

Southern African Development Community



SADC Climate Change Strategy and Action Plan

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Table of Contents

EXECUTIVE SUMMARY	4
1. BACKGROUND	7
1.1 THE SADC, DEVELOPMENTAL CONTEXT AND CLIMATE CHANGE	8
1.2 GLOBAL, CONTINENTAL AND REGIONAL RESPONSE TO CLIMATE CHANGE	9
2. OVERVIEW OF CLIMATE CONDITIONS AND CLIMATE CHANGE IMPACTS	10
2.1 CURRENT AND PROJECTED CLIMATE CONDITIONS	10
2.2 CURRENT AND PROJECTED IMPACTS	10
3. THE SADC CLIMATE CHANGE STRATEGY	12
3.1 RATIONALE	12
VISION	12
GOAL	12
3.2 STRATEGIC OBJECTIVES	12
3.3 GUIDING PRINCIPLES	13
4. CLIMATE CHANGE ADAPTATION – SECTORAL ANALYSIS	14
4.1 SECTOR ADAPTATION STRATEGIES AND ACTIONS	14
4.1.1 AGRICULTURE	14
4.1.2 WATER	16
4.1.3 BIODIVERSITY	17
4.1.4 FISHERIES	18
4.1.5 HUMAN HEALTH	19
4.1.6 HUMAN SECURITY	20
4.1.7 SETTLEMENTS AND INFRASTRUCTURE	21
4.1.8 TOURISM	22
4.1.9 MINING AND OTHER EXTRACTIVE INDUSTRIES	23
5. CLIMATE CHANGE MITIGATION– SECTORAL APPROACH	25
5.1.1 ENERGY	26
5.1.2 AGRICULTURE	27
5.1.3 LAND USE, LAND USE CHANGE AND FORESTRY	28
5.1.4 INDUSTRIAL PROCESSES	29
5.1.5 WASTE SECTOR	30
5.1.6 TRANSPORT	31
5.1.7 HUMAN SETTLEMENTS AND INFRASTRUCTURE	31
6. MEANS OF IMPLEMENTATION	32
6.1 CLIMATE CHANGE FINANCE AND RESOURCE MOBILIZATION	32
6.2 CAPACITY DEVELOPMENT	32
6.3 TECHNOLOGY DEVELOPMENT AND TRANSFER	33

6.4 COMMUNICATION, ADVOCACY AND AWARENESS	33
6.6 INSTITUTIONAL ARRANGEMENTS AND GOVERNANCE	34
7. MONITORING, EVALUATION AND REPORTING	35
8. SADC CLIMATE CHANGE ACTION PLAN	36

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List of Acronyms:

1/CP.16	Decision 1 of the 16 th Conference of Parties to the UNFCCC
ABS	Access and Benefit Sharing
AGN	African Group of Negotiators
AMCEN	Africa Ministerial Conference on Environment
AMCOMET	African Ministerial Conference on Meteorology
AU	African Union
CAHOSCC	Committee of African Heads of State and Government on Climate Change
CITES	Convention on International Trade in Endangered Species
CTCN	Climate Technology Centres and Networks
DRR	Disaster Risk Reduction
FANR	Food, Agriculture and Natural Resources
FAO	Food and Agricultural Organisation
GCF	Green Climate Fund (of the UNFCCC)
GDP	Gross Domestic Product
GHG	Greenhouse Gas
HIV/AIDS	Human Immune Virus / Acquired Immune Deficiency Syndrome
IPCC	Intergovernmental Panel on Climate Change
IPM	Integrated Pest Management
ITCZ	Inter-Tropical Convergence Zone
LULUCF	Land Use, Land Use Change and Forestry
MDGs	Millennium Development Goals
MRV	Measurement, Reporting and Verification
MCS	Monitoring Control and Surveillance
NAPAs	Nationally Appropriate Plans of Adaptation
NAMAs	Nationally Appropriate Mitigation Actions
PPRM	Policy, Planning and Resource Mobilisation
REDD+	Reducing Emissions through Avoided Deforestation and Land Degradation
RIDMP	Regional Infrastructure Development Master Plan
SADC	Southern African Development Community
SASSCAL	Southern Africa Science Service Centre for Climate Change and Adaptive Land use
RDF	Regional Development Fund
TIFI	Trade, Industry, Finance and Investment
TK	Traditional Knowledge
UNCBD	United Nations Convention on Biological Diversity
UNFCCC	United Framework Convention on Climate Change
WHO	World Health Organisation
ZAMCOM	Zambezi River Basin Commission

EXECUTIVE SUMMARY

Over the past decade, the SADC Region has been experiencing a positive and significant 5.1% economic growth average across all the 15 Member States. This growth has largely been due to growth in climate sensitive sectors including Services (tourism and hospitality, real estate, banking, transport etc.), Industry and Agriculture sectors. Projections till 2025 and beyond signal a 5 - 8% growth which will largely be anchored on growth in Agriculture and Extractive Industries exports, the Revised Regional Indicative Strategic Development Plan (RISDP) which emphasises increase in manufacturing and primary industry activity and output, the SADC Common Free Trade Area, increase in local, among other regional and national levels initiatives anchored on peace and stability. It is therefore important for the Region to climate proof its primary growth sectors and development plans in order to safeguard the attainment of the regions objectives including regional integration, eradicate poverty and attain prosperity through sustainable development.

Already climate data from the SADC Region indicate a general warming of over 0.5°C and a decline of 5% in annual average temperatures and rainfall respectively. Incidence and severity of extreme weather events including droughts and floods have been worsening, whilst inter-annual rainfall variability characterised by a lengthening of the midseason dry spell and sporadic intense rainfall events has been experienced. Intergovernmental Panel on Climate Change (IPCC) projections into the future, indicate a 1.5 and 2.5°C and a 2.5 and 3.0°C annual mean temperature rise for the Southern and Northern ends of the region respectively. Annual regional precipitation is expected to reduce by 10%, with greater reductions in the Northern part of the Region than in the Southern part. Extreme weather events' including droughts, floods, hot days and heat waves, mid-season dry spells occurrences and severity are set to worsen also by 2050. These current and projected changes in climate will largely worsening the inherent Regions' vulnerability to external shocks, and worsen high levels of poverty, low levels of education, inequitable access to resources and services among different societal groups, skewed regional migration, and HIV and AIDS among others.

It is in this context that the SADC Region through the SADC Secretariat developed this *SADC Climate Change Strategy and Action Plan (CCSAP)*, to provide a broad outline for harmonized and coordinated Regional and National actions to address and respond to the impacts of climate change. The SADC CCSAP strategy is in line with and aims to achieve global and continental objectives as set by the United Nations Framework Convention on Climate Change (UNFCCC), the Africa Union Commission (AUC) and the Regional Development Agenda.

The Strategy is intended to build resilience, and climate proof all SADC protocols, policies and strategies in particular the Protocol on Environmental Management for Sustainable Development, the Revised RISDP, the Industrialisation Strategy and Roadmap, the Regional Infrastructure Development Master Plan and the Regional Agriculture Policy. It complements the Regional Green Economy Strategy.

The SADC CCSAP is structured to be a 25 year strategic document with 5 year review planning cycles and considers Science, knowledge and practice; Local ownership; Capacity Building; Balanced approach to adaptation and mitigation; Alignment and integration; Gender mainstreaming; Communication, advocacy and awareness rising; and Parity as its guiding principles.

The SADC CCSAP prioritises Strategic Interventions and Actions for Adaptation given the associated vulnerability of the region to climate change. Strategic Interventions and actions for Mitigation are mainly aimed at triggering nationally and regionally appropriate actions within the context of Common but Differentiated Responsibilities across the Regions Member States whilst prioritising those with adaptation benefits. The following are the Sector Specific Strategic Interventions for the SADC CCSAP in summary;

SECTOR BASED ADAPTATION STRATEGIC INTERVENTIONS	
Sector	Strategic Intervention
Agriculture	<ul style="list-style-type: none">  Promote water supply, conservation and related infrastructure development.  Promote the use of adaptive agricultural technologies and techniques and provide incentives for the development of green agri-business  Develop a regional framework for agriculture research and development  Reduce agricultural (crop and livestock subsectors') vulnerability to climate change and variability, incorporating adaptation measures in relevant regional policies.  Promote interventions that improve resilience among vulnerable communities.
Water	<ul style="list-style-type: none">  Promote the development of water resources infrastructure in order to increase surface storage capacity of the region  Promote water conservation and use efficiency.  Preserve and upgrade monitoring, data analysis, research and management of information  Enhance the regional capacity in disaster risk reduction and management.
Biodiversity (terrestrial and aqua marine)	<ul style="list-style-type: none">  Promote scientific and indigenous knowledge on the vulnerability of biodiversity to climate change.  Promote Sustainable Forest Management practices in order to reduce deforestation and forest degradation.  Promote Society recognition of forest and marine eco-systems adaptation to climate change
Fisheries	<ul style="list-style-type: none">  Promote sustainable utilization of fisheries (marine and aquaculture) resources  Reduce vulnerability of fisheries to climate change and variability  Promote improved data collection and information sharing
Human health	<ul style="list-style-type: none">  Promotion of preventive healthcare to reduce vulnerability to climate change and variability in the public health sector.
Human security	<ul style="list-style-type: none">  Promote harmonization of regional immigration policies to reduce vulnerability to extreme climate events  Strengthen traditional systems focused on practices for adaptation to climate change
Human settlements and Infrastructure	<ul style="list-style-type: none">  Enhance and sustain ecosystems in the built environment  Strengthen capacity in disaster risk reduction (DRR)  Promote climate proofing and strategic public infrastructure for social and economic development
Tourism	<ul style="list-style-type: none">  Promote tourism regional disaster preparedness mechanisms to minimize risks derived from climate change

Mining and Extractive Industries	 Promote resource use efficiency in the mining sector  Promote mainstreaming of climate change into mining operations
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SECTOR BASED MITIGATION STRATEGIC INTERVENTIONS

Energy	 Promote and harmonize the development of policies and regulatory frameworks, for renewable energy, energy conservation and energy efficiency.
Land Use, Land Use Change and Forestry (LULUCF)	 Promote sustainable forest management in order to enhance carbon sequestration capacity of the region  Strengthen the cross border management of forest resources.  Enhance education and public awareness on the importance of forest eco-systems for mitigation to climate change
Agriculture	 Promote sustainable green agricultural practices
Industrial Processes	 Promote policies and regulatory frameworks that enhance resource use efficiency and cleaner production in industry
Waste	 Promote green principles in waste management.
Transport	 Promote the design and implementation of measures to reduce emissions in the transportation sector.
Human settlements and Infrastructure	 Promote and harmonize regional standards and guidelines on green buildings

The SADC CCSAP propagates specific actions for its means of implementation aspects centred on

- (i) Resource Mobilization to raise financial resources for the strategy implementation from different sources including National and International through various mechanisms.
- (ii) Capacity Development to enhance the regions understanding of Climate Change issues at Secretariat and National Levels.
- (iii) Institutional Arrangements and Governance which places the SADC Secretariat at the centre of primary coordination for the implementation of the strategy and delineates roles of reporting at both Member States and Secretariat levels.;
- (iv) Technology Development and Transfer for enhanced implementation of actions that achieve the overall goal of the strategy; and
- (v) Communication, Advocacy and Awareness of climate change issues in the region so as to stimulate public awareness, debate as well a policy making process; .
- (vi) A Monitoring and Evaluation framework to allow for measuring success of strategy implementation as well as to draw lessons

The implementation of the strategy is expected to cost approximately US\$ 40 Million, over a period of five (5) years. This estimated budget comprises of US\$15 million for adaptation; US\$13 million for Mitigation fits and approx.US\$13 Million for supporting institutional, planning and coordination of implementation as well as monitoring and evaluation aspects.

1. BACKGROUND

Climate change is a major developmental challenge of our time. The United Nations Framework Convention on Climate Change (UNFCCC) defines climate change as that change of climate that is attributed directly or indirectly to anthropogenic interference that alters the composition of the global atmosphere, and that is in addition to natural climate variability observed over comparable time periods. A schematic framework representing anthropogenic drivers, impacts of and responses to climate change, and their linkages, is shown in Figure 1 below.

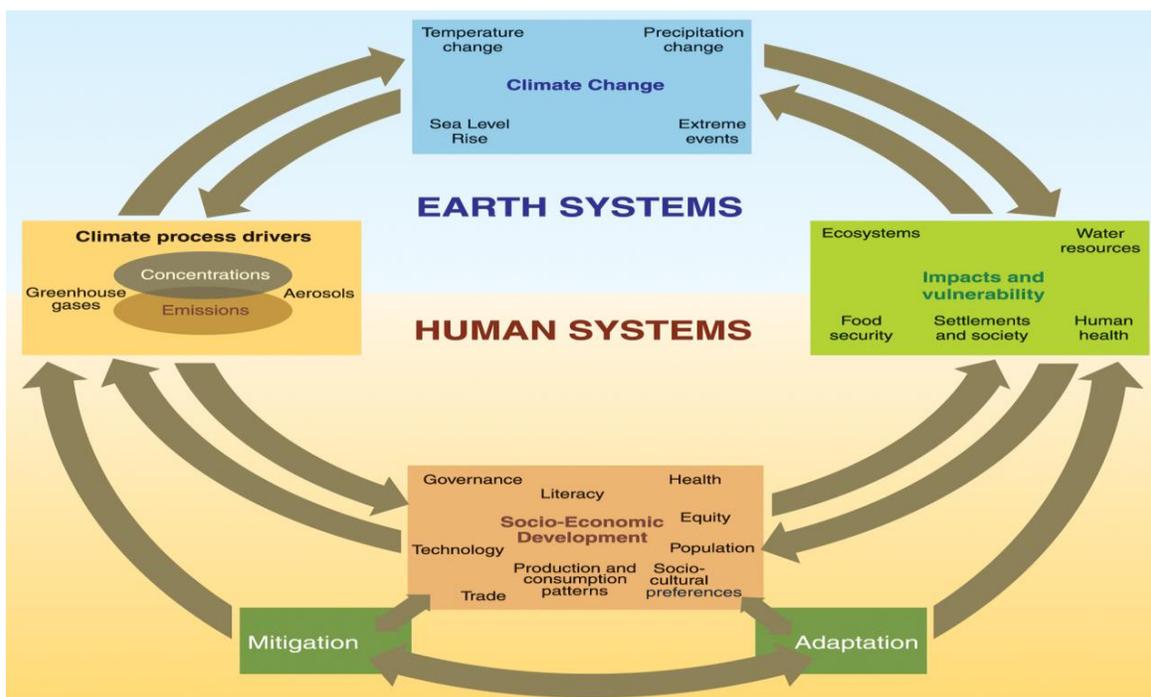


Figure 1. Schematic framework representing anthropogenic drivers, impacts of and responses to climate change, and their linkages.

In Southern Africa there is increasing scientific knowledge and evidence showing current and potential social, economic and environmental impacts of climate change. This comes against the backdrop where the Region has contributed the least to the increasing concentration of greenhouse gases in the atmosphere causing climate change. The Region is highly vulnerable to a number of severe negative impacts arising from the adverse effects of climate change and has low capacity to adapt.

Impacts of climate change impede with the Region's economic growth and development, as well as its efforts to reduce poverty, food insecurity and attain its development goals, including the Sustainable Development Goals. However and at the same time, Climate Change also provides an opportunity for the region to grow its economies, provide social security, promote peace and stability, enhance regional integration through adaptation and mitigation interventions (Hiernaux, Bielders et al. 1999).

SADC Member States through the Climate Change Framework (2010), the Protocol on Environmental Management for Sustainable Development (2013) and the Revised Regional Indicative Strategic Development Plan (RISDP) (2015) are committed to address the challenges whilst exploiting the opportunities brought about by climate change, within their respective capabilities and developmental contexts. This is to safeguard development gains achieved in the last few decades. A Regional Climate Change Strategy and Action Plan offer opportunities

to achieve this.

1.1 The SADC, Developmental Context and Climate Change

Established in 1992, the Southern African Development Community (SADC) is a Regional Economic Community (REC) comprising of 15 Member States spanning over 554 919 km² with a diverse population of over 277 million. 6 countries are land locked, 5 have a total coastline and 3 are Indian Ocean Island States. The main objectives of SADC are to achieve development, peace and security, and economic growth, to alleviate poverty, enhance the standard and quality of life of the peoples of Southern Africa, and support the socially disadvantaged through regional integration, built on democratic principles and equitable and sustainable development. To achieve this, the SADC Secretariat as the Principal Executive Institution of SADC, is responsible for strategic planning, facilitation and co-ordination and management of all SADC Programmes, which are all aimed at achieving the objectives of the Region.

The SADC Region is experiencing significant economic growth as shown by a 5.1% GDP growth average across the 15 Member States (Conway et al 2015, SADC Green Economy Strategy; 2015).The Services, Industry and Agriculture sectors of the economy contribute approximately 51%, 32%, and 17% respectively. Projections indicate a steady but increasing growth rate of between 5 - 8% up to 2025. This positive projection is expected to be anchored on growth in Agriculture and Mining exports, the Revised RISDP which emphasises increase in manufacturing and primary industry activity and output, the SADC Common Free Trade Area, among other regional and national levels initiatives.

However, as this growth is anticipated the, region acknowledges critical constraints arising in the water-energy-food nexus that have potential to derail or hinder the achievement of expected economic growth projections. These constraints are largely due to an increasing regional population averaging at 2.68% growth per year, characterised by a formidable rise in the middle income population and urban class, [39% of total population and rising by 3.39% across the region] whose consumption demands are higher than before, thus putting a strain on the natural resource base. Already this situation is exacerbated by high levels of poverty approximated at 45% of the population living under \$1 per day.

Compounding this, is global climate change whose natural and policy related impacts have wide ranging effects across major and specific economic sectors including Agriculture, Energy, Industry, Infrastructure, Transport and Trade among others. Climate related challenges are known to slow down GDP growth by -0.5 to -2% at Member State level. It is therefore critical for the SADC Region to pursue its regional development pathway in a way that is sustainable, inclusive and green, factoring in current and future climate change projections and associated impacts.

The SADC Climate Change Strategy and Action Plan aims to enhance the implementation of other overarching regional policy and legislatives frameworks. These include the Revised RISDP, Regional Green Economy Strategy for Sustainable Development and Action Plan (2015); The Infrastructure Development Master Plan; the SADC Industrialization Policy; the Regional Agriculture Policy; the SADC Science, Technology and Innovation Climate Change Response Framework 2020; the SADC Resilience Framework; and the Protocol on Environmental Management for Sustainable Development (2014),the Protocol on Forestry and Revised Protocol on Shared Water Courses amongst others.

1.2 Global, continental and regional response to climate change

With realisation of the detrimental impacts of climate change, the global community through the United Nations Framework Convention on Climate Change (UNFCCC) has embarked on discussions which aim at stabilising greenhouse gas concentrations at a level that would prevent dangerous anthropogenic interference with the climate system. The Convention states that such a level should be achieved within a time-frame sufficient to allow ecosystems to adapt naturally to climate change, to ensure that food production is not threatened, and to enable economic development to proceed in a sustainable manner (UNFCCC, 1992). The Convention calls on all Parties to reduce their greenhouse gas emissions and to cope with the impacts of changes in climate.

The Climate Change Convention is not implemented in isolation of other global environmental frameworks that include the Convention on Biological Diversity, the Convention to Combat Desertification and Land Degradation and the post 2015 Sustainable Development Goals. The synergies are important in streamlining international environmental governance, therefore offering greater scope for better results in climate change adaptation and mitigation.

At the continental level, the African Climate Change Strategy has four thematic pillars, i.e (i) Climate Change Governance; (ii) Promotion of research, education, awareness raising and advocacy; (iii) Mainstreaming and integrating climate change imperatives in planning, budgeting, and development processes; and (iv) Promotion of national, regional, and international cooperation. Implementation of the strategy will be through African Union (AU) the Committee of African Heads of State and Government on Climate Change (CAHOSSC) and the African Ministerial Conference on the Environment (AMCEN).

In the implementation of the SADC Climate Change Strategy, it is recognised that Member States are already working to address climate change challenges through Nationally Appropriate Mitigation Actions (NAMAs), National Adaptation Plans of Action (NAPAs) and various other sectoral strategies and plans. At Regional level the strategy complements with a number of existing sectoral protocols, policies, plans and regulations such as in Annex 1.

2. OVERVIEW OF CLIMATE CONDITIONS AND CLIMATE CHANGE IMPACTS

2.1 Current and projected climate conditions

The climatic conditions of the Southern Africa Region vary from arid in the west through semi-arid and temperate areas in central zones to semi-arid in the east, with a few sub-humid areas in the central regions. Closer to the equator in Angola, DRC and coastal Tanzania, the climate is largely humid (SADC, 2010). Three prevailing wind systems strongly influence the region's climate system, namely: sub-tropical eastern continental moist maritime (with regular occurrence of cyclones); the south easterly wind systems that brings rainfall from the Indian Ocean; and the Inter-Tropical Convergence Zone (ITCZ).

The Region has been experiencing a warming trend over the past few decades. According to the IPCC (2014), temperatures in the Region have risen by over 0.5°C over the last 100 years. The Indian Ocean has also warmed more than 1°C since 1950. During this period, the region has also experienced a downward trend in rainfall, characterized by below-normal rainfalls and frequent droughts (NCAR, 2005). This is a result of an increase in the frequency and intensity of phenomena such as El Nino and La Nina events.

It is widely accepted, based on future climate modelling findings, that the Region's climate will be hotter and drier in the future than it is today. Models indicate that by 2050, the Region's average annual temperature is expected to increase by between 1.5 and 2.5°C for countries in the southern end of the Region and by between 2.5 and 3.0° C for countries in the northern end of the Region if compared to the 1961-1990 average (Rahab and Prudhomme, 2002). Such temperature rises are expected to be greater in the summer than in winter season.

Annual regional precipitation is expected to reduce by 10%, with greater reductions in the northern part of the Region than in the southern part (Rahab and Prudhomme, 2002). Decreases in mid-summer rainfall, together with higher temperatures, will have critical implications for water availability and impact a number of sectors, particularly agriculture and water (Davis *et al* 2014)

2.2 Current and projected impacts

The extreme climatic events that the Region has been experiencing, especially droughts, are negatively impacting the inhabitants and economies of the Southern Africa Region. For instance, drought events that have occurred have resulted in significant decreases in agricultural production, thereby accentuating the food insecurity situation in the Region. In Small Island Developing States, extreme climatic events have resulted in sea level rise that leads to saline intrusion, contaminating freshwater coastal aquifers along the coasts. Additionally, much of the prime agricultural land is located on the coastal plains which are threatened by the sea-level rise. It is projected that sea level rise will inundate certain low lying coastal areas thereby affecting coastal wetlands and mangrove areas which are important nursery grounds for fish and other marine species. The continent is regularly experiencing frequencies of high incidents of thunderstorms and strong winds, sand or dust storms increasing desertification, scarcity of fresh water resources, changes in the weather patterns and disruption to agricultural production. Table 1 below show the SADC Regions anticipated impacts and level vulnerability to climate change pressures.

Table 1: Summary of climate change related challenges, vulnerable sectors and vulnerability within the SADC countries. Source: Adapted from Global Environment Change and Human Security 2008, National (climate change) Adaptation Plans and National Communications (to the UNFCCC).

	Global warming and climate change impacts and vulnerabilities in the SADC region	Angola	Botswana	DRC	Lesotho	Madagascar	Malawi	Mauritius	Mozambique	Namibia	Seychelles	South Africa	Swaziland	Tanzania	Zambia	Zimbabwe
Challenges associated with climate variability, global warming and climate change	Increased incidence of droughts															
	Decrease in rainfall															
	Seasonal shifts in rainfall															
	Increase in the impacts by cyclones															
	Localised floods															
	Overflowing of large rivers															
	Lakeshore flooding															
	Decline on lake levels															
	Decreased / varying river flows															
	Wildfires															
	Landslides in mountainous areas															
	Sea level rise															
	Salt water intrusion															
	Coral reef bleaching															
Vulnerable sectors	Water scarcity															
	Biodiversity loss															
	Health / disease outbreaks															
	Infrastructure															
	Coastal ecosystems, cities															
	Fisheries															
	Agriculture and food security															
	Livestock															
	Tourism															
Vulnerability context	Urbanisation															
	Poor infrastructure															
	Gender equality															
	Dependence on climate sensitive resources															
	Poor water access by population															
	Poor health status															
	HIV/AIDS															

3. THE SADC CLIMATE CHANGE STRATEGY

The SADC Climate Change Strategy and Action Plan aims to provide a broad outline for harmonized and coordinated Regional and National actions to address and respond to the impacts of climate change in line with global and continental objectives. The strategy takes cognizance for the need of enhanced adaptation to the impacts of climate change bearing in mind the diverse and gender differentiated levels of vulnerabilities that are more pressing for the region. However, it also aims to trigger and support nationally and regionally appropriate mitigation actions given mitigations' potential opportunities for sustainable development.

The Climate Change Strategy shall guide the implementation of the Climate Change Programme over a Fifteen year period (2015 - 2030). The Strategy will provide a short, medium to long term framework for implementing elaborate and concrete climate change adaptation and mitigation programmes and projects.

The strategy is divided into 3 categories; (i) Climate Change Adaptation, (ii) Climate Change Mitigation, and (iii) Means of implementation and monitoring and evaluation.

3.1 Rationale

In line with Article 12 of the provisions of the Protocol on Environmental Management for Sustainable Development, the SADC Region is mandated to develop legislative and administrative measures to enhance adaptation to the impacts of climate change, bearing in mind the diverse and gender differentiated levels of vulnerabilities and to take appropriate voluntary climate change mitigation measures. The strategy is also intended to support Member States' compliance with obligations under the UNFCCC. SADC countries share common vulnerabilities to climate change and therefore this presents an opportunity for a regional approach in addressing adaptation challenges.

Vision

A climate resilient and low carbon regional economy.

Goal

To provide a regional framework for collective action and enhanced cooperation in addressing climate change issues in order to improve local livelihoods, achieve sustainable economic growth and contribute fairly towards preserving a global good.

3.2 Strategic Objectives

- 1.Reduce vulnerability and manage risks related to climate change and climate induced extreme events through the effective implementation of adaptation programmes.
- 2.To promote the reduction of greenhouse gas emissions at below business as usual levels taking into consideration the respective capabilities of Member States

3. To enhance the region's ability and capacity to mobilise resources, access technology and build capacity to facilitate adaptation and mitigation actions.

3.3 Guiding principles

The strategy is premised on the following principles:

1. **Science, knowledge and practice:** the strategy must continue to draw on the best available SKP within the international, regional, and national context. This should be based on existing experiences, climate science and traditional knowledge and practices.
2. **Local ownership:** Implementation of the strategy should be guided by multi-level stakeholder participation and engagement in order to ensure ownership and sustainability.
3. **Capacity Building:** forms an integral part of the implementation of the strategy with focus on sharing knowledge and best practices towards building sufficient capacity to implement climate change programs in the region.
4. **Balanced approach to adaptation and mitigation:** The strategy aims towards balancing responses for adaptation and mitigation, with provision of linkage between mitigation actions and adaptation efforts taking into consideration that low mitigation ambition will require increased levels of support for adaptation in Africa.
5. **Alignment and integration:** the strategy intends to align and integrate key climate change considerations into other strategic planning processes and initiatives at regional and national levels.
6. **Gender mainstreaming:** the strategy takes into consideration the differentiated climate change adaptation and mitigation roles, responsibilities and needs of people in society especially women, youth and other vulnerable groups.
7. **Communication, advocacy and awareness rising:** Effective implementation of the strategy is based on climate change conscious society and therefore it should be made accessible to all stakeholders.
8. **Parity:** Adaptation finance must have the same legal parity as mitigation

4. CLIMATE CHANGE ADAPTATION – SECTORAL ANALYSIS

Adaptation remains the major priority for the SADC Region due to the current and potential climate change impacts and associated societal exposure and vulnerability at different scales. A number of sectors that are critical for sustainable economic growth / development and sustenance of livelihoods in the Region are sensitive to climate variability and climate change. SADC Member States recognise that priority adaptation responses should target the critical sectors and have multiple benefits for resilience.

Sectors that are most vulnerable to climate change in the SADC Region include Water, Biodiversity, Health, Tourism, Agriculture, Fisheries, Mining and other Extractive Industries and Human Settlements. Vulnerability contributing factors include urbanisation, poor infrastructure, gender perspectives and dependence on natural resources among others. This section analyses the context of climate change on the most vulnerable sectors and suggests regional objectives and actions.

4.1 Sector Adaptation Strategies and Actions

4.1.1 Agriculture

Agriculture is a major social and economic sector in the SADC region, contributing between 4% and 27% of GDP and approximately 13% of overall export earnings (Davis, 2011). About 70% of the region's population depends on agriculture for food, income and employment. The sector is however is highly vulnerable to climate change. Increasing rainfall variability, increased occurrence and severity of extreme events such as droughts and floods, prolonged mid-season dry spells and increasing mean annual temperatures have direct impacts on crop and livestock production in many ways.

Livestock productivity in, dairy, calving rates and beef production is already being impacted, whilst crop production is heavily compromised by changes in the timing and duration of precipitation events, daily temperatures, and levels of soil moisture. Figure 2 clearly demonstrates crop production challenges associated with changes in timing. As such climate change will affect Agricultural production and access to food, nutrition and food security. Response strategic actions should enable the farmer and other players in the agriculture commodities value chains to respond to the uncertainty of rainfall patterns and make it easier for the farmer to adapt to the adverse changes in climate.

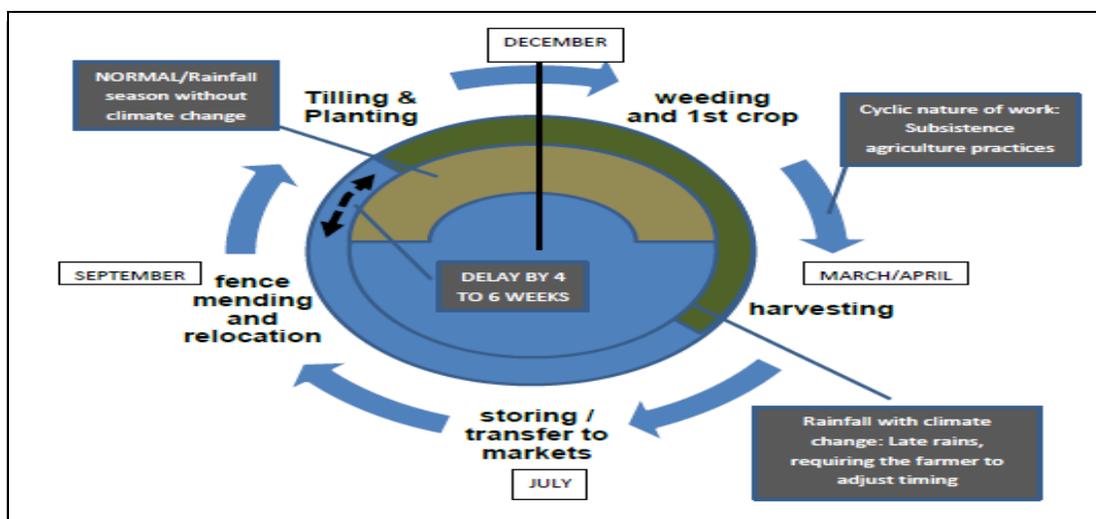


Figure 1: Climate change impact on subsistence farming expressed as the change in length and timing of the cropping season

To address the above stated challenges, the following strategies will be implemented;

Strategies

1. Promote water supply, conservation and related infrastructure development.
2. Promote the use of adaptive agricultural technologies and techniques and provide incentives for the development of green agri-business.
3. Develop a regional framework for agriculture research and development
4. Reduce agricultural (crop and livestock subsectors') vulnerability to climate change and variability, incorporating adaptation measures in relevant regional policies.
5. Promote interventions that improve resilience among vulnerable communities.

Actions

- Develop appropriate infrastructure for water use efficiency and water harvesting for both crops and livestock.
- Build institutional capacity for adaptation to climate change, considering vulnerabilities.
- Up-scale locally proven Integrated Pest Management (IPM) technologies
- Promote composting and support the use of compost as a substitute to traditional fertilizers in order to enrich soils.
- Develop and promote financial mechanisms to manage climate risk in agriculture
- Promote identification, research, development and breeding of crop varieties, cultivars, and mixtures of crops capable of adapting to expected climate change.
- Promote the creation, transfer and dissemination of information on technological and institutional processes for adaptation in agriculture.
- Develop and promote the sharing of best practice and lessons learnt to climate resilience of the agriculture sector.
- Identify vulnerability hotspots and promote the strengthening of regional vulnerability mapping.

- Create awareness programmes on vulnerability factors related to agriculture Support already existing programmes and explore new opportunities for means of adaptation

4.1.2 Water

Water is recognised as an important driver of socio-economic development within the SADC region as indicated in the SADC Water Policy and Strategy. Water management particularly supports the SADC development objectives on poverty reduction, food and nutrition security, energy security and industrial development. Various challenges in integrated water resources management exist in the region and these include, highly variable rainfall resulting in low reliability, uneven water distribution across the region, unmet high water demands resulting in spatial and temporary scarcities and excesses.

Climate change will magnify some of these challenges as water is the medium through which most climate related disasters and extreme weather events occur and these include droughts, floods and tropical cyclones which have also increased in frequency and intensity. These changes adversely affect human livelihood systems particularly rain-fed agriculture, water supplies, irrigation, energy, health and sanitation and human settlement patterns and movement.

There is ample evidence that increased hydrologic variability resulting from climate change in the SADC region will continue to have a profound impact on the water sector particularly exacerbating water scarcity, floods and droughts. SADC economies and local communities are vulnerable to chronic water shortages as well as compromised water quality and thus the capacity to reduce poverty and grow economies is severely reduced.

In light of the above, climate change adaptation in the water sector is key in unlocking potential for adaptation and economic growth in water dependent sectors such as agriculture, industry, energy, and health. The already existing regional bodies responsible for water management in shared water courses offer an opportunity for regional collaboration and integration in adaptation to climate change in the water sector. Adaptation strategies to address climate change impacts in the water sector are presented below.

Strategies

1. Promote the development of water resources infrastructure in order to increase surface storage capacity of the region.
2. Promote water conservation and use efficiency.
3. Preserve and upgrade monitoring, data analysis, research and management of information
4. Enhance the regional capacity in disaster risk reduction and management.

Actions

- Incorporate sea level rise projections into regional planning processes, including adaptation measures in the various sectors
- Increase number of climate resilient water infrastructure
- Promote rain water harvesting technologies
- Enhance integrated catchment management
- Build capacity on Efficient Water Management Practices across key sectors

- Reduce indirect and direct water pollution
- Prioritize capacity development for water data analysis and water balance and a better understanding of current and future climate change.
- Improve capacity for water data collection and management
- Up scaling research and development for preservation of water
- Strengthen river basin organization's to integrate climate change strategy in their programs.
- Integrate climate change consideration in coastal zone management
- Strengthen the early warning systems.

4.1.3 Biodiversity

The Southern African region is endowed with a rich natural heritage of biological diversity – or biodiversity. The SADC Regional Biodiversity Strategy (2007) indicates that more than 40% of the region's species are endemic. Biodiversity is of fundamental importance to the functioning of all natural and human-engineered ecosystems, and by extension to the ecosystem services that nature provides to human society. Biological resources such as plant and animal products, timber, and wildlife tourism account for a significant proportion of the SADC region's Gross Domestic Product (GDP) and are a source of livelihood for the majority of its citizens.

Despite this biological wealth, the region continues to face challenges of Economic Development due largely to difficulties that are frequently experienced in equitably and sustainably harnessing natural resource capital. Over centuries, the people of Southern Africa have developed strategies for using, tending and caring for their biological resources for the benefit of their own and future generations. Unfortunately, the capacity of nature to maintain this biological wealth is rapidly diminishing due to habitat loss and degradation resulting from unsustainable development, driven by economic and social factors. Factors such as climate change coupled with pollution, invasive alien species, overharvesting of natural resources and a lack of recognition of indigenous knowledge and property rights worsen the situation.

Adaptation in the biodiversity sector is key in providing local communities with the necessary natural resources essential for their livelihoods. Greater efforts towards adaptation have already been realized in the implementation of other conventions which SADC Member States are Party to. Synergies in their implementation offer better opportunities to realize adaptation benefits for communities. These include amongst others the United Nations Convention on Biological Diversity, The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) and the Convention on the Conservation of Migratory Species of Wild Animals. SADC Member States have also been part and parcel of the process to develop the Protocol on Access and Benefit Sharing (ABS) and most are reviewing their National Biodiversity Strategies and Action Plans in line with the Aichi Targets which seek to give local communities a share in the proceeds from the use of biodiversity derived from their localities.

Strategies

1. Promote scientific and indigenous knowledge on the vulnerability of biodiversity to climate change.
2. Promote Sustainable Forest Management practices in order to reduce deforestation and forest degradation.

3. Promote Society recognition of forest and marine eco-systems adaptation to climate change

Actions

- Establish a regional biodiversity inventory system (measurements, assessments, and mapping in general)
- Capacity building initiatives on sustainable utilization and management of biodiversity at different levels particularly on communities
- Provide incentives for communal forest management, including reforestation and afforestation.
- Create awareness on the importance of biodiversity goods and services
- Promote diversification of alternative livelihood to reduce pressure on biodiversity
- Support carbon credit mechanisms and fiscal incentives for the establishment of community-REDD+,
- Establish policies and legal frameworks that facilitate the increase in protected areas (as the target set by UNCBD)
- Establish regional institutions to support research and development
- Create awareness that makes society recognize the value of available eco systems and biodiversity.

4.1.4 Fisheries

Fisheries can make a unique contribution to Food Security in the SADC region. While Southern Africa is prone to water scarcity, which can result in crop failures however fisheries can be an alternative source of livelihood. Fisheries in the SADC region are diverse, with production of about 2.6 million tonnes of fish drawn from oceans, lakes and reservoirs and rivers every year. The significance of the above figures can be seen when they are compared to the estimated 2.5 million tonnes of fish caught from the African continent's inland waters, and over 5 million tonnes from marine areas in 2010 (Food and Agriculture Organisation of the United Nations, 2010).

The Protocol on Fisheries and its implementation strategy prioritises aquaculture, management of shared fisheries resources and combating illegal, unregulated and unreported fishing. These activities are the building blocks in supporting activities related to climate change adaptation under the sector. Globally, 540 million people depend on fisheries and aquaculture as a source of protein and income. For 400 million of the poorest of these, fish provides half or more of their animal protein and dietary minerals (FAO 2010). Yet, more must be done to understand and prepare for the impacts that climate change will have on fisheries and aquatic ecosystems.

Climate change will affect fisheries, freshwater and marine habitats particularly their composition and productivity thus compounding the challenges related to food and nutrition security of the Region. Fishers, fish farmers and coastal inhabitants will bear the full force of these impacts through less stable livelihoods, changes in the availability and quality of fish for food, and rising risks to their health, safety and homes. Many fisheries-dependent communities already live a precarious and vulnerable existence because of poverty, lack of social services and essential infrastructure. The fragility of these communities is further undermined by overexploited fishery resources and degraded ecosystems. The implications of climate change for food security and livelihoods in SADC are profound.

Despite these issues, fisheries offer an opportunity for climate change adaptation for local communities as well as contribute significantly to the growth of the regional economy. Strategies related to the fisheries sector are listed below.

Strategies

1. Promote sustainable utilization of fisheries (marine and aquaculture) resources
2. Reduce vulnerability of fisheries to climate change and variability,
3. Promote improved data collection and information sharing

Actions

- Enhance capacity building in coastal and main land communities on sustainable utilization of resources to reduce climate change vulnerability.
- Improve knowledge about the effects of climate change and variability on eco-systems and coastal/marine resources.
- Develop an effective monitoring and evaluation, control and surveillance (MCS) system for marine fisheries.
- Conduct awareness raising events to share relevant information on existing laws, fish stocks, climate change threats to marine resources and ecosystems, adaptive techniques and others.

4.1.5 Human Health

Human and social development is accorded priority by SADC Member States in view of its crucial role as a factor and as a broad measure of development. It also has an important role to play in consolidating the historical, social and cultural ties and affinities of the peoples of the region. The Protocol on Health (1999) recognizes that a healthy population is a pre-requisite for the sustainable human development and increased productivity in a country. SADC recognizes that close co-operation in the area of health is essential for the effective control of communicable and non-communicable diseases for addressing common concerns within the region.

Climate change affects the social and environmental determinants of health – clean air, safe drinking water, sufficient food and secure shelter. Climate change will increase deaths that result from malnutrition, malaria, diarrhoea and heat stress (WHO – www.who.int). Increased temperatures will likely increase the areas in which diseases such as malaria occur thereby increasing the potential infections of the human population. Extreme high air temperatures contribute directly to deaths from cardiovascular and respiratory disease, particularly among elderly people. High temperatures raise the levels of ozone and other pollutants in the air that exacerbate cardiovascular and respiratory disease. Pollen and other aeroallergen levels are also higher in extreme heat. These can trigger asthma, which affects around 300 million people worldwide.

This will be worsened by weak health infrastructure which characterizes most SADC Member States thus rendering nations least able to cope without assistance to prepare and respond. Though there are as yet limited studies on climate change and human health specific to the SADC region, the region has a heavy existing disease burden, partly caused by climate sensitive diseases.

Climate change adaptation activities will build upon work being carried out in the region. The SADC Health Policy plans to raise the regional standard of health for all citizens to an acceptable level by promoting, coordinating, and supporting efforts of Member States to improve access to high-impact health interventions.

Strategies

1. Promotion of preventive healthcare to reduce vulnerability to climate change and variability in the public health sector.

Actions

- Build technical capacity in national, regional and professional training institutions to reduce risk to diseases transmitted by vectors, infectious diseases and others exacerbated by climate change.
- Organize public awareness and educational programmes through curriculum development and public media
- Build capacity in public health institutions for rapid response to climate change related epidemics
- Review regional population and development plans considering the current and projected impacts of climate change on the health sector.

4.1.6 Human Security

The SADC Declaration and the Treaty define the SADC Vision as that of a shared future in an environment of peace, security and stability, regional cooperation and integration based on equity, mutual benefit and solidarity. In addition to the SADC Treaty, SADC is committed to the principles of the Charter of the United Nations, the Constitutive Act of the African Union, and the Protocol Establishing the Peace and Security Council of the African Union.

Threats to human security in the Region include economic underdevelopment and poverty, HIV and AIDS pandemic, Inter and intra state conflicts, consolidation of democracy and good governance, refugees, irregular movers, illegal migrants and internally displaced persons, the need to redress imbalances in the accessibility to natural resources and wealth, the demobilisation, disarmament, reintegration and monitoring of ex-combatants, the development and consolidation of regional disaster management mechanisms and corruption.

Climate change will only compound these threats as climate change acts as a “threat multiplier” because of its potential to exacerbate many of the current challenges and threats already being faced in some countries such as infectious diseases, terrorism and conflict over scarce resources. Decreasing availability of resources due to regional effects of climate change — like drought and desertification — leads to intensified competition for these resources. It can contribute to instability, lead to displacement and migration, worsen existing conflicts and threaten global security.

Climate change impacts in SADC, coupled with a growing population, urbanization, land degradation, drought and desertification, unsustainable consumption and waste are likely to

contribute to stress on the region's ability to meet food security, energy security, economic security and other forms of human security.

Human security issues related to climate change include water stress, land use and food security, natural disasters and environmental migration. Adaptation is therefore a priority in order to ensure human security in all spheres of life.

Strategies

1. Promote harmonization of regional immigration policies institutionalism to reduce vulnerability to extreme climate events,
2. Strengthen traditional systems focused on practices for adaptation to climate change

Actions

- Develop regional guidelines for emergency evacuation plans resulting from climate change extreme events.
- Promote and strengthen traditional knowledge (TK)systems for climate change adaptation

4.1.7 Settlements and Infrastructure

SADC Member States include mainland and island countries with a mix of low- and middle-income economies. Regional infrastructure development creates a larger market and greater economic opportunities, and the development of infrastructure is critical for promoting and sustaining regional economic development, trade and investment, and will contribute to poverty eradication and improved social conditions.

SADC has made significant progress in regional infrastructure development. Infrastructure includes regional transport and communications systems, which are fundamental to cooperation in the SADC region. Energy, water and sanitation, and meteorology are also critical components of regional infrastructure. The World Bank estimates that infrastructure improvements boosted growth in SADC by 1.2 % per capita per year during 1995-2005, mainly from access to mobile telephones. Road network improvements made small growth contributions, while power sector inadequacy had a negative impact.

The Regional Infrastructure Development Master Plan (2012) guides development in key infrastructure such as road, rail and ports, and also acts as a framework for planning and cooperation with development partners and the private sector. Infrastructure was also a key component of the Regional Indicative Strategic Development Plan. Infrastructure is the primary medium through which human settlements are identified. However, this infrastructure is not immune to the impacts of climate change. The threats to infrastructure include physical damage from cyclones, floods or heat waves. Vulnerabilities are especially profound where infrastructures are subject to multiple stresses beyond climate change.

Climate change impacts on Southern Africa human settlements manifest in the form of sea level changes, impacts on water resources, extreme weather events, food security, increased health risks from vector-borne diseases, and temperature related morbidity in urban environments. These impacts in Southern Africa will among other factors depend on the localities of settlements.

Adapting infrastructure to climate change will be essential in maintaining public service infrastructure such as buildings, water and wastewater reticulation systems, roads and rail networks, communication and energy related infrastructure. For human settlements to continuously prosper, there is need for a holistic approach to adaptation that addresses concerns in various sectors such as water, food and nutrition and health.

Strategies

1. Enhance and sustain ecosystems in the built environment
2. Strengthen capacity in disaster risk reduction (DRR)
3. Promote climate proofing and strategic public infrastructure for the social and economic development

Actions

- Improve knowledge about the effects of climate change and variability on sustainable management of eco-systems and coastal/marine resources.
- Integrate scientific research results in policies on comprehensive coastal/marine/mainland area management.
- Develop early warning system and emergency response measures
- Increase institutional and human capacity in the region to better understand climate and climatic threats.
- Strengthen capacity building in coastal communities to reduce climate change vulnerability.
- Increase public and private knowledge regionally on climate proofing public infrastructure in the context of climate change.

4.1.8 Tourism

The tourism industry in SADC has grown rapidly in recent years, contributing US \$940 billion to the world economy in 2010. While Southern Africa currently sees only a small percentage of these receipts, recent shifts have positioned the region as a potential preferred destination in coming years. In order to capitalise on these changes that favour Southern Africa's unique natural features.

The Protocol on the Development of Tourism (1998) establishes tourism as a priority for Southern Africa and sets out SADC's intention to use it as a vehicle for sustainable development. Through promoting balanced progress of the tourism sector that optimizes use of the region's resources.

Climate is a key enabler for tourism, especially for the beach, nature and winter sport tourism segments. Changing climate and weather patterns at tourist destinations and tourist generating countries can significantly affect the tourists' comfort and their travel decisions. Changing demand patterns and tourist flows will have impacts on tourism businesses and on host communities.

In island states of the SADC Region, where tourism is a major economic activity, any significant reduction in tourist arrivals will have serious employment impacts and generate further poverty. The Tourism sector is also one of the sectors that can be used to improve the adaptive capacity of SADC States particularly when other climate dependent sectors such as agriculture

are adversely affected. Tourism planning in the Region therefore needs to take into consideration climate change related stresses in order to make the sector more resilient and adapted to changes in tourist travel decisions.

Strategies

1. Promote regional disaster preparedness mechanisms to minimize risks derived from climate change
2. Stimulate greater competitiveness for SADC as a multi-destination to enhance Member States' adaptive capacity.

Actions

- Determine the sector's level of vulnerability.
- Increase the sector's resilience to climate change.

4.1.9 Mining and other extractive industries

Mining is an industry of strategic importance in Southern Africa. Roughly half of the world's vanadium, platinum, and diamonds originate in the region, along with 36% of gold and 20% of cobalt. These minerals contribute greatly to several SADC Member State's gross national product and employment, and many of them depend on mineral exports for their foreign exchange earnings.

The SADC Protocol on Mining (1997) has come to form the basis for SADC's work programme on mining. This protocol aims to develop the region's mineral resources through international collaboration, in turn improving the living standards of the people engaged with the mining industry. Because mining can be a hazardous undertaking, the Protocol on Mining also requires that Member States observe internationally recognised health and safety and environmental protection standards.

A changing climate and its impacts represent a physical risk to mining operations and installations, to the people and environments attached to those operations in Southern Africa. The physical risks to assets and infrastructure arise from flood or storm damage. Other associated risks include supply chain risks arising from disruption to transport networks and increased competition for climate-sensitive resources such as water and energy.

Investors are starting to compel mining companies to accelerate public disclosure and management of risks associated with climate change impacts on production, processes, health and safety, operations, maintenance, waters and energy. This shift in focus on climate change adaptation in mining operations shows that adaptation in mining sector is not only a social issue but an economically strategic move. An increase in the mainstreaming of climate change issues in mining operations can only help the growth of the mining and extractive industry in the Region.

Strategies

1. Promote resource use efficiency in the mining sector

2. Promote main streaming of climate change into mining operations

Actions

- Conduct regional technology needs assessment for the mining sector
- Develop and implement investment plan Invest in R&D to develop innovations on sustainable use of non-renewable natural resources
- Create awareness on the R&D findings
- Provide incentives for adoption of clean technologies in mining
- Develop a mining adaptation framework.

5. CLIMATE CHANGE MITIGATION– SECTORAL APPROACH

SADC Member States being cognisant of the principle of common but differentiated responsibilities and respective capabilities under the UNFCCC seek to undertake mitigation actions that contribute to the achieving of the ultimate objective of the Convention, that is, to stabilize greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system and to keep temperature increase well below 2°C from pre-industrial levels, based on the review as contemplated in paragraph 4 and 138 of decision 1/CP.16.

The SADC Region recognises that actions to mitigate climate change should be carried out in a manner that promotes sustainable regional economic growth, ensures environmental integrity and foster social equity. Various policy instruments to encourage GHG mitigation are already in place within the region. Key policy instruments include the SADC Treaty; the Regional Indicative Strategic Development Plan, Protocol on Environmental Management for Sustainable Development, the Protocol on Forestry and the decisions from the SADC Extra Ordinary Summit on Poverty and Development (2008), as well as the Regional Green Economy Strategy and Action Plan for Sustainable Development.

The key sectors in mitigation in the region comprise Energy, Land Use, Land Use Change and Forestry, (LULUCF), Agriculture, Industrial Processes, Transport, Waste and Human Settlements. The bulk of the emissions are from the energy sector in particular fossil fuel burning accounting for 71% of the total in 2012; Agriculture accounting for 17%, Industrial Processes accounting for 8% and Waste accounting for 4% as depicted in Figure 3 below.

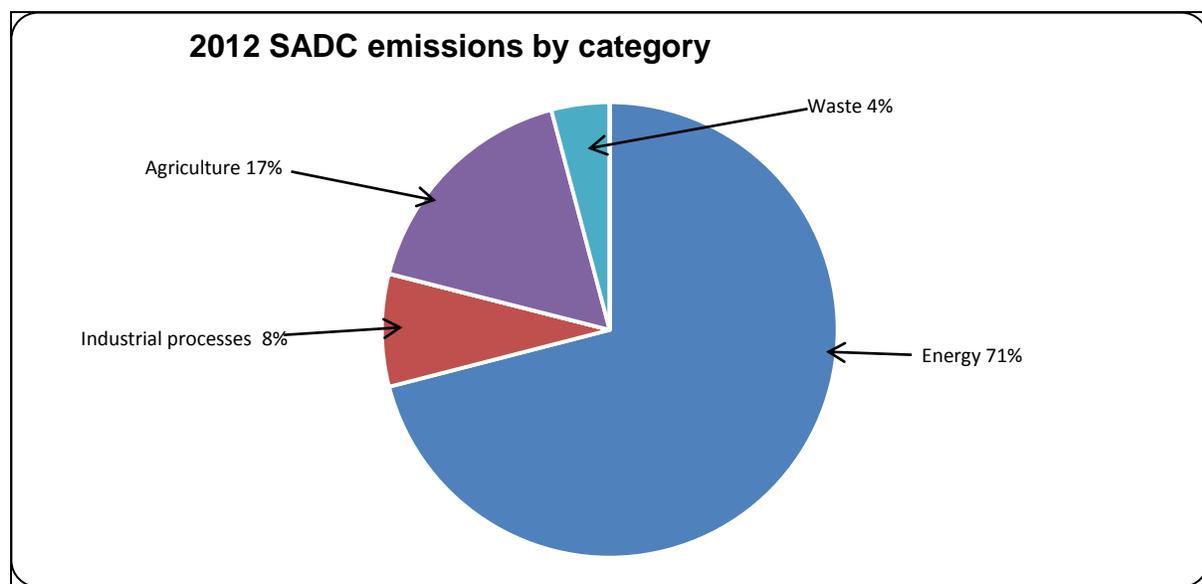


Figure 3: Share (%) by sector of SADC GHG emissions.

The SADC Region, as at 2007, emitted 498 MtCO₂ (average 33.2 MtCO₂) per year and 26.91 tCO₂ per capita (average 1.79 tCO₂) across economic sectors, but far below the global averages in comparison with other regions. The SADC Member States specific emissions are illustrated in Table 2 below shows Total and Per Capita GHG emissions from the SADC Member States.

Table 2: SADC Member States Total and Per Capita GHG Emissions.

Description		Carbon Dioxide Emissions in SADC							
Country	Variable	2000	2001	2002	2003	2004	2005	2006	2007
Angola	CO2	9.54	9.73	12.67	8.63	18.02	19.77	20.69	24.76
	Per Capita	0.67	0.66	0.84	0.55	1.12	1.19	1.21	1.41
Botswana	CO2	4.27	4.33	4.49	4.26	4.39	4.53	4.75	5.00
	Per Capita	2.48	2.48	2.53	2.38	2.42	2.46	2.55	2.64
Democratic Republic of Congo	CO2	1.65	1.57	1.65	1.70	2.21	2.28	2.35	2.44
	Per Capita	0.03	0.03	0.03	0.03	0.04	0.04	0.04	0.04
Lesotho	CO2								
	Per Capita								
Madagascar	CO2	2.45	2.13	1.70	1.92	1.90	2.17	2.02	2.25
	Per Capita	0.16	0.14	0.10	0.12	0.11	0.12	0.11	0.12
Malawi	CO2	1.03	1.03	1.01	1.04	1.07	1.04	1.07	1.06
	Per Capita	0.09	0.08	0.08	0.08	0.08	0.08	0.08	0.07
Mauritius	CO2	2.46	2.60	2.65	2.78	2.80	3.00	3.35	3.45
	Per Capita	2.10	2.20	2.20	2.30	2.30	2.40	2.70	2.70
Mozambique	CO2	1.35	1.58	1.59	1.92	1.93	1.86	2.04	2.60
	Per Capita	0.07	0.08	0.08	0.10	0.10	0.09	0.10	0.12
Namibia	CO2	1.76	2.09	2.21	2.36	2.50	2.66	2.85	3.04
	Per Capita	0.97	1.12	1.17	1.22	1.27	1.32	1.39	1.45
Seychelles	CO2	0.56	0.64	0.54	0.56	0.77	0.70	0.74	0.62
	Per Capita	6.96	7.86	6.62	6.77	9.39	8.43	8.97	7.47
South Africa	CO2	368.61	362.74	347.69	380.86	414.21	408.23	403.73	433.53
	Per Capita	8.21	7.97	7.53	8.13	8.72	8.49	8.30	8.82
Swaziland	CO2	1.19	1.14	1.13	1.04	1.03	1.02	1.02	1.06
	Per Capita	1.10	1.05	1.02	0.94	0.92	0.91	0.89	0.92
United Republic of Tanzania	CO2	2.65	3.13	3.59	3.81	4.35	5.09	5.38	6.04
	Per Capita	0.08	0.09	0.10	0.10	0.11	0.13	0.13	0.15
Zambia	CO2	1.82	1.91	1.97	2.13	2.24	2.37	2.56	2.69
	Per Capita	0.17	0.18	0.18	0.19	0.20	0.20	0.21	0.22
Zimbabwe	CO2	13.90	12.57	11.94	10.64	9.93	10.79	10.36	9.64
	Per Capita	1.12	1.01	0.95	0.85	0.80	0.86	0.83	0.77
Regional Total		413.25	407.20	394.82	423.64	467.36	465.49	462.92	498.17

Despite the low emission levels in the region, SADC Member States in keeping with the spirit of the UNFCCC in mitigation sees scope for mitigation actions in its various sectors. The sectors with the greatest potential for mitigation include the energy and Land Use, Land Use Change and Forestry (LULUCF).

5.1 Sector Mitigation Strategies and Actions

5.1.1 Energy

Recognizing that all Member States need to grow their economies, it is important to take note that their energy demand and consumption will also grow. There is however, the possibility for achieving greater emission reduction through investments in renewable energy, energy conservation and energy efficiency. This makes the energy sector an important target for mitigation response measures.

The SADC energy sector comprises of the following subsectors; electricity, petroleum and gas, coal, wood and charcoal, nuclear energy, renewable energy and energy efficiency. The energy infrastructure development in the SADC region has been guided by the SADC instruments that include the Regional Infrastructure Development Master Plan 2013-2017 (RIDMP) and the Protocol on Energy (1996). The emphasis from these instruments is largely to harmonise national and regional policies and regulatory frameworks, to cooperate in energy development and trading through development of the necessary infrastructure, exploiting the abundant energy resources in the region, and have co-ordinated planning and institutions.

A number of countries in the region are developing or implementing national climate change policies, strategies and action plans. Furthermore, an assessment of the national reports or National Communications to the UNFCCC suggests that a number of countries in the region are already applying a suite of mitigation measures in the energy sector.

Strategies

1. Promote the development and harmonisation of policies and regulatory frameworks for renewable energy, energy conservation and energy efficiency.
2. Promote the development and use of renewable energy.

Actions

- Strengthen energy planning, research and development and regional integration.
- Review regulatory frameworks in Member States to allow greater investments and trade in renewable energy.
- Promote energy efficiency and improve existing energy infrastructure.
- Promote advocacy, communication and information sharing on renewable energy technologies.
- Develop renewable energy map for SADC.
- Promote demand side management policies which seek to improve energy efficiency and conservation.
- Establish regional standards and regulations on energy efficiency.
- Support the implementation of the SADC Regional Energy Sector Plan.

5.1.2 Agriculture

SADC Member States appreciate the importance of Agriculture to economic growth, socio-economic development and poverty reduction, and the attainment of the SADC Common Agenda as articulated in the SADC Treaty of 1992 under Article 5 and further specified in the Report on the Review of Operations of SADC Institutions. The majority of the region's people live in rural areas mainly as smallholder farmers and rely on agriculture for their livelihood, thus the agriculture sector remains a critical employer. SADC is therefore committed to ensuring enhanced contribution to agricultural development and food, nutrition and security by women, youth and other vulnerable groups by guaranteeing them effective access to productive resources, services and social/economic opportunities. In particular, Member States acknowledge that women in agriculture who make up more than 50% of the rural population, play a central role in producing, harvesting, processing, storage and marketing of food.

The agriculture sector has deep interconnectedness with almost every other sector of the economy, hence the central role of agricultural development to the growth of both urban and rural economies including the rural non-farm sector, and the transformation of the largely agrarian population to a more industrialised economy.

Taking into consideration that SADC Member States view food, nutrition and security as a fundamental requirement for human well-being, the region recognises that agriculture is one of the major sectors that contribute to GHG emissions. Emissions from the agricultural sector are mainly from cropping and animal husbandry activities. The region also recognises that there is greater scope for delivering adaptation goals through some mitigation actions in the agricultural sector while reducing vulnerability to climate change.

Strategy

1. Promote sustainable green agricultural practices

Actions

- Promote climate smart agriculture in small, medium large crop and livestock production
- Improve crop and grazing land management systems to increase soil carbon storage.
- Develop regulatory frameworks that promotes the adoption of green technologies in agriculture
- Promote regional research on agricultural technologies or practices that enhance carbon and nitrogen sequestration

5.1.3 Land Use, Land Use Change and Forestry

The SADC Region is home to almost 394 million hectares of forest and forest-like formations which is 41% of the Regions' land area. Globally, the main carbon sinks are the oceans and the forests. The region's forest resources constitute significant carbon sinks, which play a major role in stabilizing the global climate.

Deforestation and land degradation are the two major sources of greenhouse gas emissions under LULUCF. Globally, deforestation is the second largest emitter of carbon emissions, after the consumption of fossil fuels. Of special concern to the Southern African sub-region are GHG emissions from the degradation of forests and removal of other vegetation types.

According to FAO, the annual deforestation rate in the SADC region amounts up to 0,46% per year (2005-2012 period), resulting in high biomass losses and carbon emissions. Although the extent of forest cover change and the drivers of deforestation vary between different countries, forest cover change is mainly driven by agricultural expansion, energy production and logging activities. The table below gives an overview of deforestation rates in some SADC Member States.

Table 1: Total forest area in SADC and deforestation rates and changes in forest area.

	Total Forest Area (x000 ha)	% area of natural forest	change in forest area	
			%	Forested Area (x000 ha)
Botswana	12427		-0.9	-111.843
Lesotho	14			0
Malawi	2562		-2.4	-61.488
Mauritius	16		-0.6	-0.096
Mozambique	30601		-0.2	-61.202
Namibia	8040		-0.9	-72.36
South Africa	8917		-0.1	-8.917
Swaziland	523		1.2	6.276
Tanzania	38811		-0.2	-77.622
Zambia	31246		-2.4	-749.904
Zimbabwe	19040		-1.5	-285.6
SADC	152195	98.5		-1422.76

A reversal of the impacts of deforestation, land disturbance and degradation is required to increase the quantity of stored carbon. Higher values of stored carbon are an indicator of healthy ecosystems. The focus for SADC is to maintain and where possible increase its capacity for carbon sequestration.

Strategies

1. Promote sustainable forest management in order to enhance carbon sequestration capacity
2. Strengthen the cross border management of forest resources.
3. Enhance education and public awareness on the importance of forest eco-systems for mitigation to climate change

Actions

- Reduce the rate of deforestation and forest degradation in line with the SADC Forest Protocol (2002)
- Promote reforestation and afforestation programs in order to offset deforestation associated with land use change
- Promote use and application of renewable energy technology to reduce dependency on wood and charcoal.
- Promote regional veld and forest fire prevention programs
- Promote and simplify the implementation of the SADC Reduction of Emissions from Deforestation and Forest Degradation (REDD+) program
- Conduct education and public awareness programs to enhance understanding and value of forest ecosystems

5.1.4 Industrial Processes

Industrial development is a core component of the SADC regional development and integration agenda as stated in the SADC Industrial Development Policy Framework. Member States recognise that industrial development is key to the growth, diversification of their economies, development of their productive capacities, job and wealth creation.

The sector is dominated by low technology industries, such as food processing, beverages, textiles, clothing, cement, mining and footwear. On average, the sector contributed 13,9% to the region's GDP in 2012, and this contribution is set to increase as prescribed by the Revised RISDP aspirations. In pursuit of this industrial growth, inevitably there will be significant GHG emissions from the associated industrial processes.

The main GHG emissions from industrial processes in the SADC region include; (1) The use of fossil fuels for energy, either directly by industry for heat and power generation or indirectly in the generation of purchased electricity and steam; (2) non-energy uses of fossil fuels in chemical processing and metal smelting; and (3) non-fossil fuel sources, for example cement and lime manufacture. There are various mitigation options which the region can adopt that focus on optimising industrial processes to be more efficient and low carbon activities.

Strategy

1. Promote policies and regulatory frameworks that enhance resource use efficiency and cleaner production in industry

Actions

- Establish regional standards and regulations on cleaner production systems,
- Promote business practices on cleaner production (lower emissions).
- Promote and incentivise development of local small, medium and large scale clean industries
- Establish capacity building programmes on climate change mitigation for the industrial sector.

5.1.5 Waste Sector

Waste management represents a key challenge for environmental sustainability in the SADC region. The expected increase in population and growing production of industrial and agriculture products will inevitably exacerbate current gaps in national waste management systems. There is therefore, scope for regional integration within this sector in order to achieve greater impact in addressing waste management issues.

The largest source of greenhouse gas emissions is landfill methane (CH₄), followed by wastewater (CH₄) and nitrous oxide (N₂O). Minor emissions of carbon dioxide (CO₂) result from incineration of waste containing fossil carbon (C) (plastics; synthetic textiles). There are large uncertainties with respect to direct emissions, indirect emissions and mitigation potentials for the waste sector.

Existing waste-management practices and increased infrastructure for wastewater can provide effective mitigation of GHG emissions from this sector. There is a wide range of environmentally-effective technologies with the potential to mitigate emissions and provide public health, energy generation, conservation of water resources, environmental protection, reduction of untreated discharges to surface water, groundwater, soils and coastal zones and sustainable development co-benefits.

Synergies in implementation of this strategy and that of the SADC Waste Management Strategy, the Protocol on Environmental Management for Sustainable Development, other Environmental Conventions such as the Basel, Stockholm and Bamako will need to be explored if significant reductions of emissions from this sector are to be realised.

Strategy

1. Promote green principles in waste management.

Actions

- Develop policies that encourage investment in alternative energy production using waste products
- Promote waste recycling, reuse and reduction
- Develop an enabling framework to promote waste minimization through education and behavioural change of waste generators and the general public.

5.1.6 Transport

The transport sector is a key enabler for the transition to sustainable development as indicated in the SADC Regional Indicative Sustainable Development Plan (RISDP). One of the objectives indicated in the RISDP is the “development of seamless, integrated, efficient, safe, cost effective and responsive transport systems” (SADC, 2015). Another policy framework relevant in achieving the objective mentioned above is the SADC Protocol on Transport, Communications and Meteorology which aims to ensure that the transport sector remains competitive and sensitive to emerging issues such as climate change (SADC, 1996).

GHG emissions from the transport sector emanate from fuel combustion in vehicles, maritime and air transport. Transport systems in the Region are characterised by air pollution, congestion and energy security (oil import) problems. Solutions, therefore, cannot be focused on GHG emissions alone. Various mitigation options are available in the transport sector most of which relate to a shift in the use of cleaner transport technologies and green fuels.

Strategy

1. Promote the design and implementation of measures to reduce emissions in the transportation sector.

Actions

- Conduct assessment studies for multimodal transport
- Promote green public transport networks and multimodal transport
- Increase access to public transport
- Harmonize regulations on vehicle emissions

5.1.7 Human Settlements and Infrastructure

Over the last decade, urban population has increased in almost all SADC countries. In 2012, 39% of a total population of 257.7 million people were living in urban settlements. Human settlements are associated with high energy consumption, poor waste management systems and inefficient transport networks and high energy consuming buildings. Their growth entails an increase in carbon dioxide emissions from energy consumption.

SADC cities can be turned into an opportunity to redesign the urban space and promote sustainable development in the long term. Investments in green cities have the potential to improve the living conditions of the urban population, and reduce future climate change impacts.

Strategy

1. Promote and harmonize regional standards and guidelines on green buildings

Actions

- Develop and implement green building codes to reduce energy demand

6. MEANS OF IMPLEMENTATION

Means of implementation are critical for the effective operationalization of this strategy and action plan. The major components identified are finance and resource mobilisation, capacity development, technology development and transfer, communication advocacy and awareness, institutional arrangements and governance as well as roles and responsibilities.

6.1 Climate Change Finance and Resource Mobilization

It is acknowledged that within the SADC Region, as in most other developing regions, climate change investment needs are significant as direct government funding is limited, and variable amongst Member States. Financing mechanisms should build upon existing systems that support action on climate change. These systems include feasibility studies, strategic programming, capitalization, partnership management, project approval, policy assurance, financial control and performance measurement. In this regard, the SADC Region needs to take direct and urgent responsibility in mobilizing climate finance to implement climate change programmes in all sectors of the economy. Financing mechanisms should include:

1. Domestic financing including Direct Member States budgetary allocations and private sector based financing
2. Direct Bilateral funding and Development Partners based mechanisms between Member States and specific Development Partner countries and or organisations
3. Multi-lateral funding mechanisms especially The UNFCCC Green Climate Fund (GCF), and other sources of international finance and resources, offers developing countries with opportunities to transition towards low emission and climate-resilient development pathways.
4. International market based instruments including emissions trading systems.

To that end the strategy will:

- Lobby SADC Member States Governments to maximise resources through wide scale domestic financing approaches.
- Promote establishment of a window for Climate Financing within the SADC “*Regional Development Fund (RDF)*” for leveraging and attracting international climate finance.
- Promote accreditation of the SADC Secretariat as a Regional Implementing Entity of the Green Climate Fund (GCF), Global Environment Facility (GEF) and the Adaptation Fund (ADF) e.t.c.
- Continuously lobby for reduction of conditionality’s associated with accessing Climate Change Financing for SADC Member States through SADC Negotiators.
- Promote the establishment of a regionally controlled Emissions Trading System.
- Promote Resource mobilisation capacity at Secretariat and Member States level.

6.2 Capacity Development

For the region to effectively respond to the challenges and opportunities of climate change there is an urgent need to build and strengthen capacities on climate change issues at various levels. This calls for actions that will promote and strength capacity of the SADC Secretariat as well as Member States to implement climate change programmes including:

- Empowering relevant capacity building institutions, regional networks and facilitating sharing of experiences, information and best practices.

- Enhancing communication, education and awareness-raising at all levels in relation to climate change impacts.
- Facilitating the development of tools, methods and technologies in support of adaptation and mitigation.
- Supporting and strengthening participatory and integrated approaches in mainstreaming of climate change impacts into planning and decision making processes.
- Supporting specific capacity building needs of SADC countries to address institutional and technical challenges and constraints at national and local levels.
- Accessing and harnessing effectively international climate change capacity building programmes and initiatives.

6.3 Technology Development and Transfer

The development and transfer of appropriate technology forms an integral part of the SADC's efforts to respond to climate change. It is against this background that Africa and the SADC Region call upon developed countries to commit to the deployment, diffusion and transfer of technologies to developing countries, based on principles of accessibility, affordability, appropriateness and adaptability, as well as to address barriers to technology transfer. Access to technology for the SADC Region will be achieved through:

- Supporting appropriate technology cooperation, active development, transfer and adoption.
- promoting harmonisation of policies for the development and transfer of climate friendly technologies among Member States;
- supporting research and institutional development to foster enhancement of endogenous technologies as well as the development and local manufacture of cleaner mitigation and adaptation technologies;
- establishing and strengthening of regional networks in support of the Climate Technology and Network Centres, such as SASSCAL.
- Collaboration with international technology centres including the Climate Technology Centre Network (CTCN), a UNFCCC institution that promotes the accelerated transfer of environmentally sound technologies for low carbon and climate resilient development
- Addressing technology transfer barriers, including rules of trade tariffs, intellectual property rights and technical trade barriers (standards, eco-labeling).
- Promoting development and transfer of appropriate technologies through economic incentives.

6.4 Communication, Advocacy and Awareness

A well-crafted communication and advocacy plan is essential to the successful implementation of the SADC Climate Change Strategy. The overall goal of the plan will be to link all stakeholders to enable effective understanding of the key issues. It will also facilitate information sharing, enhanced collaboration, attract further support and allow for a feedback on the effectiveness of the strategy. The plan must consider the role of other relevant institutions and stakeholders. For this to be achieved the following actions need to be undertaken:

- Enhance the utilisation of the SADC Climate Change regional media network;

- Facilitate the development of local media networks and systems at national level in the SADC Member States;
- Maximize the advocacy of climate change issues through different communication channels including online social media systems;
- Target specific strong African media institutions to link up with African Negotiators, and to support the negotiations process;
- Produce promotional materials for climate change awareness;
- Integrate climate change in curricula at all levels of learning.
- Promote public education and outreach programs on climate change for citizens, focusing on youths, women, and other vulnerable groups targeting both urban and rural areas;
- Enhance capacity of climate scientists, researchers, science communicators, media specialists and relevant professionals on packaging and disseminating appropriate climate change messages;
- Document and share best practices on climate change responses in SADC countries.

6.6 Institutional Arrangements and Governance

Climate change is a multi-disciplinary and cross-cutting issue. Implementation of the strategy will require close coordination of relevant stakeholders at all levels including international, regional, national and local levels. Coordination of the implementation of the strategy is a function of the SADC Secretariat as guided by the Member States. However, the current capacity and institutional arrangement for the effective implementation and coordination of the strategy at both Secretariat and Member State level is inadequate. Effective implementation of the strategy will require to be improved. In order to achieve this the following actions need to be implemented;

- Establishment and strengthening of National Climate Change Coordinating Committees.
- Strengthening and capacitating the SADC Cross-Sectorial Technical Working Group on Climate Change (CTWG).
- Establishment of a fully-fledged Climate Change coordinating structure at Secretariat level.
- Establish and strengthen National and Regional Climate Change Centres of Excellence.

7. MONITORING, EVALUATION AND REPORTING

A Monitoring and Evaluation (M&E) framework is required to track the performance and impact of implementation of climate change strategy. The monitoring and evaluation framework should include participatory identification of challenges, constraints, success factors as a basis for conclusions, lessons learned and decision on courses of action or change. In order to achieve this, standardized monitoring, evaluation and reporting framework for climate change programmes needs to be established. This should comprise the following elements:

- Harmonizing M&E systems, format and reporting channels.
- Strengthening capacity of SADC Member States in M&E of climate change programmes.
- Develop mechanisms for recognition of excellent performance in climate change response actions.
- Promote replication and up-scaling of M&E best practices.
- Undertake regular reviews of climate change programmes and their impacts on economy and society, and report through the established organs.

The Strategy shall be reviewed on a regular basis based on the outcomes of the monitoring and evaluation processes.

In terms of reporting on the implementation of the strategy, the SADC Secretariat shall compile reports bi-annually based on the outcomes of the Monitoring and Evaluation Framework, with inputs from Member States and information derived from the National Communications and the Biennial Updated Reports to the UNFCCC.

8. SADC CLIMATE CHANGE ACTION PLAN

ADAPTATION ACTION PLAN						
Sector	Strategic Interventions	Actions	Expected Outputs	Responsibility ¹	Time-frame ²	Cost ³ (USD 000)
Agriculture	Promote water supply, conservation and related infrastructure development.	Develop appropriate infrastructure for water use efficiency and water harvesting for both crops and livestock.	Adequate and sustainable water resources infrastructure developed in the region	Trans-boundary water mgmt. (I&S)	Medium term	2000
	Promote the use of adaptive agricultural technologies and techniques and provide incentives for the development of green agri-business.	Build institutional capacity for adaptation to climate change, considering vulnerabilities. Up-scale locally proven Integrated Pest Management (IPM) technologies Promote composting and support the use of compost as a substitute to traditional fertilizers in order to enrich soils. Develop and promote financial mechanisms to manage climate risk in agriculture	Sustainable agriculture practices in the region More climate resilience technology rolled out in the region	Food Security (FANR)	Medium term	600
	Develop a regional framework for agriculture research and	Promote identification, research, development and breeding of crop varieties, cultivars, and mixtures of	Regional agricultural framework on research and	Food Security	Short term	800

¹ The responsibilities have been assigned to Senior Programme Officers/Programme Officers within each of the bracketed () Directorates / Special Units.

² **Short Term:** within 5 years from the approval of the plan; **Medium Term:** between 5 and 10 years from the approval of the plan and **Long Term:** more than 10 years from the approval of the plan.

³ The estimated are for the initial 5 years of implementation.

	development	crops capable of adapting to expected climate change.	development	(FANR)		
		Promote the creation, transfer and dissemination of information on technological and institutional processes for adaptation in agriculture.			Short term	500
	Reduce agricultural (crop and livestock subsectors') vulnerability to climate change and variability, incorporating adaptation measures in relevant regional policies.	Develop and promote the sharing of best practice and lessons learnt to climate resilience of the agriculture sector.	Regional food security improved	Food Security (FANR)	Long term	400
	Promote interventions that improve resilience among vulnerable communities.	<ul style="list-style-type: none"> Identify vulnerability hotspots and promote the strengthening of regional vulnerability mapping. 	<ul style="list-style-type: none"> Communities aware of best practices and resilient to climate change vulnerabilities 	Environment and Sustainable Development (FANR)	On-going	1000
		<ul style="list-style-type: none"> Create awareness programmes on vulnerability factors related to agriculture 	<ul style="list-style-type: none"> Communities aware of vulnerability factors related to Agriculture. 		On-going	400
6.2 Water	Promote the development of water resources infrastructure in order to increase surface storage capacity of the region.	<ul style="list-style-type: none"> Incorporate sea level rise projections into regional planning processes, including adaptation measures in the various sectors 	<ul style="list-style-type: none"> Increased availability of good quality, resilient and sustainable water resources developed in the region 	Science, technology and innovation	Short term	400
		<ul style="list-style-type: none"> Increase number of climate resilient water infrastructure Promote rain water harvesting technologies 			(SHD) and I&S	Short to Medium term

		<ul style="list-style-type: none"> • Enhance integrated catchment management • 				
	Promote water conservation and use efficiency.	<ul style="list-style-type: none"> • Build capacity on Efficient Water Management Practices across key sectors • Reduce indirect and direct water pollution • 	<ul style="list-style-type: none"> • Reduced water losses and enhanced water balance • Enhanced water quality 	Trans-boundary water mgmt. (I&S)	Short term	400
	Preserve and upgrade monitoring, data analysis, research and management of information	<ul style="list-style-type: none"> • Prioritize capacity development for water data analysis and water balance and a better understanding of current and future climate change. • Improve capacity for water data collection and management • Up scaling research and development for preservation of water 	<ul style="list-style-type: none"> • Improved capacity for water resource management and monitoring 	Information (I&S)	Medium term ⁴	600
	Enhance the regional capacity in disaster risk reduction and management.	<ul style="list-style-type: none"> • Strengthen river basin organisations to integrate climate change strategy in their programs. • Integrate climate change consideration in coastal zone management • Strengthen the early warning systems 	<ul style="list-style-type: none"> • Reduced population at risk from climate change related disasters 	Regional Early Warning (ORGAN)	Short term	400
6.3 Biodiversity (terrestrial)	Promote scientific and indigenous knowledge on the vulnerability of biodiversity to	<ul style="list-style-type: none"> • Establish a regional biodiversity inventory system (measurements, assessments, and mapping in 	<ul style="list-style-type: none"> • Enhanced adaptive capacity and resilience of terrestrial and aqua marine 	Natural Resource /	Short term	450

⁴ We recognise that it has to be a long term process since there is a stagnation on hydrological measurements

and aqua marine)	climate change.	general) <ul style="list-style-type: none"> Capacity building initiatives on sustainable utilization and management of biodiversity at different levels particularly on communities 	ecosystems <ul style="list-style-type: none"> Improved biodiversity resources management 	Wildlife (FANR)		
	Promote Sustainable Forest Management practices in order to reduce deforestation and forest degradation.	<ul style="list-style-type: none"> Provide incentives for communal forest management, including reforestation and afforestation. Create awareness on the importance of biodiversity goods and services Promote diversification of alternative livelihood to reduce pressure on biodiversity 	<ul style="list-style-type: none"> More forest land restored and conserved as well as indigenous fauna Stable forest and coastal zone eco-systems 			Medium term
	Promote Society recognition of forest and marine eco-systems adaptation to climate change	<ul style="list-style-type: none"> Support carbon credit mechanisms and fiscal incentives for the establishment of community-REDD+. Establish policies and legal frameworks that facilitate the increase in protected areas (as the target set by UNCBD) 	<ul style="list-style-type: none"> Projects on REDD+ Increased incentives to communities Sustainable forest management An increase in protected areas with sustainable and equitable access of biological resources 	Gender (ES)	Medium term	300
		<ul style="list-style-type: none"> Establish regional institutions to support research and development Create awareness that makes society recognize the value of available eco systems and biodiversity 	<ul style="list-style-type: none"> More research programmes roll out within the region 	Environment and Sustainable Development (FANR)	Medium term	600
6.4 Fisheries	•Promote sustainable utilization of fisheries (marine and aquaculture) resources	<ul style="list-style-type: none"> Enhance capacity building in coastal and main land communities on sustainable utilization of resources to reduce climate change vulnerability. 	<ul style="list-style-type: none"> Improved management and reduced demand on fisheries resources 	FANR	Short term	300

	Reduce vulnerability of fisheries to climate change and variability	<ul style="list-style-type: none"> • Improve knowledge about the effects of climate change and variability on eco-systems and coastal/marine resources. 	<ul style="list-style-type: none"> • Increased resilience for the fisheries sector 	Food Security (FANR)	Medium term	200
	Promote improved data collection and information sharing	<ul style="list-style-type: none"> • Develop an effective monitoring and evaluation, control and surveillance (MCS) system for marine fisheries. 	<ul style="list-style-type: none"> • Improved data collection and information sharing within the region 	Monitoring and Evaluation (FANR)	Long term	400
		<ul style="list-style-type: none"> • Conduct awareness raising events to share relevant information on existing laws, fish stocks, climate change threats to marine resources and ecosystems, adaptive techniques and others. 	<ul style="list-style-type: none"> • Improved awareness on impacts of climate change on marine resources 	Public Relations (ES)	Short term	500
6.5.Human health	Promotion of preventive healthcare to reduce vulnerability to climate change and variability in the public health sector.	<ul style="list-style-type: none"> • Build technical capacity in national, regional and professional training institutions to reduce risk to diseases transmitted by vectors, infectious diseases and others exacerbated by climate change. • Organize public awareness and educational programmes through curriculum development and public media • Build capacity in public health institutions for rapid response to climate change related epidemics 	<ul style="list-style-type: none"> • Reduced disease incidents and number of deaths due to climate change related diseases / health conditions. 	Health and Pharmaceuticals (SHD & SP)	Medium term	500
		<ul style="list-style-type: none"> • Review regional population and development plans considering the current and projected impacts of climate change on the health sector. 	<ul style="list-style-type: none"> • Climate change issues mainstreamed in all planning processes in the health sector 	SHD & SP	Long term	400

6.6.Human security	Promote harmonization of regional immigration policies to reduce vulnerability to extreme climate events	<ul style="list-style-type: none"> Develop regional guidelines for emergency evacuation plans resulting from climate change extreme events. 	<ul style="list-style-type: none"> Harmonised Regional Emergency Evacuation plans 	Regional Early Warning (ORGAN)	Short term	300
	Strengthen traditional systems focused on practices for adaptation to climate change	<ul style="list-style-type: none"> Promote and strengthen traditional knowledge (TK) systems for climate change adaptation 	<ul style="list-style-type: none"> More TK based adaptation intervention 	Environment and Sustainable Development (FANR)	Short term	200
6.7.Human settlements and Infrastructure	•Enhance and sustain ecosystems in the built environment	<ul style="list-style-type: none"> Improve knowledge about the effects of climate change and variability on sustainable management of ecosystems and coastal/marine resources. 	<ul style="list-style-type: none"> Enhanced and sustained ecosystems in the built environment 			Short term
	Strengthen capacity in disaster risk reduction (DRR)	<ul style="list-style-type: none"> Integrate scientific research results in policies on comprehensive coastal/marine/mainland area management. Develop early warning system and emergency response measures 	<ul style="list-style-type: none"> Enhanced DRR plans 	Regional Early Warning (ORGAN) MS	Medium term	230
		<ul style="list-style-type: none"> Increase institutional and human capacity in the region to better understand climate and climatic threats. 	<ul style="list-style-type: none"> Enhanced understanding of climate change 		Short term	200
	Promote climate proofing and strategic public infrastructure for social and economic development	<ul style="list-style-type: none"> Strengthen capacity building in coastal communities to reduce climate change vulnerability. 	<ul style="list-style-type: none"> Strengthened capacity on climate proofing of infrastructure 		Regional Early Warning (ORGAN)	Short term
<ul style="list-style-type: none"> Increase public and private knowledge regionally on climate proofing public infrastructure in the 		Environment and Sustainable Development			Medium term	300

		context of climate change.		(FANR)		
6.8.Tourism	Promote tourism regional disaster preparedness mechanisms to minimize risks derived from climate change	<ul style="list-style-type: none"> Determine the sector's level of vulnerability. 	<ul style="list-style-type: none"> Increased resilience of the tourism sector to climate change 	I&S Member States	Short term	150
		<ul style="list-style-type: none"> Increase the sector's resilience to climate change. 			Medium term	250
	Stimulate greater competitiveness for SADC as a multi-destination to enhance Member States 'adaptive capacity.	<ul style="list-style-type: none"> Institutional capacity building at those responsible for strategic implementation 	<ul style="list-style-type: none"> Increased competitiveness of the tourism industry in the region 	Trade (TIFI) Member States	Short term	200
6.9 Mining and other extractive industries	Promote resource use efficiency in the mining sector	<ul style="list-style-type: none"> Conduct regional technology needs assessment for the mining sector Develop and implement investment plan 	<ul style="list-style-type: none"> More climate change resilient green technologies rolled out in the region Enhanced climate resilience in the mining sector 	FANR, and CTCN Member States	Medium term	250
	Promote main streaming of climate change into mining operations	<ul style="list-style-type: none"> Invest in R&D to develop innovations on sustainable use of non-renewable natural resources Create awareness on the R&D findings Provide incentives for adoption of clean technologies in mining 	<ul style="list-style-type: none"> Increased resource efficiency in the sector 	FANR, and CTCN Member States	Medium term	250
		Develop a mining adaptation framework.	<ul style="list-style-type: none"> Regional Mining Adaptation Framework 	Member States	Medium term	250
TOTAL ESTIMATED COST FOR ADAPTATION						14 960

MITIGATION ACTION PLAN

Energy	Promote the development of policies and regulatory frameworks, for renewable energy, energy conservation and energy efficiency.	Strengthen energy planning, research and development and regional integration	Regional plans, Research papers	Energy (I&S) Member States	Short term	3000
		Review regulatory frameworks in Member States to allow greater investments and trade in renewable energy,	Revised energy frameworks supporting renewable energy			
		Promote energy efficiency and improve existing energy infrastructure	Energy efficiency and improvement projects			
		Promote advocacy, communication and information sharing on renewable energy technologies	Advocacy and communication campaigns			
		Develop renewable energy map for SADC	Regional renewable energy map			
		Promote demand side management policies which seek to improve energy efficiency and conservation	Green energy policies			
		Establish regional standards and regulations on energy efficiency,	Regional energy standards and regulations			
		Support the implementation of the SADC Regional Energy Sector Plan.	Implementation of the SADC Regional Energy Sector Plan			

Land Use, Land Use Change and Forestry (LULUCF)	Promote sustainable forest management in order to enhance carbon sequestration capacity of the region	Reduce the rate of deforestation and forest degradation in line with the SADC Forest Protocol (2002)	Improved or maintained forest cover	Natural Resources Management (FANR) Member States	Short term	2000
		Promote reforestation and afforestation programs in order to offset deforestation associated with land use change	Reforestation and afforestation programs			
		Promote use and application of renewable energy technology to reduce dependency on wood and charcoal.	Pilot projects in use of renewable energy technology			
		Promote regional veld and forest fire prevention programs	Implementation of regional veld and forest fire prevention programs			
	Strengthen the cross border management of forest resources.	Promote and simplify the implementation of the SADC Reduction of Emissions from Deforestation and Forest Degradation (REDD+) program	REDD+ programs			
	Enhance education and public awareness on the importance of forest eco-systems for mitigation to climate change	Conduct education and public awareness programs to enhance understanding and value of forest ecosystems	education and public awareness programs			
Agriculture	Promote sustainable green agricultural practices	Promote climate smart agriculture in small, medium and large crop and livestock production	Climate smart agriculture programs and projects	Environme	Medium term	2 500

		Improve crop and grazing land management systems to increase soil carbon storage	Land management programs	nt and Sustainable Development. (FANR) Member States		
		Develop regulatory frameworks that promotes the adoption of green technologies in agriculture	Green technologies frameworks			
		Promote regional research on agricultural technologies or practices that enhance carbon and nitrogen sequestration	Research papers			
Industrial Processes	Promote policies and regulatory frameworks that enhance resource use efficiency and cleaner production in industry	Establish regional standards and regulations on cleaner production systems,	Regional standards and regulations	Environment and Sustainable Development (FANR)	Medium term	1 500
		Promote business practices on cleaner production (lower emissions).	Best practices disseminated			
		Promote and incentivize development of local small, medium and large scale clean industries	Incentives in place			
		Establish capacity building programs on climate change mitigation for the industrial sector.	Capacity building programs			
Waste	Promote green principles in waste management.	Develop policies that encourage investment in alternative energy production using waste products.	Policies on alternative energy based on waste	Environment and Sustainable Development (FANR)	Short term	1 000
		Promote waste recycling, reuse and reduction (3Rs)	Programs and Projects on the 3Rs			

		Develop an enabling framework to promote waste minimization through education and behavioral change of waste generators and the general public.	Waste minimization frameworks			
Transport	Promote the design and implementation of measures to reduce emissions in the transportation sector.	Conduct assessment studies for multimodal transport	Studies on multimodal transport	Transport (I&S)	Long term	2 000
		Promote green public transport networks and multimodal transport	Green public transport networks			
		Increase access to public transport	Improved public transport systems			
		Harmonize regulations on vehicle emissions	Harmonized regulations			
Human settlements and Infrastructure	Promote and harmonize regional standards and guidelines on green buildings	Implement green building codes to reduce energy demand	Green building codes being implemented	Environment and Sustainable Development (FANR) TIFI I&S Member States	Long term	1 000
TOTAL ESTIMATED COST FOR MITIGATION						13 000

MEANS OF IMPLEMENTATION					
Strategic Intervention	Actions	Expected Outputs	Responsibility	Time-frame	Cost
Climate Change Finance and Resource Mobilization	Improving access to financing through rationalizing the ever-growing number of funds;	<ul style="list-style-type: none"> • Amount of funds mobilised • Number projects supported • Number of funding sources 	• Secretariat and Member States	• Medium term	200
	Harmonizing the governance of the funds;	• Consolidated fund (SADC Development Fund)	Secretariat and Member States	• Long term	500
	Lobby for reduction of conditionalities for access to international funds;	<ul style="list-style-type: none"> • Reduction in the number of conditionalities • Number of meetings with development partners 	Secretariat and Member States	• Medium to long term	100
	Streamlining bureaucratic procedures	• Reduction of the number of bureaucratic steps and processes	Secretariat and Member States	• Medium term	100
	Resource efficiency	• Reduced transaction costs	Secretariat and Member States	• Medium term	200
	Build capacity of the SADC Secretariat, Member States and other stakeholders on how to access resources from various climate financing facilities	• Number of proposals developed	Secretariat and Member States	• Medium to Long term	100
Capacity Development	Access and harness international climate change capacity building programmes and initiatives	• Number of capacity building programmes on access to international financing	Secretariat and Member States	• Short to long term	600

Empower relevant capacity building institutions, regional networks and facilitating sharing of experiences, information and best practices.	<ul style="list-style-type: none"> • Number of institutions strengthened 	Secretariat and Member States	<ul style="list-style-type: none"> • Short and medium term 	800
Enhance communication, education and awareness-raising at all levels in relation to climate change impacts.	<ul style="list-style-type: none"> • Number of awareness programmes on climate change • Number of institutions involved in communication, education and awareness raising eg NGOs, media houses etc 	Secretariat and Member States	<ul style="list-style-type: none"> • Short to medium term 	450
Facilitate the development of tools, methods and technologies in support of adaptation and mitigation.	<ul style="list-style-type: none"> • Number of tools and instruments developed to support climate adaptation 	Secretariat and Member States	<ul style="list-style-type: none"> • Medium to Long term 	200
Strengthen regional institutional readiness to participate in REDD+ Loss and Damage and other mechanisms	<ul style="list-style-type: none"> • Number of institutions trained on REDD+ readiness 	Secretariat and Member States	<ul style="list-style-type: none"> • Short to medium term 	350
Support and strengthen participatory and integrated approaches in mainstreaming of climate change impacts into planning and decision making processes	<ul style="list-style-type: none"> ▪ Number of approaches developed • Number of institutions mainstreaming climate change 	Secretariat and Member States	<ul style="list-style-type: none"> ▪ short to Long term 	300
Support specific capacity building needs of SADC countries to address institutional and technical challenges and constraints at national and local levels.	<ul style="list-style-type: none"> ▪ Needs assessment done in Member States 	Secretariat and Member States	<ul style="list-style-type: none"> ▪ Short to medium term 	120

Technology Development and Transfer	Support technology cooperation, transfer and adoption of appropriate technology	<ul style="list-style-type: none"> • Number of climate change technologies adopted 	Secretariat and Member States	<ul style="list-style-type: none"> • Short to medium term 	1200
	Promote harmonisation of policies for the development and transfer of climate friendly technologies among Member States;	<ul style="list-style-type: none"> • Number of policies reviewed and developed 	Secretariat and Member States	<ul style="list-style-type: none"> • Short to medium term 	240
	Support research and institutional development to foster enhancement of endogenous technologies as well as the development and local manufacture of cleaner mitigation and adaptation technologies;	<ul style="list-style-type: none"> • Number of cleaner technologies developed • Number of institutions supported 	Secretariat and Member States	<ul style="list-style-type: none"> • Medium to long term 	1400
	Establish sub-regional networks in support of the Climate Technology Network Centres and facilitate collaboration with international technology centres including the Climate Technology Centre Network (CTCN)	<ul style="list-style-type: none"> • Number of institutions being collaborated with. • Number of networks established 	Secretariat and Member States	<ul style="list-style-type: none"> • Short to medium term 	80
	Address technology transfer barriers, including rules of trade tariffs, intellectual property rights and technical trade barriers (standards, eco-	<ul style="list-style-type: none"> • Number of negotiations undertaken on technology barriers 	Secretariat and Member States	<ul style="list-style-type: none"> • Short to medium term 	200

	labeling).				
Communication, Advocacy and Awareness	Enhance the utilisation of the SADC Climate Change regional media network;	<ul style="list-style-type: none"> • Number of articles on climate change • Number of campaign meetings 	Secretariat and Member States	• Short term	140
	Maximize the advocacy of climate change issues through different online social communication media;	<ul style="list-style-type: none"> • Number of online social media programmes used 	Secretariat and Member States	• Short to medium term	120
	Target specific strong African media institutions to link up with African Negotiators, and to support on the process;	<ul style="list-style-type: none"> • Number of institutions reached 	Secretariat and Member States	• Short to medium term	400
	Produce and disseminate promotional items in the area of climate change strategy;	Number of materials produced and disseminated	Secretariat and Member States	Short to medium term	120
	Integrate climate change in curricula at all levels of learning.	<ul style="list-style-type: none"> ▪ Number of curricula reviews conducted 	Secretariat and Member States	▪ Short to medium term	120
	Public education and outreach programs on climate change communication for citizens, focusing on youths, women, and other vulnerable groups	<ul style="list-style-type: none"> ▪ Number of public programmes undertaken 	Secretariat and Member States	▪ Short to medium term	2000
	Enhance capacity of climate scientists, researchers, science communicators, media specialists and relevant professionals on packaging and disseminating appropriate climate change messages	Number of scientist trained in various institutions	Secretariat and Member States	Medium to long term	400
	Document and sharing best practices on climate change	Number of best practices documented and	Secretariat and	Medium term	200

	responses in SADC countries	shared	Member States		
Institutional Arrangements.	• Increase SADC Secretariat' capacity to coordinate climate change	Number of staff at Secretariat dealing with climate change	Secretariat and Member States	Short term	120
	• Facilitate capacity building for those responsible for coordinating climate change at the national level	Number of policy level people trained	Secretariat and Member States	medium term	100
	• Support institutionalisation of national climate change multi-stakeholder institutions	Number of countries with national multi-stakeholder committees	Secretariat and Member States	Medium term	200
Monitoring and Evaluation and Reporting	Standardized M&E tools, methods and indicators for climate change programmes.	Guidelines for M&E	Secretariat and Member States	medium term	300
	Harmonized M&E reporting channels and formats.	A harmonised reporting format	Secretariat and Member States	short term	300
	Strengthened capacity of SADC Member States in M&E of climate change programmes and using the M&E tool for accountability and transparency in implementation.	Number of M&E personnel and M&E Framework	Secretariat and Member States	Medium to long term	500
TOTAL ESTIMATED COST FOR MEANS OF IMPLEMENTATION					12 160

ANNEX 1: MAIN REGIONAL POLICIES, STRATEGIES AND PROTOCOLS IN KEY SECTORS

Sector	Policy/Strategy/Protocol	Date	Description
<i>Agriculture</i>	<i>Regional Agricultural Policy</i>	2013	The policy specific objectives are: (1) Enhance sustainable agricultural production, productivity and competitiveness; (2) Improve regional and international trade and access to markets of agricultural products; (3) Improve private and public sector engagement and investment in the agricultural value-chains; and (4) Reduce social and economic vulnerability of the region's population in the context of food and nutrition security and the changing economic and climatic environment. The policy was approved by Ministers of Agriculture and Food Security in 2014 and endorsed by the SADC Council of Ministers and the SADC Summit in August 2014. Issues of sustainable development and climate change are prioritized in the policy
<i>Cross-Sectoral</i>	<i>Regional Indicative Strategic Development Plan</i>	2003	The RISDP (2003), which is a 15-year strategic roadmap, provides the strategic direction for achieving SADC's long-term social and economic goals. A Desk Assessment was conducted in 2011 with aim to evaluate progress made under the RISDP Implementation Framework 2005-2010. Key results of the assessment: for Food, Agriculture and Natural Resources (FANR), 64% of the outputs targets been fully achieved, 28% partially achieved and 8% have not been achieved; for Social and Human Development and Special Programmes (SHD&SP), 38% of the outputs have been fully achieved, 46% partially achieved and 15% not achieved.
<i>Cross-sectoral</i>	<i>SADC Regional Infrastructure Development Master Plan</i>	2012	The Plan builds on the SADC Infrastructure Vision 2027, and it is focused on 6 key sectors: Energy, Tourism, Transport, ICT, Meteorology, and Water. For each of these sectors, a Sector Plan was developed. In each of these key sectors, reference is made to environmental sustainability (e.g. renewable energy deployment, EIAs). However, investment in green infrastructure is not prioritized nor mainstreamed.
<i>Cross-sectoral</i>	<i>Programme on Climate Change Adaptation and Mitigation in the Eastern and Southern Africa (COMESA-EAC-SADC) Region</i>	2011	It is a five-year initiative that aims to address climate change issues in the region through concrete actions, including support to Conservation Agriculture and capacity building of researchers and policymakers on climate change mitigation and adaptation technologies and strategies.
<i>Energy</i>	<i>SADC Protocol on Energy</i>	1996 (entered into force in 1997)	"New and renewable energy sources" and "energy efficiency" are two subsectors addressed by the Protocol.
<i>Energy</i>	<i>SADC Energy Cooperation Policy and Strategy</i>	1996	
<i>Energy</i>	<i>Regional Energy Access Strategy and Action Plan (REASAP)</i>	2010	The strategy aims to harness regional energy resources to ensure, through national and regional action, that all the people of the SADC region have access to adequate, reliable, least- cost, and environmentally sustainable energy services.
<i>Energy</i>	<i>Regional Energy Access</i>	2010	The goals of the SADC Energy Access Strategy are: (1) at the strategic level, to

	<i>Policy and Action Plan</i>		harness regional energy resources to ensure, through national and regional action, that all the people of the SADC Region have access to adequate, reliable, least cost, environmentally sustainable energy services, and (2) at the operational level, that the proportion of people without such access is halved within 10 years for each end use and halved again in successive 5 year periods until there is universal access for all end uses.
<i>Environment</i>	<i>Protocol on Environment for Sustainable Development</i>	2017	The main objectives of this Protocol are to; enhance the protection of the environment in order to contribute to human health, wellbeing and poverty alleviation; promote equitable and sustainable utilisation of natural and cultural resources and the protection of the environment for the benefit of the present and future generations; promote the shared management of trans-boundary environment and natural resources; and promote effective management and response to impacts of climate change and variability
<i>Fisheries</i>	<i>Protocol on Fisheries</i>	2001 (entered into force in 2003)	One of the main objectives of the Protocol is to prevent the overexploitation of fishery resources in southern Africa. Countries agree to harmonize laws, strengthen cooperation and law enforcement mechanisms to manage fish stocks sustainably.
<i>Forestry</i>	<i>Protocol on Forestry</i>	2002	The Protocol aims to promote the development, conservation, sustainable management and utilization of all types of forest and trees; trade in forest products and achieve effective protection of the environment, and safeguard the interests of both the present and future generations.
<i>Industry</i>	<i>SADC Industrial Development Policy Framework</i>	2013	This Policy Framework aims to accelerate the development of regional industrial sector through the diversification of national economies; development of productive capacity; and the creation of employment in order to reduce poverty and set SADC economies on a more sustainable growth path.
<i>Tourism</i>	<i>Protocol on the Development of Tourism</i>	1998 (entered into force in 2002)	A key objective of the protocol is to use tourism as a vehicle for sustainable development in the SADC region, including by optimizing resource use and increasing the competitiveness of the tourism sector in an environmentally sustainable manner.
<i>Transport</i>	<i>Protocol on Transport, Communications and Meteorology</i>	1996 (entered into force in 1998)	Central importance is given to infrastructure development and safety. However, reference is made to the need for limiting the environmental impacts of transport.
<i>Water</i>	<i>SADC Regional Water Strategy</i>	2006	The Regional Water Strategy recognizes the central importance of water for the transition towards sustainable development. An entire chapter is dedicated to "Water and Environmental Sustainability", including specific strategies on environmental water requirements, EIAs, as well as the harmonization of standards for minimum water quality. Another chapter covers the issue of resilience to natural disasters.

<i>Water</i>	<i>Revised Protocol on Shared Watercourse Systems</i>	2000 (entered into force in 2003)	The objective of the Protocol is to “foster closer cooperation for judicious, sustainable and co-ordinated management, protection and utilisation of shared watercourses and advance the SADC agenda of regional integration and poverty alleviation”. The Protocol requires State Parties to “maintain a proper balance between resource development for a higher standard of living for their people and conservation and enhancement of the environment to promote sustainable development”.
<i>Water</i>	<i>Southern African Vision for Water, Life and the Environment in the 21st century</i>	2000	The broad vision for the water sector is: “Equitable and sustainable utilization of water for social, environmental justice, and economic benefit for present and future generations”.