policy.
Greenhouse Gas Inventory Unit	<ul style="list-style-type: none"> • Established under the National Climate Change Department for the coordination and compilation of periodic greenhouse gas inventories.
National Climate Change Committee (NCCC)	<ul style="list-style-type: none"> • A multi-stakeholder Committee to enhance coordination of climate change activities in the country.
National Climate Change Research Group	<ul style="list-style-type: none"> • Coordinate research and development and promote innovation in the field of climate research in Swaziland.
National Climate Finance Agency	<ul style="list-style-type: none"> • National semi-autonomous institution responsible for managing climate finance.
Swaziland Meteorological Department (MET)	<ul style="list-style-type: none"> • Research, Systematic Observation and Monitoring

9 POLICY REVIEW

This Policy will be reviewed periodically, but no later than after every fifteen years, so as to ensure that it keeps abreast with emerging climate knowledge from the IPCC as well as the new developments as a result of the decisions of the Conferences of the Parties, indigenous knowledge and experiences and lessons learned from implementing climate change adaptation and mitigation actions.

GLOSSARY OF TERMS

Abatement: refers to reducing the degree or intensity of greenhouse-gas emissions.

Adaptation: refers to an adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects that moderate, harm or exploit beneficial opportunities.

Adaptation Fund: is a Fund established under the Kyoto Protocol to finance concrete adaptation projects and programmes in developing country Parties that are particularly vulnerable to the adverse effects of climate change. The Adaptation Fund is financed from the share of proceeds on the clean development mechanism project activities and other sources of funding.

Afforestation: refers to planting of new forests on lands that historically have not contained forests.

Anthropogenic greenhouse emissions: refers greenhouse-gas emissions resulting from human activities.

Biomass fuels or biofuels: A fuel produced from dry organic matter or combustible oils produced by plants. These fuels are considered renewable as long as the vegetation producing them is maintained or replanted, such as firewood, alcohol fermented from sugar, and combustible oils extracted from soy beans. Their use in place of fossil fuels cuts greenhouse gas emissions because the plants that are the fuel sources capture carbon dioxide from the atmosphere.

Capacity building: refers to the process of developing the technical skills and institutional capability in developing countries to enable them to address effectively the causes and results of climate change.

Carbon market: refers to a trading system through which countries may buy or sell units of greenhouse-gas emissions in an effort to meet their national limits on emissions, either under the Kyoto Protocol or under voluntary arrangement market other agreements.. The term comes from the fact that carbon dioxide is the predominant

greenhouse gas, and other gases are measured in units called "carbon-dioxide equivalents."

Carbon sequestration: refers to the process of removing carbon from the atmosphere and depositing it in a reservoir.

Clean Development Mechanism (CDM): refers to a mechanism under the Kyoto Protocol through which developed countries may finance greenhouse-gas emission reduction or removal projects in developing countries, and receive credits for doing so which they may apply towards meeting mandatory limits on their own emissions.

Climate change: The UNFCCC defines climate change as a *"change of climate that is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and that is in addition to natural climate variability observed over comparable time period."*

Climate variability: refers to time scales ranging from months to decades, falling between the extremes of daily weather and the long-term trends associated with climate change.

Deforestation: refers to the conversion of forest to another land use.

Ecosystem-based adaptation: refers to the use of biodiversity and ecosystem services as part of an overall adaptation strategy to help people and communities adapt to the negative effects of climate change at local, national, regional and global levels.

Emissions: refers to the release of substances (e.g., greenhouse gases) into the atmosphere.

Energy efficiency: means reducing the amount of energy used for a given service or level of activity in order to produce the same level of end-use service.

Extreme weather events: refers to an event that is rare at a particular place and time of the year. Definitions of rare vary, but an extreme weather event would normally be as rare as or rarer than the 10th or 90th percentile of the observed probability density function.

Forest degradation refers to changes within the forest which negatively affect the structure or function of the stand or site, and thereby lower the capacity to supply products and/or services.

Green Climate Fund: refers to the financial mechanism of the Convention under Article 11.

Greenhouse gases (GHGs): refers to the atmospheric gases responsible for causing global warming and climate change. The major GHGs are carbon dioxide (CO₂), methane (CH₄) and nitrous oxide (N₂O). Less prevalent --but very powerful -- greenhouse gases are hydro fluorocarbons (HFCs), per fluorocarbons (PFCs) and sulphur hexafluoride (SF₆).

Inter-annual variability: refers to variability between years.

Intergovernmental Panel on Climate Change (IPCC): Established in 1988 by the World Meteorological Organization and the UN Environment Programme, the IPCC surveys world-wide scientific and technical literature and publishes assessment reports that are widely recognized as the most credible existing sources of information on climate change. The IPCC also works on methodologies and responds to specific requests from the Convention's subsidiary bodies. The IPCC is independent of the Convention.

Kyoto Protocol: A protocol under the UNFCCC that inter alia, sets binding targets for the reduction of greenhouse-gas emissions by industrialized countries.

Land use, land-use change, and forestry (LULUCF): A greenhouse gas inventory sector that covers emissions and removals of greenhouse gases resulting from direct human-induced land use, land-use change and forestry activities.

Loss and damage: the actual and/or potential manifestation of climate impacts that negatively affect human and natural systems – loss (negative impacts that can be repaired or restored), damage (negative impacts that cannot be repaired or restored).

Mitigation: in the context of climate change, refers to a human intervention to reduce the sources or enhance the sinks of greenhouse gases.

National adaptation plan (NAP): refers to a plan developed by a country as a means of identifying medium- and long-term adaptation needs and developing and implementing strategies and programmes to address those needs.

National communication: A document submitted in accordance with the Convention (and the Protocol) by which a Party informs other Parties of activities undertaken to address climate change. .

REDD+: is the acronym for reducing emissions from deforestation and forest degradation and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries.

Reforestation: refers to the direct human-induced conversion of non-forested land to forested land through planting, seeding and/or the human-induced promotion of natural seed sources, on land that was forested but has been converted to non-forested land.

Research and systematic observation: An obligation of Parties to the Climate Change Convention; they are called upon to promote and cooperate in research and systematic observation of the climate system, and called upon to aid developing countries to do so.

Resilience: refers to the ability of a social or ecological system to absorb disturbances while retaining the same basic structure and ways of functioning and its capacity for self-organization and to adapt to stress and change.

Sequestration: refers to the carbon storage in terrestrial or marine reservoirs. Biological sequestration includes direct removal of CO₂ from the atmosphere through land use change, afforestation, reforestation, carbon storage in landfills and practices that enhance soil carbon in agriculture.

Sink: refers to any process, activity or mechanism which removes a greenhouse gas, an aerosol or a precursor of a greenhouse gas from the atmosphere. Forests and other vegetation are considered sinks because they remove carbon dioxide through photosynthesis.

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

Technology transfer: refers to a broad set of processes covering the flows of know-how, experience and equipment for mitigating and adapting to climate change among different stakeholders.

Vulnerability: refers to the degree to which a system is susceptible to, or unable to cope with, adverse effects of climate change, including climate variability and extremes. Vulnerability is a function of the character, magnitude, and rate of climate variation to which a system is exposed, its sensitivity, and its adaptive capacity.

TRADITIONAL TERMS

Buganu Ceremony: is a ceremony where King joins regiments of emabutfo (warriors) and lutsango (woman's regiments) in a jovial ceremony of song and dance. This is always held on a weekend in February each year, in celebration of Buganu - the fermented marula wine.

Butimba Ceremony: is an annual ritualistic royal hunt of wild game.

Incwala Ceremony: This is Swaziland's most important cultural event and it is a ceremony that has lasted for hundreds of years. Although often translated as 'first fruits festival', where there is the tasting of the first of the season's bounty accompanied by traditional dances and festivity.

Lusekwane Ceremony: This is a ceremony when unmarried male youths set off from the Royal residence and march 50km to cut branches of the sacred shrub (lusekwane) under the light of the full moon. The boys return the following day and place their lusekwane

branches in the national cattle byre. The sacred shrubs are used to renovate the royal residence.

Tinkhundla: refers to an administrative subdivision smaller than a district but larger than an umphakatsi (or "chiefdom").

Umhlanga (Reed Dance) Ceremony: The Umhlanga, or Reed Dance ceremony, is an annual tradition held in late August or early September where tens of thousands of unmarried and childless girls and women travel from the various chiefdoms to the royal household to participate in the eight-day event. The ceremony is a means to encourage young girls to delay sexual activity until marriage. The umhlanga is used to build and renovate the Queen mother's residence.