CHAPTER 10

Gender, climate change and sustainable development

Article 31

Women in Bizana, South Africa, have been making Wonderbags to use for cooking. These environmentally-friendly, non-electric heat-retention cookers use less fuel and water, which minimises deforestation. *Photo: GenderCCSA*

own **less** than **10%** of the **land** they manage

KEY POINTS

- Environmental management in the region, land degradation, deforestation, loss of biodiversity, pollution, inadequate access to clean water and sanitation services, and poor urban conditions continue to threaten sustainable development.
- Women can be powerful agents for change in the transition to, and promotion of, sustainable energy.
- Women own less than 10% of the land but they are key managers of the environment.
- Women in the SADC region withstand the worst of natural disasters and climate change yet are not meaningfully engaged in climate justice initiatives.
- Women and girls constitute the majority of those impacted by the effects of climate change and environmental degradation, yet they remain less likely to have access to environmental resources.
- To help mitigate the impact of climate change, women farmers in the Southern Africa Development Community (SADC) region need equal access to environmentally and socially sustainable agricultural inputs, markets, and climate-resilient farming technologies and climate information.
- Many lawmakers have still not mainstreamed gender in SADC sustainable development strategies.

25% of **decision-makers** in climate change bodies

Table 10.1: Trends in Climate change and sustainable development trends since 2012*

	Baseline 2012	Progress 2018	Variance (Progress minus 2030 target)
REPRESENTATION			
50% women in decision-making bodies that address climate change	24%	25% (highest Zimbabwe at 50%, lowest Botswana, DRC and Tanzania at 0%)	-25%
50% women sources on gender and climate change	27%	27% (highest 55% in Seychelles, lowest 7% in Botswana)	-23%
All women in 15 SADC countries have access to electricity	2 countries (Mauritius and Seychelles)	2 countries have hit 100% (Mauritius and Seychelles), followed by eSwatini (97%), South Africa (95%), Botswana (89%), Zimbabwe (62%) and Namibia (62%)	-13 countries
POLICY AND PROGRAMMES			
15 countries have evidence of gender-sensitive climate change policies/strategies linked to the Monitoring, Evaluation and Reporting Framework (MERF)	10 countries (mainly referenced in gender policies)	10 countries (mainly referenced in gender policies)	-5 (data not clear for Angola, DRC, Malawi, eSwatini and Seychelles)
All 15 countries ratify the global climate change treaty (Paris Agreement)	13 countries (Angola, Botswana, DRC, Lesotho, Madagascar, Mauritius, Mozambique, Namibia, Seychelles, South Africa, eSwatini, Zambia and Zimbabwe)	14 countries (Malawi ratified the Paris Agreement in 2017, joining the original 13)	-1 country (Tanzania)
15 countries have existence of gender-sensitive climate change adaptation and mitigation measures (MERF)	Not measured this period	Sporadic evidence	-15 countries
15 countries design gender-responsive capacity building, education and training on environmental management and climate change for sustainable development initiatives	None - capacity building is mostly gender blind	None - this is not systematic and civil society mainly does it	-15 countries
15 countries have inclusive and partici-patory consultations of all stakeholders including women and men in all environmental management, and climate change for sustainable development programmes and initiatives	1 country (Lesotho at 50% women in decision-making)	One country (Zimbabwe has 50% women in climate change decision-making)	-14 countries (Angola, Botswana, DRC, Lesotho, Madagascar, Malawi, Mauritius, Mozambique, Namibia, Seychelles, South Africa, eSwatini, Tanzania, Zambia)
15 countries shall undertake gender analysis and gender mainstreaming of all environmental management, climate change and sustainable development policies, programmes, projects and budgets - from research programmes to mitigation measures and adaptation plans	None - sporadic, no comprehensive analysis	None - sporadic, no comprehensive analysis	-15 countries
15 countries develop gender-sensitive indicators for environmental management for sustainable development		The data available is ad-hoc and cannot be used for comparative purposes	-15 countries; the MERF for the SADC Gender Protocol should include this
Fifteen countries collect and publish gender-disaggregated data on environmental management, climate change and sustainable development, impacts, mitigation and adaptation at every level to guide appropriate planning and programming.	None.	None - data not usually disaggregated.	-15 gender disaggregated data is mainly available only on land ownership.
Fifteen countries ensure sustainable food production systems and implement resilient agricultural practices that increase productivity and production, that help maintain eco-systems, that strengthen capacity for adaptation to climate change, extreme weather, drought, flooding and other disasters and that progressively improve land and soil quality.	None.	No concrete evidence of sustainable food production and resilient agriculture.	-15 countries (some countries such as Botswana, South Africa and Zimbabwe have improved sustainable food production and Zambia has experienced high growth rates in agricultural production).

Source: Gender Links, 2018.

* The Barometer started tracking climate change in 2012.

The updated Protocol on Gender and Development's gender and climate change provisions help close the gender equality gap around climate change. Article 31, 1a, urging states to develop policies, strategies and programmes to address the gender issues in climate change in accordance with the SADC Protocol on Environment and Sustainable Development, will crucially ensure that governments integrate gender into their climate change initiatives.

Governments have often not been keen to hire gender experts when they formulate policies that inform their strategies and programmes in this area. Gender has typically been an afterthought, which makes it difficult to address at a later stage of policy and programme implementation. Legislators have also often seen environmental management and climate change mitigation as a man's job, yet women throughout the region have more and different interactions with the environment due to their multiple roles.

The revised Protocol, which stakeholders amended in 2016, provides for the empowerment of women, elimination of discrimination, and the promotion of gender equality and equity through gender-responsive legislation, policies, programmes and projects.

Table 10.1 shows empirical progress in this sector as well as progress in tracking indicators, including those linked to the SADC Protocol on Environment and Sustainable Development. It highlights advancements over the past year, noting that Malawi ratified the Paris climate treaty in 2017. Additionally, while Tanzania has not formally ratified, its parliament endorsed a plan to ratify in April 2018. There is still a lot of work needed to encourage gender analyses and ensure countries use gender-disaggregated data. Even though many SADC countries have climate change policies and strategies, they do not yet integrate gender.

Climate change poses a challenge for the SADC countries as they work to achieve the SDGs and implement the Protocol on Environment and Sustainable Development. The impacts of climate change and environmental issues, such as floods, deforestation, air pollution, natural disasters, persistent drought, sea-level rise, coastal erosion and ocean acidification continue to disproportionately affect women and girls.

Access to clean energy sources has focused on electrification. However, households within the SADC region have increasingly acquired solar energy. Yet high prices for solar equipment prevent many women from accessing this energy source. Most SADC countries have not achieved universal electricity and clean water supply. This adds to the burdens that women face in their multiple roles.[1]

Women smallholder farmers showcasing their gardending project at Nwajaheni primary school in Nwamitwa village in Tzaneen, South Africa. *Photo: Gender CCSA*

Background

The impacts of climate change strongly affect the SADC region. Extreme weather events, such as droughts and floods, pose an increasing threat to the population and, according to climate scena-rios, their frequency and intensity will continue to increase. Along with the projected reduction in rainfall and increase in temper-atures across large parts of the region, experts expect climate change will significantly affect productivity in the agricultural sector.[2] In SADC, 77% of the population rely on this sector for income and employment. Climate change therefore presents a serious threat to food security and livelihoods, particularly among poor segments of the population in rural areas.

Climate change **strongly** affects the SADC region

[1] Annual Development Effectiveness review (2015) Level 1 Development in Africa, available at https://www.afdb.org/fileadmin/uploads/afdb/Documents/Development_Effectiveness_Review_2015/ADER_2015__En__-_Level_1.pdf
[2] https://www.giz.de/en/worldwide/53743.html

Only **26%** of **DRC** people have access to potable water

The projected changes in the earth's climate have severe social and economic implications. It is important to underscore that vulnerability to climate change is not only related to environmental forces, but also to social conditions. Due to their low capacity to adapt, the poor are often the most vulnerable group. Women, making up a disproportionate share of the poor, are therefore among the most vulnerable groups.

In many parts of the SADC region, climate change threatens decades of efforts aimed at improving women's lives and livelihoods.[3] Unfortunately, women in rural areas lack knowledge about the imminent dangers it poses. The frequency and severity of climate extremes often leaves women unable to cope because they often balance their reproductive and productive roles. Women rely on natural resources for their livelihood; climate change threatens these. Some of the factors that influence the higher vulnerability of women to disasters include lack of means and assets to ensure their own safety in situations of flooding, landslides and storms. With changes in the climate, traditional food sources become more unpredictable and scarce. This exposes women to loss of harvests, often their sole sources of food and income.

Women in SADC have already been affected by some of these challenges in various ways.

In **Angola**, metrological data suggests that its coastline has shown an increased variability in rainfall from one year to the next and coastal areas have experienced increasingly variable rainfall and pressure on water supplies and markets. As a result, climate related risks have worsened. To be able to respond to these climate change impacts, it is important for Angola lawmakers to rigorously assess their country's vulnerability in all sectors and come up with adaptation activities that could strategically respond to the areas of greatest need and reduce the magnitude of harmful climate impacts in a cost-effective manner.[4]

In **Botswana**, research shows that climate change is affecting the freshwater supply because ground water comprises 64% of all water consumed in the country, with 80% of the population - and the majority of livestock - depending on boreholes and well fields. Botswana's annual rainfall levels have been declining and, should this continue, staple crops of maize and sorghum will also decline by around 30%. However, some believe that if rainfall increases, and temperatures become warmer, sorghum production and maize yields may increase slightly. The country's adaptation strategies should focus on creating national food security programmes, early warning systems for droughts, crop shifting, and food aid for rural populations.[5]

The **DRC**, known for its abundance of water, is currently facing a drinking water problem: only around 26% of the population has access to potable water. As a result, the country falls far below the African average of 60%. About 70% of DRC's population is dependent on rain-fed farming. However, climate change, floods and droughts, extreme weather and unpredictable rains, erosion, and an increase in both crop and livestock diseases, means that traditional agricultural practices have become less effective.

Droughts, cause low agricultural yields and declines in livestock, now regularly affect **Lesotho**.[6] On the other hand, heavy snowfalls, strong winds and heavy floods also negatively impact the Basotho people. Lesotho's high vulnerability to climate risks exacerbates this dire and limits its adaptive capacity. The agribusiness sector has been

In 2018, changing weather patterns in Lesotho had a devastating impact on agriculture, including Mathakanye Monyote's maize garden. *Photo courtesy of CRED: Majara Molupe*

[3] Source: http://www.pambazuka.org/aumonitor/comments/2690/
[4] IIEC (2017), Water resource management under a changing climate in Angola's coastal settlements: working paper, available at pubs.iied.org/pdfs/10833IIED.pdf
[5] http://www.adaptation-undp.org/explore/southern-africa/botswana
[6] http://www.gcca.eu/national-programmes/africa/gcca-lesotho

heavily impacted because it relies heavily on the natural environment and climate conditions.

Madagascar is battling climate change impacts that mostly affect its agriculture sector.[7] This results in limited productivity and low yields. The country's lack of technical capacity intensifies this problem. Madagascar's rainfall variability and higher temperatures also affect the production of staple rainfed crops such as rice, cassava and maize. Some projections note that the rainfall variability will intensify in some areas of the country, which will result in increased flooding and erosion. In the south, rainfall will become more unpredictable. Because of increased carbon emissions in the atmosphere, sea temperatures and ocean acidity levels continue to rise, and these threaten coral ecosystems and other marine habitats. Madagascar has the longest coastline of any country in Africa and, due to the sea level rise, increased damage from cyclonic and flooding events will affect its population and ecosystems, which will permanently displace many communities from their homes.

Climate change in **Malawi** affects agriculture production, which is a huge challenge because the country remains heavily reliant on it. Researchers have observed intense rainfall, changing rainfall patterns, floods, droughts and prolonged dry spells due to climate change in Malawi. Climate change is already affecting small-scale producers: those who provide more than half the world's food supply and 70% of the food which feeds people in poor countries like Malawi.

In **Mauritius**, climate change poses risks to the coastline, changing the appearance of parts of the shoreline and threatening the country's tourist industry.[8] Researchers classify Mauritius as the country with the 13th highest disaster risk and it is the seventh most exposed to natural hazards because it is situated in the Indian Ocean's tropical cyclone belt and may suffer more intense cyclones as temperatures rise. Mauritius is setting up an early warning system that will give three days' notice of storm surges and improve its capacity to evacuate people from vulnerable areas. The country is also working hard to reduce its carbon footprint using solar, wind and wave energy, and it has also pledged to cut its own carbon emissions by 30% by 2030.

In **Mozambique**, scientist attribute an increase in the variety of climate-relevant health problems to global warming. A changing climate has multiplied Mozambique's existing health vulnerabilities, including insufficient access to safe water and improved sanitation, food insecurity, and limited access to health care and education. Additionally, the country faces more droughts, floods and tropical cyclones, which will result in devastating consequences for its population and infrastructure. Severe flooding affects the extensive river plains in downstream areas, often claiming lives and destroying livelihoods, particularly among the poorest of the poor. Droughts and flooding can result in crop losses and food shortages.[9]

Namibia has a high variable climate with warmer waters, including the Benguela current, which marine life depend on for survival. Climate change will mean a reduction of fish stocks, which affects the fishing industry. Climate change also affects agricultural productivity and it has already reduced crop productivity. Temperatures are rising, rainfall variability is increasing, and droughts and floods are becoming more frequent in Namibia. It is reported that, by 2050, current methods of rainfed agriculture will be viable only in the Kavango East and Zambezi regions.[10]

Seychelles relies on tourism and fisheries for economic growth, with fish products making up 96% of the total value of domestic exports, according to the World Bank. But in recent years, the nation has battled severe storms and rising sea levels, while warming ocean temperatures have caused a decline in fish stocks. Like many island nations, Seychelles has relied on mangrove forests and coral reefs to fight back against climate change. However, ocean acidification has worn away coral reefs in the area and the country lacks the economic resources to invest in the infrastructure necessary to fight back against the rising sea levels.[11]

eSwatini faces droughts and erratic rainfall patterns due to climate change that hamper its development efforts. The 2015-2016 El Niño-induced drought affected agricultural production, particularly sugarcane, maize production and livestock, as well as hydropower production.

Mauritius **13th** highest disaster risk and **7th** most **exposed** to natural hazards in the **world**

[7] Climatelinks (2017), Climate Risk Profile: Madagascar, available at https://www.climatelinks.org/resources/climate-change-risk-profile-madagascar
[8] https://www.ft.com/content/ecaa3e2c-8436-11e7-94e2-c5b903247afd
[9] Climatelinks (2017), Climate Change and Health in Mozambique: Impacts on diarrheal disease and Malaria, available at https://www.climatelinks.org/sites/default/files/asset/document/20180226_USAID-ATLAS_Mozambique-Health-and-Climate-Change.pdf
[10] https://www.newera.com.na/2018/03/02/namibia-needs-n400bn-for-climate-change/
[11] https://qz.com/1216791/seychelles-swaps-debt-for-marine-conservation-climate-change/

SA warming faster than the global average

Researchers estimate that the country's drought disaster cost it USD $325 billion, which amounted to 7.01% of eSwatini's Gross Domestic Product (GDP).[12]

South Africa has been warming faster than the global average trend. This has resulted in water shortages, including a major water crisis in Cape Town in 2018 that almost resulted in the second most populous city in the country running out of water. The Vaal Dam, one of the largest sources of water supply to Gauteng Province, had also begun to dry up before recent rains. Increases in climate variability and climatic extremes impact both water quality and availability through changes in rainfall patterns, with more intense storms, floods and droughts, changes in soil moisture and runoff, and the resulting effects of increasing evaporation and changing temperatures on aquatic systems.[13] The entire country has been experiencing a serious drought since 2015, with associated crop losses, water restrictions, and impacts on food and water security.

According to the Global Gender and Climate Alliance (GGCA), **Tanzania**'s economy depends on sectors affected by climate change.[14] Climate variability results in significant damage to the country's economy. Studies estimate that climate change will lead to large economic costs, amounting to 1-2% of GDP per year by 2030. Researchers predict that average temperatures in Tanzania will increase to more than 30°C by 2050 (from the current highs of 20-24°C), with significant rainfall variation. Climate change impacts will make large areas of land unsuitable for agricultural production.

Zambia has been facing increased droughts and floods over the last 30 years due to climate change and this has cost the country more than US$13.8 billion according to recent estimates - equivalent to 4% of annual GDP growth. Zambia has also seen many climate change impacts on the health and agricultural sectors. Climate change has resulted in crop failure in some cases, and thus reduced food security in the country.[15]

Zimbabwe has been experiencing much hotter daytime temperatures and the amount of precipitation it receives has frequently deviated from the mean. Climate change has adverse impacts on the lives and wellbeing of Zimbabweans, constraining or reversing progress in social and human development. The impacts of climate change have become more evident with increased incidence of droughts, floods and hailstorms, as well as more hot days and heatwaves. These pose serious problems with far-reaching social, economic, political and environmental consequences. In Zimbabwe, climate change threatens to stall the country's development as well as pose a serious risk to food security and the adaptive capacity of the Zimbabwean population, especially those in vulnerable communities.[16]

Dry riverbeds, like this one in Botswana, are increasingly common sights in SADC.
Photo: Gomolemo Rasesigo

[12] http://www.acclimatise.uk.com/2018/03/14/eSwatini-on-track-to-accessing-the-green-climate-fund/
[13] https://www.traveller24.com/Explore/Green/cop23-climatic-extremes-sas-biggest-climate-change-concern-20171114
[14] http://www.gcca.eu/national-programmes/africa/gcca-tanzania2
[15] https://undp-adaptation.exposure.co/bridging-gaps-in-zambia
[16] UNDP (2017), Zimbabwe Human Development Report, Climate Change and Human Development : Towards Building a Resilient Nation, available at http://hdr.undp.org/sites/default/files/reports/2842/undp_zw_2017zhdr_full.pdf

Table 10.2: Gender dimensions of climate change[17 18]	
Area of concern	**Gender implications**
Food security	Most women in the region take part in farming, but women as a group have trouble obtaining education, income, land, livestock, and technology. This means that climate change may negatively impact female farmers more than male farmers by further limiting their resources. Women produced between 60% and 80% of all food in the developing world, yet they own just 10% of all agricultural land and approximately 2% of land rights.
Water	Many countries in the region have been experiencing droughts and water shortages. This has compromised the livelihoods of many communities, particularly of women and young girls whose responsibility, in many countries, is to ensure availability of water. They now must travel long distances to collect water, often exposing themselves to dangerous threats such as human trafficking and sexual violence.
Division of labour	Gender-based prejudices and stereotypes exclude women from areas of the green economy such as transport and energy, wasting human resources to and preventing the SADC region from achieving its full competitive potential.
School drop-out	In many countries, girls and young women have been forced to stay out of school to look for opportunities to generate income for their families as agricultural production in the region declines.
Land	Women, especially single women and widows, still struggle to access land for resettlement and production, including farming to generate income for their families.
Transport	Women depend on access to public transport to a larger degree due to lower levels of car ownership, but also because of their preferences for the use of environmentally-friendly solutions (public transport).
Health	Women are more likely to have a greater awareness of health issues and more highly developed risk perceptions, which often impacts how they perceive health and environmental issues, while men tend to be more strongly oriented towards convenience.
Stress	Stress levels and related diseases may increase for both women and men. Because society expects men to provide for the family, they experience and express stress in different, often more devastating ways than women.
Migration	In many countries, men migrate from rural areas and small towns to move to big cities due to declines of natural resources and agriculture. They often leave women behind to care for the children and the elderly on their own.
Gender violence	Incidents of sexual violence remain frequent in shelters where natural disaster victims take refuge and men and women share limited space with no privacy. These shelter also often lack safe and adequate ablution blocks and often women and girls must walk alone outside at night to relieve themselves, risking sexual abuse.
Energy Poverty	Due to their lower average income, women are at greater risk of energy poverty than men, and have fewer options for investing in low-carbon options such as energy efficiency and renewable energies.
Decision-making	The climate change sector does not equally include men and women at decision-making levels. There is an urgent need to improve gender equality in decision-making in this field, especially the transport and energy sectors, and to increase the number of women with relevant qualifications in scientific and technological areas. as well as the number of women participating in relevant scientific bodies at the highest level.

Source: GenderCCSA 2016.

Table 10.2 illustrates several gender dimensions of climate change. It shows how climate change has become a cause of conflict and how it perpetuates poverty, gender-based violence (GBV) and an increased burden of care work amongst women.

Gender aware climate change policies

Article 31.1a: State parties shall develop policies, strategies, and programmes to address the gender issues in climate change in accordance with the SADC Protocol on Environment and Sustainable Development.
Article 20.2 of the Protocol on Environmental Management for Sustainable Development: State parties shall undertake gender analysis and gender mainstreaming of all environmental management, climate change and sustainable development policies, programmes, projects and budgets.

Climate change a cause of conflict, **poverty** and **GBV**

[17] UNESCO (2017), Women underrepresented in decision-making on climate change, available on http://www.unesco.org/new/en/media-services/single-view/news/women_underrepresented_in_decision_making_on_climate_change/ (accessed on 11July 2017).
[18] Wikipedia (2017), Climate Change and Gender, available on https://en.wikipedia.org/wiki/Climate_change_and_gender (accessed 11 July 2017).

produce **60%** to **80%** of food but **own** just **10%** of land and **2%** **land rights**

International frameworks on climate change

The United Nations Framework Convention on Climate Change (UNFCCC) is the main international agreement on climate action. It comprises one of three conventions adopted at the Rio Earth Summit in 1992. To date, 195 countries have ratified it. It began as a way for countries to work together to limit global temperature increases and climate change, and to cope with their impacts.

Two of the most prominent issues related to the UNFCCC include:

1. The ratification of the Doha amendment to the Kyoto Protocol, which concerns commitments under the second period, running from 2013-2020; and
2. The Paris Agreement - new global climate change agreement covering all UNFCCC countries, its ratification, implementation and entering into force in 2020.

A woman in Bizana, South Africa, prepares to make a Wonderbag: an environmentally-friendly, non-electric heat-retention cooker.
Photo: GenderCCSA

Kyoto Protocol

In the mid-1990s, the UNFCCC signatories realised that they needed stronger provisions to reduce emissions. In 1997, they agreed on the Kyoto Protocol, which introduced legally binding emission reduction targets for developed countries. The second commitment period of the Kyoto Protocol began on 1 January 2013 and will end in 2020. Thirty-eight developed countries, including the EU and its 28-member states, participate. This second period is covered by the Doha amendment, under which participating countries have committed to reducing emissions by at least 18% less than 1990 levels. The EU has committed to reducing emissions in this period to 20% less than 1990 levels. As the United States never signed up to the Kyoto Protocol, Canada pulled out before the end of the first commitment period and Russia, Japan and New Zealand are not taking part in the second commitment period, it only now applies to around 14% of the world's emissions. However, more than 70 developing and developed countries have made various non-binding commitments to reduce or limit their greenhouse gas emissions.

The United Nations Framework Convention on Climate Change (UNFCCC)

The UNFCCC is an international environmental treaty adopted on 9 May 1992 and opened for signature at the Earth Summit in Rio de Janeiro from 3-14 June 1992. It then entered into force on 21 March 1994, after enough countries had ratified it. The UNFCCC objective is to "stabilise greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system." The framework sets non-binding limits on greenhouse gas emissions for individual countries and contains no enforcement mechanisms. Instead, it outlines how specific international treaties (called "protocols" or "agreements") may be negotiated to specify further action towards the UNFCCC objective.

The parties to the convention have met annually since 1995 in Conferences of the Parties (COPs) to assess progress in dealing with climate change. In 1997, they concluded the Kyoto Protocol and established legally binding obligations for developed countries to reduce their greenhouse gas emissions in the period 2008-2012. The 2010 United Nations Climate Change Conference produced an agreement stating that future global warming should be limited to below 2.0 °C (3.6 °F) relative to the pre-industrial level. Signatories amended the Protocol in 2012 to encompass the period 2013-2020 in the Doha Amendment, which, as of 2018, had not entered into force because three quarters of the signatories had not yet deposited their instruments of acceptance. In 2015, world leaders adopted the Paris Agreement, governing emission reductions from 2020 on through commitments of countries in ambitious Nationally Determined Contributions (NDCs). The Paris Agreement entered into force on 4 November 2016.

One of the first tasks set by the UNFCCC was for signatory nations to establish national inventories

of greenhouse gas (GHG) emissions and removals, which stakeholders used to create the 1990 benchmark levels for accession of countries to the Kyoto Protocol and for the commitment of those countries to GHG reductions. Countries must submit updated inventories annually.

UNFCCC is also the name of the UN secretariat charged with supporting the operation of the Convention, with offices in Bonn, Germany. From 2010 to 2016, Christiana Figueres served as the head of the secretariat. In July 2016, Patricia Espinosa succeeded Figueres. The secretariat, augmented through the parallel efforts of the IPCC, aims to gain consensus through meetings and the discussion of various strategies.

The Paris Agreement

The Paris Agreement provides nations with an action plan to limit global warming "well below" 2°C covering the period from 2020 onwards.[19]

The main elements of the Paris Agreement:

- *Long-term goal:* governments agreed to keep the increase in global average temperature to less than 2°C above pre-industrial levels and pursue efforts to limit it to 1.5°C;
- *Contributions:* before and during the Paris conference countries submitted comprehensive national climate action plans to reduce their emissions;
- *Ambition:* governments agreed to communicate their contributions every five years to set more ambitious targets;
- *Transparency:* they also accepted to report to each other and the public on how well they do to implement their targets, to ensure transparency and oversight; and
- *Solidarity:* the EU and other developed countries will continue to provide climate finance to assist developing countries, both to reduce emissions and build resilience to climate change impacts.

Under the Paris Agreement (1/CP.21) parties acknowledge that, as climate change is a common concern of humankind:

"Parties should, when taking action to address climate change, respect, promote and consider their respective obligations on human rights, the right to health, the rights of indigenous peoples, local communities, migrants, children, persons with disabilities and people in vulnerable situations and the right to development, as well as gender equality, empowerment of women and intergenerational equity."[20]

Women in South Africa receive farming equipment to help with local agriculture projects. The Paris Agreement allows for assistance to build resilience to climate change in the developing world, including in countries like South Africa. *Photo: GenderCCSA*

In recognition of the need for women and men to have equal representation in all aspects of the Convention process as well as for climate action to respond to their different needs, experiences, priorities and capacities, signatories focused on two goals under the dedicated gender and climate change agenda item:

1. Improving gender balance and increasing the participation of women in all UNFCCC processes, including in delegations and in bodies constituted under the Convention and its Kyoto Protocol, and
2. Increasing awareness and support for the development and effective implementation of gender-responsive climate policy at the regional, national and local levels.

Two years after the adoption of the Paris Agreement and one year after it entered into force, the main goal of COP-23 in Bonn, Germany, from 6-17 November 2017 revolved around moving forward in defining the guidelines for its implementation. Overall, delegates noted that progress on this critical issue remains too slow and parties left Bonn with a considerable remaining workload if they are serious about finalising the "rulebook" next year at COP-24 in Katowice, Poland. Delegates expressed concerns about the absence of human rights and gender equality in the negotiations on implementation guidelines. In order to be in accordance with the preamble of the Paris Agreement, the guidelines must protect and implement human rights, the rights of indigenous peoples, local communities, migrants, children, persons with disabilities and people in vulnerable situations, and ensure that gender equality, empowerment of women and intergenerational equity remain at

Droughts and water shortages

[19] http://www.consilium.europa.eu/en/policies/climate-change/timeline/
[20] https://unfccc.int/topics/gender/the-big.../gender-in-the-intergovernmental-process

especially **single** women and **widows**, struggle to access land

the heart of all climate action by countries under the Paris Agreement. All stakeholders must also sufficiently mainstream these into all workstreams of the Convention. This includes the mainstreaming of gender issues into parties' NDCs - particularly industrialised countries whose NDCs completely lack any references to gender. Gender justice is not only relevant for developing countries.

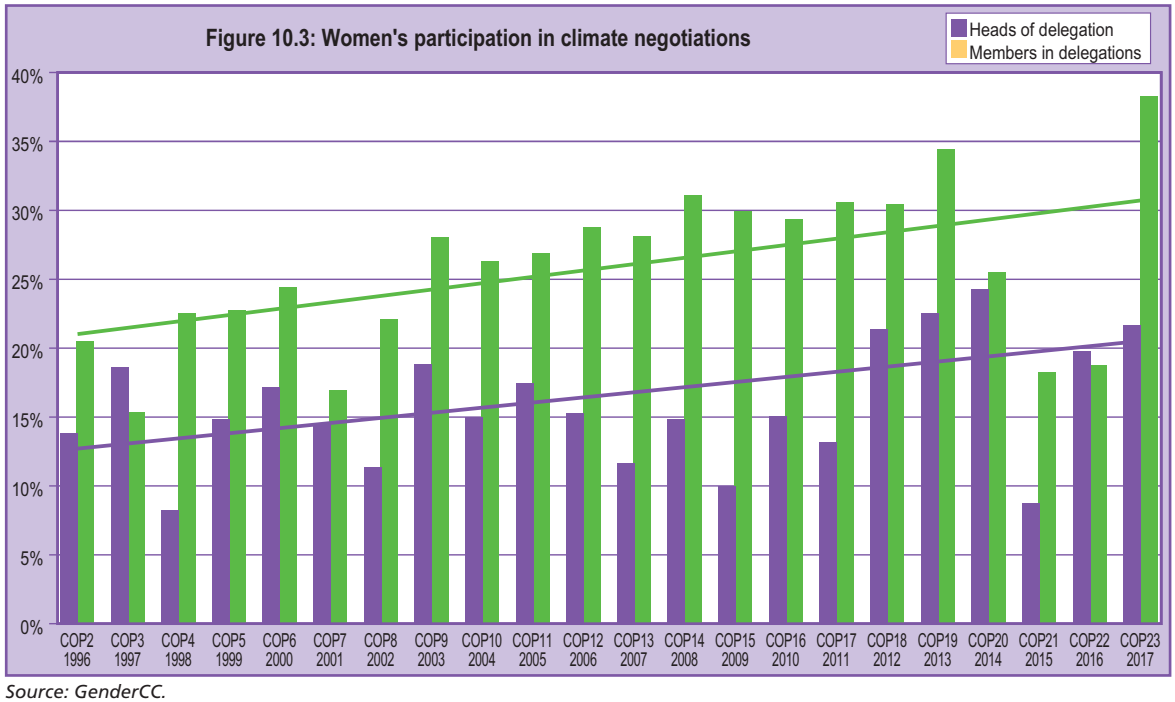
Gender dimensions of the UNFCCC

The UNFCCC secretariat has been reporting on the composition of national delegations since 2013. Women's participation in national delegations to COP sessions and other meetings under the UNFCCC has varied from a low of 29% attending COP-18 in 2013 to a high of 42% attending the 44th and 46th sessions of the subsidiary bodies in 2016/2017 and 2017/2018. Stakeholders recorded the highest participation of women at a COP after the adoption of decision 23/CP.18 at COP-19: 36%, up from 29% at COP-18. However, at COP-21 and COP-22 the percentage of women fell from the high of 36% to 32%. The highest recorded percentage of female heads of delegation occurred at COP-22, with 27%. This may reflect a lower number of women in senior positions in environment and climate ministries or departments at a national level, from which many parties appoint their delegates to UNFCCC meetings.[21]

There has been gradual but sustained progress in the last decades in recognising and acknowledging the need for equal representation and participation of men and women in decision-making processes to sustainably address climate change. Women bring different perspectives into policymaking processes and programme development. Their participation in every step of the process is essential to ensure the development of sustainable, equitable and inclusive policies and programmes that have long-lasting impact.

This discussion began in 2012, when parties to the UNFCCC considered gender and climate change as a stand-alone agenda item under the COP and the Subsidiary Body for Implementation (SBI). In addition, parties have considered and incorporated gender considerations in many other thematic areas (e.g. finance, technology development and transfer and adaptation) under the Convention and its Kyoto Protocol and Paris Agreement

The government of Fiji presided over the 23rd UNFCCC conference in Bonn, which took place two years after the adoption of the Paris Agreement and one year after it entered into force. While COP-23 represented many missed opportunities and half-hearted commitments it also had two noteworthy success stories: the adoption of the first Gender Action Plan (GAP) to the UNFCCC and the operationalisation of the local communities and indigenous peoples platform.[22]



Source: GenderCC.

[21] UNFCCC (2017), Achieving the goal of gender balance: Technical paper by the secretariat, available on https://unfccc.int/resource/docs/2017/tp/08.pdf
[22] https://gendercc.net/genderunfccc/unfccc-conferences/bonn-2017.html

Figure 10.1 shows women's participation in COP climate negotiations over time. The head of delegations increased to just less than 25% in 2017 compared to less than 20% in 2016. Additionally, women members of delegations rose dramatically in 2017 compared to 2016.

Women and Gender Constituency of the UNFCCC

The UNFCCC recognises the Women and Gender Constituency (WGC) as one of its nine official observer constituencies. Members of civil society and NGOs make up the constituency groups, which have been broadly grouped into businesses and industry organisations; environmental organisations; local and municipal governments; trade unions; research and independent organisations; and organisations that work for the rights of indigenous people; young people, agricultural workers, and women rights and gender advocacy. Each constituency provides a focal point for easier interaction with the UNFCCC secretariat and individual governments.[23]

The WGC provides several ways for civil society and NGOs working on women's rights and gender justice, environmental protection, or both, to influence the annual conferences and shape the UNFCCC. It provides a platform to exchange information between members and with the UNFCCC secretariat. The constituency also ensures that meetings, workshops and conferences include the participation and representation of women's civil society and NGOs which otherwise would not be able to attend.

Over the past several years of the international climate change negotiations governments across the world, serving as parties to the UNFCCC, have agreed that gender equality and ensuring women's human rights are necessary to climate change mitigation and adaptation. The UN's efforts to reduce greenhouse gas emissions will only succeed through the promotion of rights and justice and the full participation of women. The WGC is working to ensure that women's rights and gender justice remain core elements of the UN Framework Convention on Climate Change. It represents women's and environmental civil society organisations at the annual COPs.

The WGC also fights to ensure that stakeholders embed women's voices and rights in the process and results of the international framework for a sustainable and just future. According to the WGC, the full participation of women and the promotion of rights and justice remains crucial to the success of any UN efforts to reduce greenhouse gas emissions.[24]

The first Gender Action Plan (GAP) of the UNFCCC

At COP-23, stakeholders reached a decision that marks a milestone in longstanding efforts to integrate gender into international climate policy: the first Gender Action Plan (GAP) under the UNFCCC.[25] It defines five priority areas for action and contains a set of 16 specific activities for the upcoming two years. These include: in-session workshops for delegates on how to develop gender-responsive climate policies, plans and programmes, and the promotion of travel funds to support the participation of women (in particular grassroots, local and indigenous women) from developing countries. Together, these activities aim to advance the implementation of the various gender-related decisions and mandates that already exist but have yet to be sufficiently implemented under the UNFCCC.

A woman in Bizana, South Africa, makes a Wonderbag.
Photo: GenderCCSA

The GAP acknowledges that, so far, the UNFCCC has made little progress towards women's equal participation and developing and implementing gender-just climate policies and actions. It marks a significant step forward in the efforts to advance gender equality in the international climate process.

1 of 9 sectors @ UNFCC

[23] http://womengenderclimate.org/about-us/
[24] http://www.wecf.eu/english/campaigns/2014/Gender-Constituency.php
[25] https://gendercc.net/genderunfccc/unfccc-conferences/bonn-2017.html

SDG13

"UNFCCC is the primary international, intergovernmental forum for ***negotiating*** *the global response to climate change"*

The test, however, will be in its implementation. For it to live up to its promises, parties must come forward with generous voluntary contributions to supply the necessary funds for each activity.

The GAP also lacks some essential elements. For example, while it includes capacity-building on mechanisms to integrate gender issues into finance, such as gender budgeting, it does not mention the advancement of, and capacity-building on, tools such as Gender Impact Assessments that stakeholders see as crucial for the development of gender-responsive climate adaptation and mitigation policies. In addition, the UNFCCC has watered down the section on monitoring and reporting on GAP activities, even though stakeholders see it as indispensable to ensure the implementation, and to evaluate the outcomes, of the GAP. Under no circumstance can the GAP turn into yet another hard-won, but vastly ignored, gender-related UNFCCC decision.[26]

Another question remains around the GAP: how will it feed into and inform other negotiation streams crucial for gender mainstreaming progress in the UNFCCC, such as the frameworks and mechanisms for finance, technology, and transparency? Climate and gender justice are crucial for the entire process and all countries must integrate human rights and gender equality in their climate plans and formal commitments.

The decisions adopted at COP-23 contain some critical elements. They build on the principles defined by indigenous peoples' organisations, including the need for equal footing with parties in the platform. They also refer to the UN Declaration on the Rights of Indigenous Peoples. The platform aims at strengthening the consideration of indigenous peoples' knowledge, technologies, practices and efforts in climate action, enhancing the effective engagement of indigenous peoples in the UNFCCC process, and facilitating the exchange of experience and best practices on mitigation and adaptation.

Yet a tremendous gap continues to exist between the current commitments of countries and the actions needed to keep global warming below 1.5°C. Not even the presidency of the Government of Fiji and the strong presence and leadership of civil society organisations and activists from small island states that carried the stories and the lived realities of people at the frontlines of climate change moved countries to raise their ambitions. For instance, Germany, the host of this year's COP, will not meet its 2020 targets while it continues to expand coal mining projects and refuses to initiate a phase-out of its fossil fuel production. All economies worldwide must end their dependency on fossil fuels and radically cut greenhouse gas emissions.[27]

The Sustainable Development Goals

The UN Sustainable Development Goals (SDGs) acknowledge the link between the achievement of gender equality and the achievement of all SDGs, including Goal 13 on climate change. Climate change and sustainable development remain inextricably linked. Despite this fact, there is no formal interrelationship between their designated international processes, namely the UNFCCC and the 2030 Agenda for Sustainable Development.

On the one hand, the 2030 Agenda contains an SDG on climate change (SDG-13). SDG 13 acknowledges that the "UNFCCC is the primary international, intergovernmental forum for negotiating the global response to climate change." On the other hand, while the UNFCCC's Subsidiary Body for Scientific and Technological Advice (SBSTA) acknowledges the "importance and interlinkages" of climate and the sustainable development agenda, the reality is that the UNFCCC's secretariat merely "follows the latter, recognising that they are two separate but parallel processes."[28]

It is important to firstly recognise that there are connections. Article 4, paragraph 1(c) of the UNFCCC requires the parties to cooperate to reduce greenhouse gas emissions in the energy, transport, industry, agriculture and forestry sectors. These correspond to SDG-7 (energy), SDG-11 (cities), SDG-9 (industrialisation), SDG-2 (agriculture) and SDG-15 (forests). Further, Article 4, paragraph 1(d) of the UNFCCC requires the parties to cooperate with respect to biomass, forests and oceans, and other terrestrial, coastal and marine ecosystems. These correspond to SDG-14 (oceans, seas and marine resources) and SDG-15 (terrestrial ecosystems, forests, desertification, land degradation and biodiversity).[29]

Secondly, there must be recognition that stakeholders can connect the two overall objectives through the cooperation of international and intergovernmental and non-governmental organisations. Article 7, paragraph 2(l) of the

[26] GFDRR (2016) Gender Action Plan : 2016-2021, Fall 2016 Consultative Group Meeting, available at https://www.gfdrr.org/sites/default/files/publication/gender-action-plan-2016-2021.pdf
[27] GenderCC & LIFE (2017) A large step towards gender-just climate policies, but too little overall progress : a joint statement on the outcomes of COP23, available at https://gendercc.net/fileadmin/inhalte/dokumente/6_UNFCCC/COPs/GenderCC_LIFE_Statement_COP23.pdf
[28] http://17goals.org/paris-agreement-sdgs/
[29] Leong, Alvin, Connecting the Dots between the UNFCCC and the SDGs (December 10, 2015). Available at SSRN: https://ssrn.com/abstract=2702831

UNFCCC states that the COP shall: "seek and utilise, where appropriate, the services and cooperation of, and information provided by, competent international organisations and intergovernmental and non-governmental bodies." This is actually a legal mandate - the word "shall" is used.

The UNFCCC contains interrelationships with Agenda 2030 and the SDGs and provides express authority to connect these dots through the facilitation of international and non-governmental organisations. Connecting the dots will require political will, a critical asset at this inflection point when the world moves towards managing the climate crisis while simultaneously implementing a new, ambitious agenda for sustainable development.

Regional frameworks

African Union commitments

The African Union (AU) rallied and coordinated African support for the Paris Agreement. This effort brought the continent of Africa together as one voice to speak on climate change. A common position signalled African countries' commitment to the problem. Some African countries have led climate change mitigation and adaptation policies. These include Ghana, Morocco, Kenya and South Africa. These countries have long integrated climate change issues into their national development planning and implementation across multiple sectors. In addition, Ethiopia came up with its Climate Resilient Green Economy Strategy and a climate finance fund within its ministry of finance for climate compatible investment.[30]

At UN climate conferences, African countries have also been a leading voice in the Group of 77, the coalition of developing countries. Concerns for developing countries, however, remain - particularly around finance, technology transfer and mechanisms for equitable contributions for dealing with climate risk.

At COP-23 in Bonn, attendees celebrated Africa Day on 15 November 2017: a joint initiative of the African Development Bank (AfDB), the African Union Commission (AUC), the United Nations Economic Commission for Africa (ECA) and the New Partnership for Africa's Development (NEPAD). Two years after leaders signed the Paris Agreement at COP-21, African nations continued to consolidate efforts, focusing particularly on partnerships to ensure that developed countries meet their responsibilities and commitments in terms of funding and encouraging African nations to pursue a low-carbon development path and maintain their nationally-determined contributions. All of this is in line with the UN's SDGs, the AfDB and the AU's Agenda 2063.

A group of South African women harvest produce to sell at Risenga Primary School in Siyandhani, Giyani. *Photo: GenderCCSA*

The AU adopted this agenda in 2015 with the aim of having a roadmap for strong, peaceful, integrated and prosperous Africa by 2063, 100 years after the establishment of its predecessor, the Organisation for African Unity (OAU).[31] Despite the challenges, African countries remain committed to the agenda. At the 24th Ordinary Assembly of the AU in Addis Ababa in January 2015, members adopted the document Agenda 2063, which could be a game changer for the continent. It is both a vision and an action plan. In the three years since, African nations have made some progress in implementing the vision. Lawmakers have increasingly aligned the new AU development strategies to the Agenda 2063 goals. However, the Agenda is an ambitious project, which needs the political will of all the countries involved and sustained implementation at the levels of state, region, and continent.

At COP-23, the theme for Africa Day, "Partnerships to Implement the Paris Agreement: Africa's Response," accompanied a programme focused on funding, capacity-building, development and technology transfer.[32] Stakeholders also used Africa Day to launch the Africa Nationally Determined Contributions Hub (Africa NDC Hub), a support platform set up by the AfDB and partners: AUC,

At UN climate conferences, African countries have also been a **leading voice** in the Group of 77

[30] https://www.brookings.edu/blog/africa-in-focus/2017/06/02/even-before-the-u-s-left-the-paris-agreement-africa-stepped-up-to-the-plate-on-climate-change/
[31] Viswanathan, H. H. S (2018) Africa's Agenda 2063: a document of hope, available at https://www.orfonline.org/research/africas-agenda-2063-a-document-of-hope/
[32] https://www.afdb.org/en/news-and-events/africa-day-at-cop23-17551/

SADC **leaders** have committed to **address** climate change

UNFCCC, United Nations Development Programme (UNDP), United Nations Environment Programme (UNEP), Food and Agriculture Organisation (FAO), United Nations Economic Commission for Africa (UNECA), NEPAD, Economic Commission for West Africa States (ECOWAS), World Wide Fund for Nature (WWF), and International Institute for Environment and Development (IIED). The Africa NDC works in collaboration with the NDC Partnership to deliver targeted support to African countries as they implement their NDCs.

Meanwhile, the 28th Summit of the Heads of State and Government of the AU, held in February 2017, addressed the alignment between Africa's Agenda 2063, the 2030 Agenda for Sustainable Development and the Paris Agreement on climate change. Reports noted that the AU and the UN will cooperate on implementing and monitoring the SDGs and the Paris Agreement with only one line of reporting. After centuries of marginalisation during the colonial and neo-colonial periods, Africa today has a new resurgence, both politically and economically. The time is ripe for the African people to define and achieve their aspirations for a peaceful and prosperous continent. Leaders have been rekindling the old pan-African spirit, manifested in the ambitious and forward-looking Agenda 2063. Given the seriousness attached to this vision, there is no reason African nations should not achieve most, if not all, targets by 2063.[33]

SADC frameworks for climate change

While the entire world is struggling with the challenges presented by the changing global climate, Southern Africa is uniquely susceptible to the impacts of climate change. In coming decades, experts expect the SADC region to experience higher land and ocean surface temperatures than in the past, which will affect rainfall, winds and the timing and intensity of weather events. As noted earlier in this chapter, climate change poses several risks to SADC goals for regional economic development. Increased frequency of floods, cyclones and droughts may damage infrastructure, destroy agricultural crops, disrupt livelihoods, and cause loss of life.

SADC leaders have committed to several international conventions and programmes on climate change. All SADC Member States have signed on to the following conventions:

- The United Nations Framework Convention on Climate Change, which advocates for reduced emissions toward lowering global temperatures and offers guidance on coping with the impacts of climate change;
- The Ramsar Convention on Wetlands, which specifically targets the preservation of internationally important wetlands and contains a resolution covering climate change impacts, adaptation and mitigation; and
- The Convention on Biological Diversity, which has resulted in numerous decisions and technical papers describing the links between biodiversity and mitigation of climate change effects.

Furthermore, a Memorandum of Understanding between SADC and the World Food Programme highlights adaptation to climate change as one of six principal areas for cooperation. Similarly, stakeholders associated with the African Ministerial Conference on the Environment (AMCEN) and the regional climate change programme have developed a framework of sub-regional climate change programmes.

The SADC Gender and Development Protocol

Stakeholders recently revised the SADC Protocol on Gender and Development so that its objectives align with various global targets and emerging issues. It now covers emerging issues such as climate change. The 36th SADC Summit, held in eSwatini in August 2016, approved the revision and sought to align it with provisions of other instruments relating to sustainable management of the environment as well as the SADC Industrialisation Strategy and Roadmap.

Women learning to use renewable energy and energy effiencent technology in Joubert Park and Alexandra township, South Africa.
Photo: GenderCCSA

[33] http://sdg.iisd.org/news/au-summit-addresses-alignment-between-agenda-2063-paris-agreement-and-2030-agenda/
[34] https://www.sadc.int/news-events/news/botswana-signs-revised-sadc-protocol-gender-and-development/

The Protocol now also aligns with the UN SDGs, the African Charter on the Rights of Women in Africa and the AU Agenda 2063. The SADC Gender Protocol Monitoring, Evaluation and Reporting Framework (MERF) and SADC Gender and Development Monitor remain in place to assess progress on the implementation of the instruments and SADC priorities. The SADC region pledged support towards the realisation of Development Agenda 2030 and AU Agenda 2063 in improving the livelihoods of women, especially of women in rural communities, and investing in youth for sustainable development.

The SADC Protocol on Environmental Management for Sustainable Development

The SADC Protocol on Environmental Management for Sustainable Development's main objective is to promote sustainable utilisation and trans-boundary management of the environment. It covers environmental issues such as climate change, waste and pollution, management of chemicals, bio-diversity and natural heritage, sustainable land management, marine and inland resources, as well as cross-cutting issues on gender, science, technology, trade and investment.[35]

The Protocol aims to enhance the protection of the environment; promote equitable and sustainable use of natural resources and the environment; promote shared management of trans-boundary environment and natural resources and promote effective management and response to impacts of climate change and variability. It also facilitates the harmonisation of policies, strategies and legal frameworks to enhance regional coordination of environmental management, as well as regional integration and it provides a legal framework for trans-boundary environment and natural resources.

Adaptation in the water sector

Climate change has already affected water resources in the SADC region and experts predict that access to water will continue to decrease. Thus, the SADC Secretariat has been developing a Climate Change Adaptation (CCA) strategy for the water sector with the goal of lessening impacts of climate change through adaptive water resources development and management in the region. SADC intends to achieve this goal by intervening in all areas of the water sector to decrease climate vulnerability and ensure that water management practices cope with increased climate variability.[36]

The strategy recognises that water issues impact a range of sectors such as energy, health, and agriculture and, as a result, adaptation measures must exist at different levels of governance. Additionally, water administration in the SADC region falls under the Integrated Water Resources Management (IWRM) approach, which offers a goal-oriented system of controlling use of water as a means of slowing the effects of climate change in the region.

The SADC Secretariat, jointly with the Common Market for Eastern and Southern Africa (COMESA) and the East African Community (EAC), facilitates the implementation of a Tripartite Programme on Climate Change that the Norwegian Government, through the Norwegian Ministry of Foreign Affairs, the European Union Commission (EUC) and the UK Department for International Development (DFID) jointly fund. The programme "aims to inject Africa's unified position on climate change into the post-2012 United Nations Framework Convention on Climate Change (UNFCCC) global agreement so as to unlock resources for promoting strategic interventions that sustain productivity and livelihood improvements for millions of climate-vulnerable people in the region."[37]

National strategies

Botswana's Ministry of Environment, Natural Resources Conservation and Tourism is working with Botswana's National Climate Change Committee (NCCC) to develop a climate change policy and strategy: the National Climate Change Policy and Strategy and Action Plan (NCCSAP), which the ministry will implement in cooperation with the UNDP.[38] The NCCSAP has a number of objectives: to develop and implement appropriate adaptation strategies and actions to decrease vulnerability to the impacts of climate change; to develop actions and strategies for climate change mitigation; to integrate climate change effectively into policies and institutional and development frameworks, in recognition of the cross-cutting nature of climate change; and to ensure that Botswana is ready for the post-2015 climate regime when stakeholders will finalise a new Protocol applicable to all parties. Other national initiatives already exist, such as the ongoing Ngamiland Sustainable Land Management Project (NSLMP), designed to enhance resilience and reduce vulnerability of communities to climate change. Botswana submitted its Intended Nationally Determined Contribution (INDC) in 2015, which

SADC promoting trans-boundary manage-ment of nature

[35] https://pmg.org.za/committee-meeting/25617/
[36] https://www.sadc.int/themes/meteorology-climate/climate-change-adaptation/
[37] Ibid.
[38] http://southsouthnorth.org/wp-content/uploads/Botswana-diagnostic-2017.05.10.pdf

legislators converted to an NDC in 2016. Botswana intends to reduce overall emissions by 15%, from the base year of 2010, by 2030, at an anticipated cost of US$18.4 billion. The INDC does not specify sources of funding for implementation of mitigation measures or share of government and international contribution to support them, but it identifies the need to clarify these points. Legislators based mitigation estimations on three sectors: energy (mobile and stationary), waste and agriculture. The calculation does not include CH4 emissions from livestock farming - mostly from enteric fermentation - but Botswana plans to implement mitigation measures for this sector (Botswana Government, 2015).

Lesotho's Ministry of Energy and Meteorology submitted its INDC in 2015 (Lesotho Ministry of Energy and Meteorology, 2015). Legislators converted it to an NDC in 2017, which contains greater detail than most other SADC countries, especially on sector specific emissions data.[39] The NDC identifies the need to:

- Build capacity with experts and stakeholders in the preparation and collection of data to enhance information management, ownership, information exchange and dissemination of information sharing within and across sectors;
- Create systemic enabling working environments for the implementation of climate change activities, with regard to institutional arrangements, performance management and reporting to ascertain roles and responsibilities, political will, ownership and empowerment, decision making and service delivery;
- Develop a database for reporting raw data, taking into consideration IPCC requirements by carrying out new studies to upgrade the datasets and then making use of remotely sensed data and training on Geographic Information Systems (GIS);
- Obtain data from satellite/remote sensing, including land cover data, and then design consistent reporting formats for the reports;
- Coordinate data pools to establish data archiving and sharing protocols; and
- Support research in climate change.

Women collect and sort rubbish at the Leribe rubbish dump in Lesotho. The country's climate adaptation strategy includes gender considerations along with measures to reduce women's workload. *Photo: Gender Links*

Unusually, Lesotho's NDC includes gender considerations, noting that women are more vulnerable to climate change because of their relationship with natural resources: women hold responsibility for family food security through food collection, crop production, meal preparation, piggeries, and poultry farming. Household responsibilities - including child-rearing, domestic management and meal preparation - often require women to work longer hours than men. The NDC states that climate change adaptation interventions in Lesotho should include measures to reduce women's workload. Additionally, it states that the formative years of the boy child include herding livestock, to the detriment of their education. Climate change may push good grazing further from villages, thereby affecting boy children negatively. In addition, extreme weather events like heavy snow will increase the risks of herding in remote cattle posts.[40]

Lesotho does not have an official medium- to long-term national climate change adaptation plan. However, it has a formal commitment to developing a new national climate change policy and a sustainable energy policy, with support from the EU.

Madagascar sees a variety of weather and climate phenomena with wide-ranging impacts on human health and safety, natural resource availability, economic activities and infrastructure. However, Madagascar's laws and policies, technical and financial capacity to support urban management and delivery of basic services remain very limited. Madagascar has a climate change strategy, but it needs support for an integrated approach to climate change adaptation within its municipal planning and budgeting processes because lawmakers have drafted local development plans and budgets without robust or comprehensive climate change vulnerability assessments. Participatory budgeting processes could help build

[39] http://southsouthnorth.org/wp-content/uploads/Lesotho-diagnostic-2017.05.10.pdf
[40] http://www4.unfccc.int/ndcregistry/PublishedDocuments/Lesotho%20First/Lesotho%27s%20INDC%20Report%20%20-%20September%202015.pdf

capacity and transparency around municipal projects, encouraging greater contribution from taxpayers to fill funding gaps. Madagascar needs multisectoral workshops to ensure participation of regional agents of the national disaster management office, the meteorological agency, and the national climate change office at strategic points within regional and local development planning processes. This would encourage broader buy-in for adaptation objectives.[41]

Mozambique and Madagascar develop mitigation strategies to address disasters

Mozambique and Madagascar are particularly vulnerable to disasters. Thus, both countries have created initiatives to mitigate the impact of disasters.

The Chibuto Municipality in Mozambique faces serious erosion problems caused by landslides in the rainy season. Erosion has caused a lot of damage, the loss of human lives, houses and farms, as well as the deterioration of access roads. The Council initiated an awareness campaign to plant grass and trees to avoid landslides. The municipality, in partnership with the leadership of the neighbourhoods, publicised the campaign.

In addition, to prevent erosion, the community planted 250 different trees at the Samora Machel Primary School and 800 different plants in the 25 de Junho Neighborhood.

The Maxixe municipality in Mozambique is also rebuilding after being devastated by the Cyclone Dineo at the beginning of the 2018. Maxixe is amongst the largest coconut producers in Mozambique. The cyclone severely impacted coconut production. To address this problem, the Council has developed a post-cyclone reconstruction plan. The plan involves the transfer of risk areas (coastal zones) to higher ground. It also identifies safe areas for planting palm.

Meanwhile, bush fires have severely affected the Madagascan landscape. It is difficult to grow anything. Rainfall patterns have been changing and water sources have become increasingly limited. Thus, one local community set up a group to grow young plants and sell them across the island to promote re-forestation. The selling of young trees has become a growing business, especially with bamboo in high demand.

Source: SADC Protocol@Work summits

Protocol@Work

With the help of the UNDP, **Malawi** has embarked on a process to establish a national climate change fund to put the country on a green development path.[42] Malawi is recovering from cumulative impacts of 2015 floods followed by severe drought during the 2016-17 cropping season. This calls for a scale-up of household resilience and climate-smart agricultural practices as well as the development of cleaner energy sources. Malawi will find it difficult to achieve the SDGs without action on climate change. Malawi could address climate change and grow its economy by expanding its renewable energy programme, thus creating jobs, while protecting its natural beauty, thus promoting sustainable tourism. Malawi is also creating a national fund by mobilising its domestic revenues, such as mining fees, annual green levies on vehicles and high energy consuming products such as air conditioners. These initiatives both incentivise green behaviour and generate revenue for capitalisation of Malawi's national fund.

[41] USAID (2018), Building urban resilience to climate change: A review of Madagascar, available at https://reliefweb.int/report/madagascar/building-urban-resilience-climate-change-review-madagascar
[42] http://www.mw.undp.org/content/malawi/en/home/presscenter/articles/2017/06/23/establishing-a-national-climate-change-management-fund.html

Namibia aims to **reduce** greenhouse gas emissions by **89%** by 2030

Lawmakers drafted and adopted **Namibia**'s fifth National Development Plan in May 2017. It includes sectoral programmes that legislators referred to within the NDC. These development plans act as short- to medium-term building blocks to Namibia's Vision 2030. In addition to Namibia's NDC, the 2011 National Policy on Climate Change and National Climate Change Strategy and Action Plan 2013-2020 support the government's climate and development agenda.[43] Namibia aims to reduce greenhouse gas emissions by approximately 89% by 2030. It has a strong focus on adaptation within its NDC and increased adaptive capacities and reduced vulnerabilities remain important for Namibia's natural and human systems. Specific examples of adaptation objectives include climate smart agriculture (CSA); economic and livelihood diversification; smart irrigation and water management systems; and the development of early warning systems and climate data and forecasting.

Seychelles developed its first climate adaptation debt restructuring, which includes a strong marine conservation component, with the support of the Nature Conservancy.[44] It will provide funding to support the country's adaptation to climate change through improved management of coasts, coral reefs and mangroves, resulting in the implementation of the Marine Spatial Plan for the entire Seychelles Exclusive Economic Zone, a territory approximately 3000 times the size of the country's land mass, which Seychelles will manage as marine protected areas (MPAs). The Nature Conservancy will purchase up to $21.6 million of the nation's more than $400 million debt under this scheme, limiting activities such as oil exploration and large-scale development in the most fragile habitat while providing Seychelles with an innovative financial tool to support climate change adaptation, restore coral reef and mangroves nd improve sustainable tourism.[45]

South Africa is developing a Climate Change Bill to provide a coordinated and integrated response to climate change and its impacts in accordance with the principles of cooperative governance. The bill will also address effective management of inevitable climate change impacts through enhancing adaptive capacity, strengthening resilience and reducing vulnerability to climate change, with a view to building social, economic, and environmental resilience and an adequate national adaptation response. It will make a fair contribution to the global effort to stabilise greenhouse gas concentrations in the atmosphere at a level that avoids dangerous anthropogenic interference with the climate system within a timeframe and in a manner that enables economic, employment, social and environmental development to proceed in a sustainable manner. The country also continues to reduce carbon emissions while easing the transition to a climate resilient and low carbon economy. Legislators have taken significant actions to respond to, and reduce, emissions and climate impacts, including increasing the inclusiveness of climate action through information sharing.

Zambian legislators launched a National Policy on Climate Change to mitigate the threats posed by climate change to its development process, including attainment of the Vision 2030. This policy provides guidance on how the Zambian economy can grow in a sustainable manner and complement the implementation of the seventh National Development Plan. It will promote coordination of all adaptation and mitigation measures towards combating climate change. Its vision is "A prosperous and climate resilient economy by 2030." Zambia's rationale for formulating the NPCC is to establish a coordinated national response to climate change as it previously addressed climate change issues in a fragmented manner using various sectoral policies, strategies and plans.

Zimbabwe's first round of consultations in the urban sector on the implementation of a National Adaptation Plan (NAP) to climate change had a smooth start on 23 November 2017 with a call for partnerships to improve the resilience of cities to climate change impacts and support clean and climate smart urban investments. The NAP is a flexible process that builds on the country's existing adaptation activities and helps integrate climate change into national decision-making. It analyses climate risks and adaptation options in the short- and long-term, which helps shape the country's climate policy and implementation of the Climate Change Response Strategy. It also supports the scaling up of climate resilient development initiatives and highlights the benefits to the economy of integrating adaptation to climate change measures in planning, such as in green building investments.[46] More broadly, adaptation investments in urban centres such as those that increase the resilience and reliability of urban infrastructure can improve broader economic

[43] https://ndcpartnership.org/sites/all/themes/ndcp_v2/docs/country-engagement/countries/NCDP_Outlook_Namibia_v1b.pdf
[44] http://destinationreporterindia.com/2018/03/23/seychelles-launches-innovative-climate-adaptation-scheme/
[45] https://www.nature.org/ourinitiatives/regions/africa/seychelles-msp-phase-1-final.pdf

performance by increasing competitiveness and attractiveness for investors and the private sector in general. These also increase resilience in cities, helping basic poverty reduction and attainment of the SDGs. Instead of seeing vulnerability to climate impacts as an additional concern, cities can mainstream resilience into existing efforts.

Capacity

Article 20.3 of the Protocol on Environmental Management for Sustainable Development notes that state parties shall design gender responsive capacity building, education and training on environmental management and climate change for sustainable development initiatives.

Women and men have different capabilities in terms of mitigating and adapting to climate change at the individual and group levels. Education, gender roles, division of labour and income shape the options available to women and men to convert to low-carbon lifestyles and related technologies. Capacity building initiatives on gender and climate change have been attempting to help close the gender gap in climate change mitigation in the region.

Uncovering the dynamics of power relations helps stakeholders understand why some groups contribute differently to greenhouse gas emissions and why climate change affects some differently than others. It also allows for an analysis of the ways in which climate change mitigation and adaptation may lead to different roles and responsibilities in the future. All stakeholders must consider these to identify solutions that draw on the skills, knowledge, resources and experiences of both sexes.

Stakeholder engagement

Protocol on Environmental Management for Sustainable Development
Article 20.5: State parties shall employ people-centred, equitable, gender inclusive and participatory consultations of all stakeholders in all environmental management and climate change for sustainable development programmes and initiatives.

The United Nations identifies climate as the defining human development challenge in the 21st century. According to *Climate Risk and Vulnerability, A Handbook for Southern Africa* weather-related disasters between 1980 and 2016 in SADC resulted in damages of $10 billion, left 2.47 million people homeless and affected a further 140 million people.[47]

The post-2015 SADC Protocol on Gender and Development states in **Article 31** in *Part Ten, Gender and Climate Change* that: Develop policies, strategies, and programmes to address gender issues in climate change should be in accordance with the SADC Protocol on Environment and Sustainable Development. It also obliges states to conduct research to assess the differential gendered impacts of climate change and put in place effective mitigation and adaptation measures.

Access to clean water is a major challenge across SADC, including in Zimbabwe, where legislators have been trying to adapt to climate change by improving urban infrastructure.
Photo courtesy of Manyame Rural District Council

[46] http://www.zw.undp.org/content/zimbabwe/en/home/presscenter/articles/2017/11/27/climate-change-towards-a-national-adaptation-plan-for-zim.html
[47] Davis-Reddy, C.L. and Vincent, K. 2017: Climate Risk and Vulnerability: A Handbook for Southern Africa (2nd Edition), Council for Scientific and Industrial Research, Pretoria, South Africa.

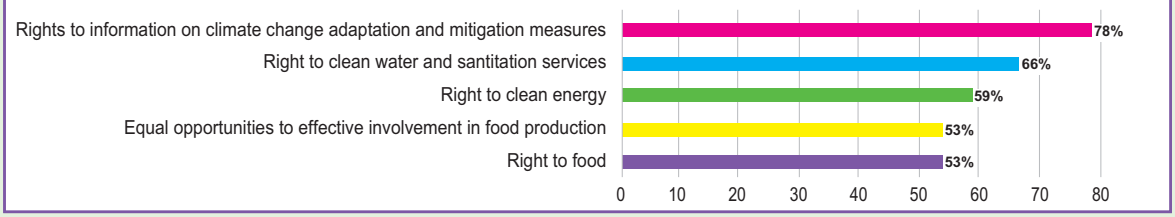
have different **capabilities** mitigating and adapting to climate change

Climate summits promote best practices for mitigating climate change at community level

Gender Links (GL) works with all levels of governments, organisations and communities to implement strategies and programmes to meet the targets set in the Revised SADC Protocol on Gender and Development.

GL gathers good practices and analyses how they contribute to the implementation of the targets set in the Protocol. Participants presented 30 good practices on climate change at summits in 2017 and 2018. They show a growing trend of local, community-based initiatives to address climate change. Summit entries are diverse and there is evidence of targeted strategies that respond to the needs of communities.

Figure 10.2: Summit topics

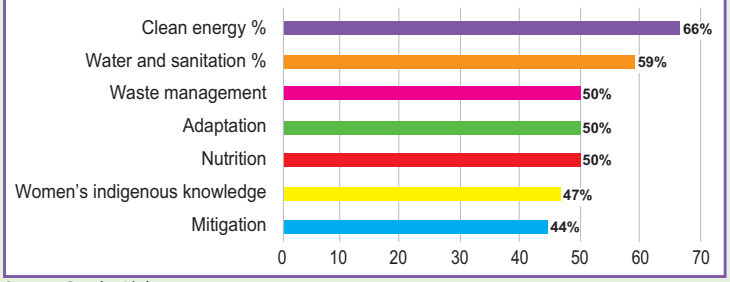


Source: Gender Links.

Climate change awareness on the increase: As illustrated in Figure 10.2, more than three quarters of the good practices provided information on adaptation and mitigation measures. A lower number of entries focused on water and sanitation and clean energy.

More work is needed on food rights: Lower proportions of the good practices focused on equal opportunities to effective involvement in food production and food security. This a concern as nutrition is a major challenge in SADC. Experts project that Angola, DRC, Malawi, Tanzania and Zambia will increase their populations at least five-fold by 2100 (UN, 2015). Such growth imposes profound challenges in meeting future food requirements.[48]

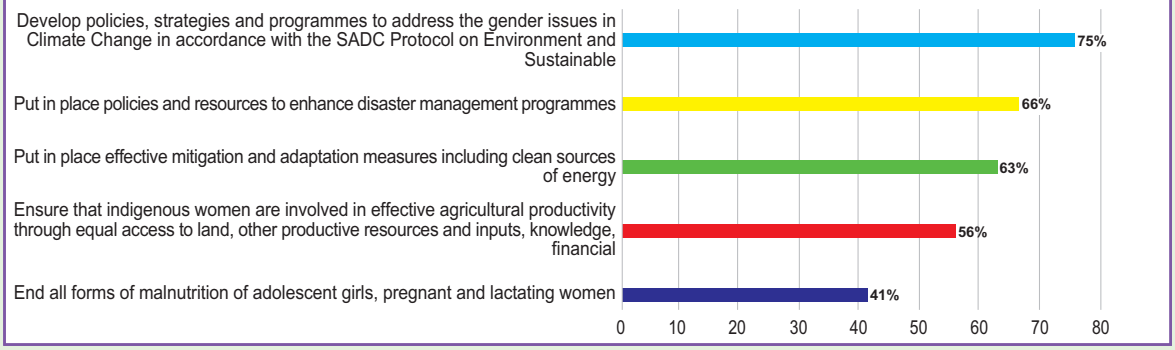
Figure 10.3: Summit sub-topics



Source: Gender Links.

There is little focus on women's indigenous knowledge and mitigation: As illustrated in Figure 10.3, more than half of Summit entries on climate change focused on clean energy and water and sanitation. Meanwhile, half of all the entries focused on waste management, adaptation and nutrition.

Figure 10.4: Strategies to address Protocol targets

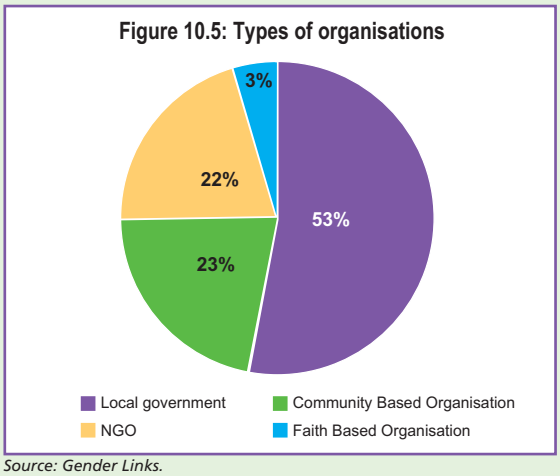


Source: Gender Links.

[48] Davis-Reddy, C.L. and Vincent, K. 2017: Climate Risk and Vulnerability: A Handbook for Southern Africa (2nd Edition), Council for Scientific and Industrial Research, Pretoria, South Africa.

Stakeholders prioritise policy while nutrition is low on the agenda: Figure 10.4 shows that, of the total number of climate change entries, 75% contribute to policy development, strategies and programmes. As mentioned previously, nutrition is low on the agenda at 41% and needs urgent attention. Two thirds of the initiatives addressed disaster management policies and resources as well as mitigation and adaptation. About half the entries referred to the involvement of indigenous women in climate change.

Figure 10.5: Types of organisations



Source: Gender Links.

Local action to address climate change predominates: The analysis in Figure 10.5 shows that 53% of the case studies on climate change originated from local government. GL works with councils to develop gender action plans that includes climate change as part of the Local Government Centres of Excellence (COE) process. Almost equal numbers of non-governmental and community organisations presented case studies on climate change.

Of the 30 submissions, 13 came from COEs in Zimbabwe. The Zimbabwe councils have been engaged in a diverse set of initiatives to address climate change at the local level.

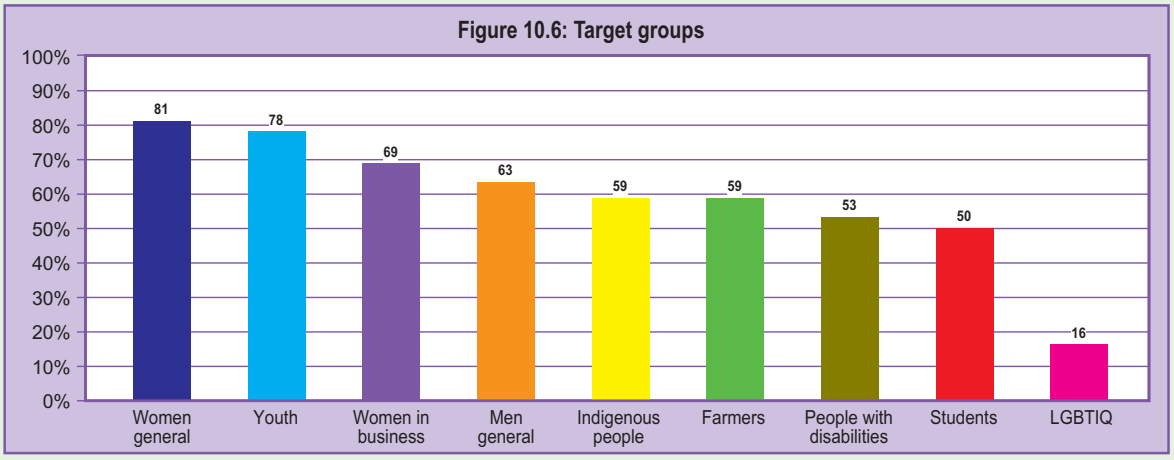
Table 10.3 provides an overview of the types of

Table 10.3: Types of initiatives implemented by councils

Council	Brief description of project
Right to clean water and sanitation	
Beitbridge Town Council	The Earthworms Waste Water Treatment and Recycling cleans, detoxifies, disinfects and neutralises the waste water from the kitchen, laundry, bath and flush toilet.
Manyame RDC	Three thousand households did not have access to clean water and sanitation. Women and children had to travel long distances in search of water. The Council drills boreholes in all 21 wards every year.
Chegutu Municipality	The Council provides piped water to the residents through a system powered by solar energy.
Right to clean energy	
Murewa Rural Development Council (RDC)	Over the past five years, Council embarked on an ambitious district-wide afforestation and reforestation programme. It established communal woodlots in all the 30 wards. Amongst others, schools participate in tree growing and tree care.
City of Kadoma	The Council targets major events and school programmes to plant "Trees of Memory." At each event people plant a minimum of five trees.
Goromonzi RDC	The Council advocates and educates the community on the importance of tree planting as measure to mitigate climate change. This is important in rural areas where people cut trees down for domestic use.
Waste management	
Municipality of Chinhoyi	There were many illegal dumps in the area increasing the risk of communicable diseases. The Council created a multi-stakeholder committee to raise awareness on waste management and arranged clean-up campaigns.
Chegutu Municipality	Waste recycling reduces illegal dumping and burning of waste. The project also generates money for better livelihoods by creating products from recycled goods.
Gokwe Town Council	The town does not have an approved land fill and the town is currently practicing crude tipping. The community-based health club, Ziso Rehutano, has embarked on a plastic recycling project.
Nyanga RDC	Litter was being thrown everywhere, including in the backyards of residential accommodation, the streets and open spaces. The Council procured bins and established a revolving fund for residents to buy refuse bins at reduced prices; started public education and campaigns; and established a solid waste recycling project.
Municipality of Gwanda	The Council creates self-employment through waste recycling and reuse.
Adaptation	
Manyame RDC	Due to overcrowding and inadequate infrastructure, the Council is re-housing people into planned and environmentally-friendly communal settlements.
Right to information on climate change adaptation and mitigation measures	
Bulawayo City Council	The Council is running education and awareness programmes to promote innovation to overcome climate change in the community.
Right to food	
Umguza RDC	The Council is working with Community Technology Development Organisation (CTDO) to build community resilience from shocks and hazards through crop and livelihood diversification.

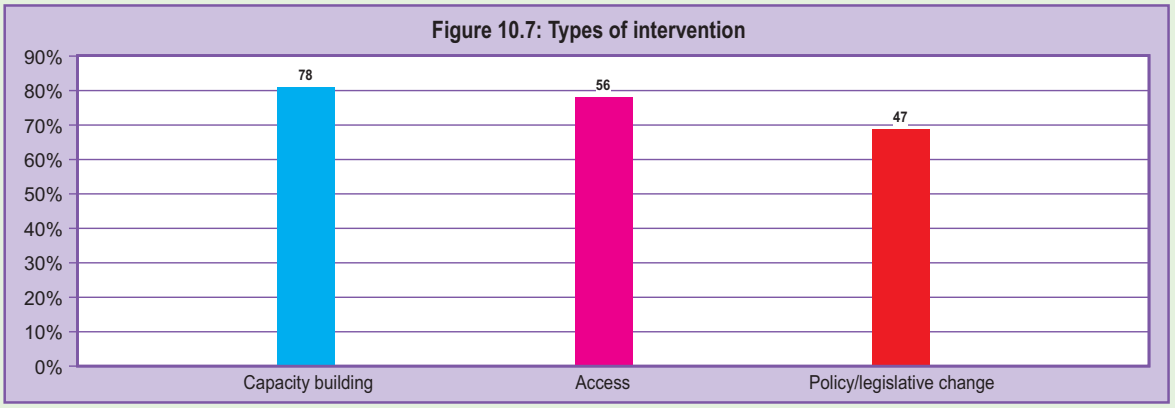
Source: Gender Links.

initiatives implemented by the councils and which Protocol targets they address. It shows that councils have been engaging in innovative locally relevant strategies to mitigate and adapt to climate change. Community involvement is central to the initiatives in the councils.



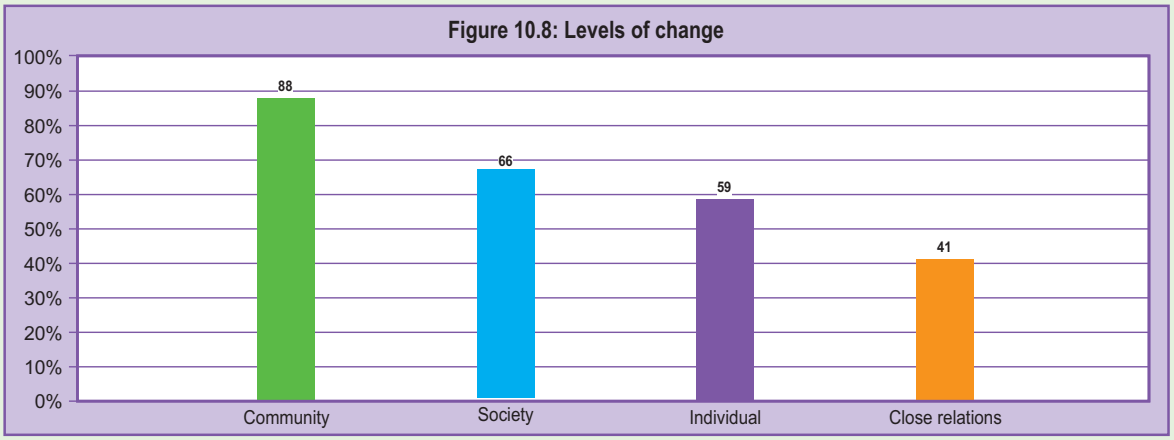
Source: Gender Links.

Women and youth represent the primary target groups: Figure 10.6 notes that women comprise the primary targets of the climate change good practices (81%) followed by youth (78%). Similar numbers of indigenous people, men, farmers and women in business participate in the good practices. Lesbian, gay, bisexual, trans-sexual, intersex and queer (LGBTIQ) people constitute 16% of the target group.



Source: Gender Links.

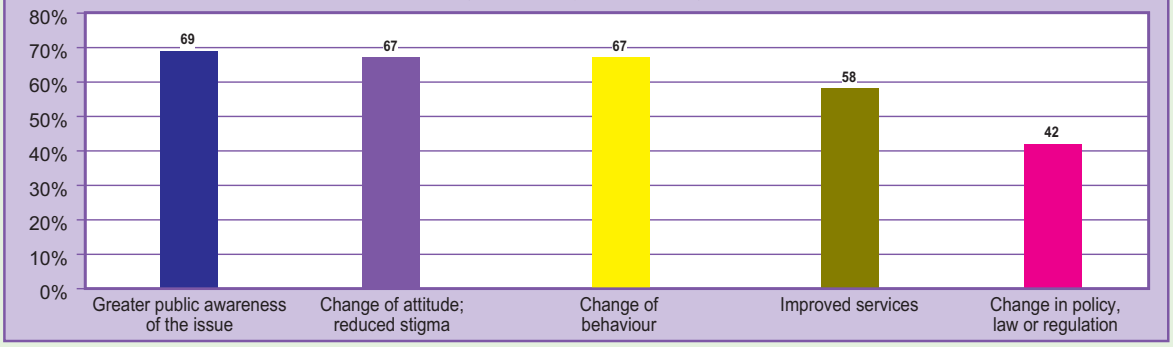
Capacity-building most common climate change intervention at local level: Figure 10.7 shows that more than three quarters (78%) of the good practices focus on capacity building. Fewer cases focus on access and policy and legislative change. Capacity building is important to promote high levels of ownership within communities to address issues of climate change.



Source: Gender Links.

Communities leading the charge: As mentioned earlier and as illustrated in Figure 10.8, communities have been taking ownership of the strategies to address climate change. Similar levels of change occurred in society and amongst individuals.

Figure 10.9: Types of change



Source: Gender Links.

Positive change recorded overall: Figure 10.9 shows that, overall, greater public awareness, changes in attitude and behaviour scored at between 69% and 67% when measuring the types of change resulting from the good practices. The low score for changes in policy, law or regulation is a concern. Long term change can only occur if there is an enabling environment guided by a strong policy and legislative framework.

Challenges

The analysis highlights gaps in strategies to address food security and nutrition. With the burgeoning population in SADC, food security will increase in importance. The lack of proper nutrition affects all aspects of people's lives. Children and young people struggle to cope or even attend school because of hunger. Food security needs to move to the top of the climate change agenda.

Lessons learned and next steps

In their submission on using earthworms to recycle water, the Beitbridge Town Council identified the need to embrace scientific research and to demystify the science around climate change. Communities should not be afraid of engaging with scientific innovation and utilising any of the positive outcomes in their own initiatives. GL needs to engage with the local communities on issues of food security and nutrition. The councils and communities also need to prioritise food security in their climate change strategies.

State parties shall utilise local knowledge, particularly women's skills, knowledge and capacities in mitigation and adaptation strategies for environmental management.

Using renewable energy and energy effiency technologies with skills learnt. *Photo: GenderCCSA*

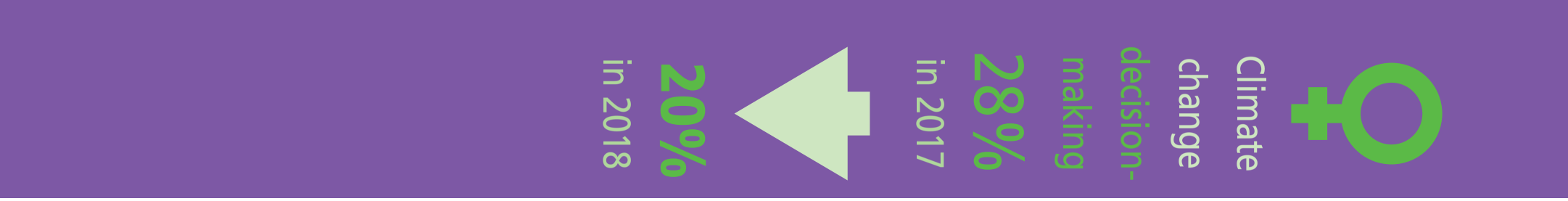


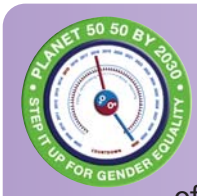
Table 10.3: Representation of women and men in key decision-making positions related to the environment

	Angola		Botswana		Comoros		DRC		Lesotho		Madagascar		Malawi		Mauritius		Mozambique		Namibia		Seychelles		South Africa		eSwatini		Tanzania		Zambia		Zimbabwe		Total Female	Total Male	Overall total	% Female
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F				
Year	2018		2018		2018		2018		2018		2018		2018		2018		2018		2018		2018		2018		2018		2018		2018		2018					
Minister of Environmental Affairs (Wildlife)	0	1	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	0	1	0	1	1	0	1	0	0	1	4	12	16	25
Deputy Minister of Environmental Affairs	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	1	0	1	1	1	0	2	4	6	33
Permanent Secretary/DG	1	0	1	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	1	0	0	0	0	1	0	1	0	0	1	0	0	0	2	6	8	25
Minister of Tourism	0	1	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	0	1	2	14	16	13
Deputy Minister of Tourism	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	3	1	4	75
Permanent Secretary/DG	1	0	1	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	1	0		0	1	0	1	0	0	0	1	0	1	0	0	9	9	0
Minister of Fisheries	0	1	0	0	0	0	1	0	0	0	1	0	0	0	1	0	1	0	1	0	0	1	1	0	1	0	1	0	0	1	0	0	3	8	11	27
Deputy Minister of Fisheries	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	1	0	0	0	0	0	1	3	4	25
Permanent Secretary/DG	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	1	0	0	0	0	0	0	0	0	5	5	0
Minister of Water Affairs	1	0	1	0	0	0	0	0	1	0	0	1	1	0	1	0	1	0	1	0	0	0	1	0	0	1	1	0	1	0	0	1	3	10	13	23
Deputy Minister of Water Affairs	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	1	0	0	1	0	2	0	0	0	2	5	7	29
Permanent Secretary/DG	1	0	1	0	0	0	0	0	1	0	1	0	1	0	0	1	0	0	1	0	0	0	1	0	0	1	0	0	0	0	0	0	2	7	9	22
Minister of Agriculture	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	0	1	1	0	1	0	1	0	1	0	1	0	1	15	16	6
Deputy Minister of Agriculture	0	0	1	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1	2	0	1	0	3	6	9	33
Permanent Secretary/DG	1	0	1	0	0	0	0	0	1	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	1	0	0	0	0	0	0	0	0	8	8	0
Total	7	3	10	1	5	1	4	0	8	1	6	1	6	0	9	1	5	0	12	3	2	2	10	5	6	4	8	1	11	2	4	3	28	113	141	20
Total Composite	10		11		6		4		9		7		6		10		5		15		4		15		10		9		13		7					
Percentage	30%		9%		17%		0%		11%		14%		0%		10%		0%		20%		50%		33%		40%		11%		15%		43%					

Source: GenderCCSA 2018.

Table 10.4 illustrates women's representation in climate change decision-making in the region, which dropped from 28% in 2017 to 20% in 2018. Women have yet to reach one third of those in decision-making positions, nowhere close to 50/50 representation. Seychelles leads the way, increasing from 40% in 2017 to 50% in 2018, followed by Zimbabwe which dropped from 44% in 2017 to 43% in 2018 and eSwatini at 40%. DRC, Malawi and Mozambique have no women in decision-making positions related to climate change.

Research and adaptation measures for climate change



Article 31, 1b: State parties shall conduct research to access the different gendered impacts of climate change and put in place effective mitigation and adaptation measures.
Article 20.6: Protocol on Environmental Management for Sustainable Development: State parties shall, as part of their research agenda, include all aspects of gender in environmental management, risk assessment, emergency and disaster response, and other sustainable development initiatives.

Lack of climate resilience in SADC due to differing economic development, resource availability and infrastructure capacity levels may eventually pose a risk to the entire region. It is important to understand how risks can be shared, for example, through trade, technology transfer and information sharing among SADC countries, and how climate change will exacerbate these risks. The climate across the SADC region is highly diverse and driven by a range of distinct climatic systems. Evidence shows that the SADC region has already experienced an increasing frequency of hot days and decreasing frequency of cold days. Rainfall trends have been variable, but evidence points to an increased inter-annual variability to date, with extremely wet periods and more intense droughts in different countries.

Cyclones in eastern SADC have resulted in extensive flooding, causing economic losses and damage to infrastructure, crops and livelihoods.[49] Droughts in several SADC countries have also changed the length and timing of the growing season and led to a drop in agricultural productivity due to lower crop yields. These impacts have been increasing and becoming persistent, leading to a rise in food insecurity and food prices. This has also affected energy generation at both the smallholder (fuel wood availability) and national scale (loss of hydropower potential). Additionally, climate-related diseases triggered by heat waves and floods, such as malaria and diarrhoea, have become more prevalent. These current climate-driven impacts mean that people in the SADC region already face many risks.

All countries have been involved in the development of national statements on climate change, notably National Adaptation Plans of Action (NAPAs) and National Adaptation Plans (NAPs). However, although inter-regional opportunities may exist, SADC states have not aligned these plans with those of neighbouring countries. The NAP process has potential to be integrated across the region in a systematic manner through capacity development and knowledge sharing. This, however, is not currently happening.

Several relevant policies and strategies exist at the regional level. These include the SADC Policy Paper on Climate Change, the SADC Water Sector Climate Change Adaptation Strategy and the Regional Climate Change Programme. Several existing sector-specific strategies also support the adaptive capacity of the region, yet legislators have not necessarily built these purposefully for climate change adaptation. These include those focused on shared water, migration and health, fisheries, biodiversity and regional economic integration. Regarding the latter, despite policies promoting integration, the policy environment has generally become more unfavourable to increased regional trade over the past decade.[50]

To adapt to the risks associated with the predicted impacts of climate change, an appropriate response would be for SADC to integrate further. Integration requires adequate infrastructure, not only in terms of transport, but also energy to facilitate economic development in all of the SADC countries. Integration is necessary for the continued growth and

Cyclones led to extensive flooding, economic **losses, damage** to infra-structure, crops and liveli-hoods

[49] https://www.sanbi.org/wp-content/uploads/2018/03/ltas-factsheet-1.pdf
[50] https://www.sadc.int/themes/meteorology-climate/climate-change-adaptation/

Each country **MUST** adapt

development of the region, regardless of climate change. However, it is especially pertinent in a drier future.

Countries need to carry out adaptation measures independently. Although integration is required regionally, SADC as an institution is incapable of implementing adaptation measures. It is only with the support of individual nations, implementing a range of changes, that stakeholders can improve the adaptive capacity of the region.[51] However, increased integration comes with risks and complexities. For example, migration between countries that have different development profiles is difficult to control and manage with increased integration.

For the SADC region, it is important to remove disincentives for adaptation to climate change and regional integration. Increased integration should be on the condition that SADC as a whole becomes stronger and better prepared for climate impacts. Lawmakers should catalyse opportunities so that the region develops beyond the current situation, which sees entire communities paralysed by drought or floods year after year. What is especially pertinent is that a resilient country, without a resilient SADC region around it, is in fact not resilient at all. To facilitate this development, all sectors require better capacity to facilitate increased regional integration.

Countries in the region differ not only economically, but politically, climatically, through capacity, infrastructure, and development too - SADC has numerous asymmetries. Therefore, climate is not the only major consideration. In some sectors, SADC is competent in the development of regional plans. In other sectors, implementation has been inadequate. The challenge for SADC, therefore, is to move beyond planning and into implementation at a regional level. The asymmetries already mentioned make this complicated. Countries are not legally bound, or often do not have the ability to implement. Thus, national sectors within SADC countries should ensure there is adequate support for climate change. Alternatively, a regional hub may support capacity development in order to support implementation.

Aside from the development of capacity, legislators need to re-think funding of initiatives and projects in SADC. Because of the high growth rates of several the SADC countries, there is an opportunity for this to occur. However, without adequate funding to implement, and without integrated planning, there is a risk that some initiatives or infrastructure investments could be maladaptive.

Nutrition innovation in eSwatini

Beekeeping and smart agriculture are creating opportunities for eSwatini communities to increase their food security and providing income generation opportunities.

Climate Smart Agriculture (CSA) includes three innovations: conservation agriculture, permaculture nutrition gardens and ferro-cement water harvesters (tanks). Farmers do not have to buy crops and vegetables but can cultivate them in their own fields even in harsh conditions. The climate smart interventions ensure that every household has at least a meal a day and some income. This innovation is sustainable because it uses local materials.

Youth in eSwatini have also started nursery businesses to supply the farmers with seedlings for permaculture backyard gardens. This also reduces the number of people falling ill as more people have access to a balanced diet that is readily available.

The eSwatini top bar hive way of keeping bees is a simple affordable technique and does not require expensive harvesting machinery for farmers. Training of communities by the Lower Usuthu Sustainable Land management (LUSLM) project aims to eradicate poverty through small stock farming and by increasing the number of climate resilient households.

Beekeeping has been successful in Vikizijula, Mphumakudze and Bulunga. Farmers receive training on beekeeping, its financial implications and the climate change impact. Before the training, farmers cut down trees but now they know they must conserve them. Beekeeping is cost effective because the start-up equipment is affordable. The community has learnt new skills such as hive construction, good hive inspection and management skills.

[51] SANBI (2017) Climate Change Adaptation Southern African Development Community : Perspectives for SADC, available on https://www.sanbi.org/wp-content/uploads/2018/04/ltas-factsheet-1.pdf

Access to clean water and energy sources

The interrelationship between water and energy supply, water resources and climate change are particularly relevant to decision-making in Southern Africa, according to a recent World Bank report published as a background paper to support dialogue in the SADC region.[52] The region's water resources are unevenly distributed, both spatially and temporally, leading to significant water scarcity in some parts of the region and relative abundance in others. Leaders also have limited knowledge about the region's overall water resource levels. Experts predict that climate change will reduce rainfall levels, increase rainfall variability, and increase ambient temperatures, but there is little certainty about when and by how much. Consi-dering these spatial differences, the region needs to approach water and energy sector planning in tandem at local, national, river basin, or regional levels, depending on the nature of the issue.

Women walk long distances to collect water in Madagascar, where almost half of the country does not have access to clean water. *Photo: Razanandrateta Zotonantenaina*

The region has uneven distribution of hydrological resources, with southernmost countries like South Africa, Botswana and Namibia receiving much lower levels of rainfall than the northern countries, such as DRC, Angola and Zambia. SADC has 15 major transboundary river basins, with more than 70% of the region's freshwater resources, shared between two or more countries.

Various issues and implications around the energy-water nexus also characterise the region, which has a strong interlinking of energy and water security - something planners, policymakers and investors should recognise. For example, water is crucial for hydropower generation and for cooling in thermal generation plants, while the region needs electricity to advance various stages of the water supply and sanitation value chain.

The SADC region has vast energy resources. Coal has been the source of most power generation activity in the east and northeast regions of South Africa. The region has the potential for 56,000MW of hydropower in DRC and Mozambique alone. A key challenge is accommodating climate change uncertainty when making energy investment decisions. Climate change will continue to have a significant impact on water and energy systems.

Angola is increasing electric power availability to diversify the economy and meet the increasing energy demand of a growing population. To achieve a targeted 9.9 gigawatt (GW) of installed generation capacity and a 60% electrification rate by 2025, the government has instituted an ambitious infrastructure plan.[53] Legislators have declared that, by the end of 2018, the country's power generation mix will consist of 64% hydropower (4 GW), 12% natural gas (750 MW) and 24% other fossil fuels (1.5 GW). Leaders anticipate this 6.3 GW total once several major projects come online during 2017 and 2018: Soyo (gas) combined cycle plant (750 MW), Cambambe hydroelectric phase 2 (700 MW) and the Lauca hydroelectric project (2.1 GW). For these and future projects, external financing and private project development will be key, especially given the current government budget and economic downturn. Experts estimate current electrification rates at 43% in cities and less than 10% in rural areas. As a result, both businesses and residents rely heavily on diesel generators for power. Given

Hydro-logical resources uneven

[52] Water Power Magazine (2017), Addressing the energy-water nexus in Southern Africa, available at http://www.waterpowermagazine.com/opinion/opinionaddressing-the-energy-water-nexus-in-southern-africa-5818909/
[53] https://www.export.gov/article?id=Angola-Electric-Power-Generation

Vast energy resources

the four-fold increase in diesel fuel prices during 2015 due to government subsidy cutbacks, many began to explore alternative energy solutions. Angola holds enormous potential for renewable energy production. Mapping studies completed by the Ministry of Energy and Water in June 2014 identified potential for 55 GW solar power, three GW wind power and 18 GW in hydropower throughout the country. To address rural demand, the government is pursuing the development of small-scale off-grid projects leveraging fossil fuels as well as renewable technologies (small hydro, solar, wind and biomass).

Botswana's Department of Energy Affairs (EAD) within the Ministry of Minerals, Energy and Water (MMEWR) leads the country's national energy policy. MMEWR through Botswana Power Corporation (BPC) represents the main decision-maker for the power generation, transmission and distribution. EAD administers the Electricity Supply Act.[54] BPC has an installed capacity of 450 MW from the Morupule B coal-fired power plant. The national demand averages 550 MW, covered by importing up to 150 MW from South Africa that mitigates, but does not prevent, load shedding. In 2013, lawmakers installed two emergency diesel facilities, 70 MW at Matshelagabedi and 90MW at Orapa, to avoid such outages. Morupule A, a 132 MW facility where capacity dropped to 30% in 2012, has been undergoing rehabilitation and upgrading to add capacity. Morupule B also underwent expansion in 2016 to add another 300 MW by 2020. Based on 2013 data, Botswana's national electrification rate reached 66% (54% in rural areas, 65% in urban), but one million people still lack access to electricity.[55]

According to a new study, the **DRC** is in a good position to harness its renewable energy potential to power its electricity needs.[56] According to the report, the country's wind and solar potential, measured at 85GW, could address the country's chronic power shortages and would far surpass the output of the planned 4.8GW Inga 3 Dam on the Congo River. Indeed, the country could install 60GW of that energy at less than $0.07 per kWh, which makes it competitive with conventional power options, notes the report. The DRC has significant renewable energy potential, some of which it could bring online before construction even begins on Inga 3.

Water represents **Lesotho**'s main source of capital, since it exports water to South Africa, and energy is also key because of the potential that Lesotho's vast water resources offer for renewable energy.[57] Renewable energy output from the Lesotho Highlands Power Project (LHPP) will be 6000 MW from wind and 4000 MW from hydro sources. This is equivalent to about 5% of neighbouring South Africa's electricity needs. Experts estimat Lesotho's hydro generation potential at 450 MW. The Lesotho Solar Energy Society (LESES) has been championing the implementation of solar in the country. Installers and dealers have registered with the LESES and this enables the implementation and enforcement of regulations and standards (REEEP, 2012). Renewables are a priority in the Energy Policy 2015-2025. Specific targets include promoting solar in the design of new buildings and phasing out energy intensive items in old buildings, such as electrical geysers, and replacing them with solar water heating. The Rural Electrification Master Plan aims to increase access to electricity by encouraging the uptake of solar.

Madagascar is the third African country to join the Scaling Solar programme, with a planned 30-40MW solar facility envisaged to help ease daily interruptions of power service.[58] The World Bank highlighted that the island nation suffers from frequent power outages, and fewer than one fifth of the population has access to electricity. The World Bank ranked Madagascar 187 out of 189 countries regarding the difficulty, delay and cost of getting electricity.

The planned Scaling Solar project will provide a reliable alternative to expensive diesel generators, drawing on an abundant source of renewable energy.[59] In September 2017, Siemens signed an MoU with Madagascar to cooperate and identify measures that will fast-track power generation and increase capacity by an additional 300MW by 2019. Other key aspects of the MoU include an assessment of the electrical grid based on the new power generation sources; applying financing concepts that will ensure the long-term sustainability of these infrastructure initiatives; and creating opportunities for local job creation during construction and operation. "The primary goal of this agreement is to increase national power generating capacity and to connect the local

[54] https://www.usaid.gov/powerafrica/botswana
[55] https://www.export.gov/article?id=Angola-Electric-Power-Generation
[56] https://www.esi-africa.com/drc-holds-renewable-energy-potential-reveals-study/
[57] https://wedocs.unep.org/bitstream/handle/20.500.11822/20505/Energy_profile_Lesotho.pdf?sequence=1&isAllowed=y
[58] https://www.esi-africa.com/madagascar-joins-scaling-solar-scheme-with-added-energy-storage/
[59] https://www.esi-africa.com/madagascar-targets-add-300mw-2019/

population to the power grid," said Sabine Dall'Omo, Siemens' CEO for Southern and Eastern Africa.

Madagascar has 676MW of installed generation capacity and studies estimate that access to electricity stands at around 20%. Opportunities exist to increase the installed capacity through hydropower and exploring oil reserves to meet the targets set by government, Siemens noted. Improving the country's energy mix will strengthen the well-established agriculture and mining industry and emerging tourism and textile industries.

In **Malawi**, 90% of people do not have access to electric power and the 10% who do experience frequent power cuts. Blackouts have recently become more frequent because low water levels have affected the country's two hydroelectric power plants. In the past decades, rainfall has declined. As a result, the government is turning to coal to improve the power situation. The energy crisis in Malawi affects almost everyone. Problems exist in the health sector and many have lost jobs because of company closures. Blackouts have even disrupted parliament sessions. Malawi has approached China for funding worth $600 million for a new coal-based power plant in Kammwamba in the south.[60] This is a major concern for environmental experts because coal burning is harmful to the environment. It releases carbon emissions and thus drives climate change. The Paris Climate Agreement is about reducing such emissions and Malawi is a party to the Paris accord. It has committed to mitigating global warming. Building new coal-fired facilities, however, exacerbates the problem. Malawi remains one of the poorest countries in Africa and its current shortage of electricity seems to trump climate commitments in the eyes of its leaders.

Mauritius' Ministry of Energy and Public Utilities has signed an MoU with the Italian Ministry of Environment, Land and Sea for cooperation in renewable energy and energy efficiency.[61] The Italian government will invest two million euros to help the two countries improve scientific research on energy technologies. The agreement will result in the introduction of new smart grid technologies and help improve reliability of grid networks through the expansion of renewable energy portfolios. The two countries will also collaborate to provide energy stakeholders with training and capacity building in energy efficiency. The first project under the MoU will be a conversion of electrical irrigation pumps into solar pumps. Additionally, an Abu Dhabi Fund for Development (ADFD) loan of $10 million will help the Central Electricity Board install solar PV systems on rooftops of 10 000 households as part of the government's efforts to alleviate poverty while contributing to the national target of achieving 35% of renewable electricity in the energy mix by 2025.[62] This project has the potential to significantly transform the lives of more than 2.5 million people and alleviate poverty by bringing affordable energy to low-income communities.

Community members test a solar powered cooker in South Africa in 2017. *Photo: Gender Links*

South Africa's Renewable Energy Independent Power Producer Procurement Programme (REIPPPP) is a collaboration between the public sector and private companies for infrastructure delivery.[63] Experts have hailed the programme as one of the most successful public-private partnerships in Africa in the past 20 years. Its designers created it to kickstart private-sector investment in renewable energy as a response to electricity load shedding. It received the first bids towards the end of 2011 and two years later some of the projects were already up and running. So far, it has awarded more than 6300 megawatts from about 90 renewable energy facilities - mostly wind and solar. The socio-economic effect has also been substantial, with projects required to contri-

90% of Malawians **no** access to electricity

[60] https://www.dandc.eu/en/article/order-manage-its-current-energy-crisis-malawi-turns-coal
[61] https://www.esi-africa.com/mauritius-italy-re-energy-efficiency/
[62] http://www.engineeringnews.co.za/article/rwanda-mauritius-get-funding-for-solar-pv-projects-2018-01-15/rep_id:4136
[63] https://mg.co.za/article/2018-02-09-00-water-crisis-look-to-sas-renewable-energy-programme-for-solutions

Clean energy, gender equality for sustainable development and for tackling climate change

bute a percentage of revenues to ensure local residents benefit directly from the investments attracted into an area.[64]

Renewable, clean energy and gender equality are preconditions for sustainable development and for tackling climate change. Throughout Africa, more than 600 million people (about 50% of the population) do not have access to sustainable, clean energy sources. In Africa, women produce and consume energy in both urban and rural areas.[65] They have responsibility for producing energy through collecting biomass-based fuels and for consuming energy in their household activities, microenterprises and agriculture. Women can be powerful agents for change in the transition to, and promotion of, sustainable energy, through their role as the primary energy managers in households. A gender-responsive energy policy assesses gender gaps, identifies actions to close them and promotes women's engagement in the energy sector, including in decision-making processes.

Integrating gender in energy and water policies

The challenge in many SADC countries is that many stakeholders often place gender in stand-alone chapters of policy documents rather than integrating it across all chapters. In a few instances, some still consider women as vulnerable, rather than recognising them as key agents of change towards sustainable energy solutions. Policies in Kenya and Malawi lump the needs of women, youth and the physically challenged together without referring to the different vulnerabilities - and related root causes - of the three groups. Most seriously, two policies in the region do not include any references to gender, women or men. Moving beyond the policy level, on-the-ground implementation remains challenging and gender gaps abound in the energy sector. Women continue to have less access to efficient energy sources and to meaningful roles in influencing energy policies. Socially-constructed gender roles, identities and underlying power dynamics affect whether (and how) women and men access and use energy and participate in decisions and investments (UN Environment, 2016).

To address implementation challenges, decision-makers need to allocate sufficient budget to implement gender-related energy policy objectives. In addition, they need to implement an appropriate system for measuring progress through key indicators. Except for two policies, the overarching policies and strategies reviewed for this analysis did not include budgets and cost estimates; decision-makers usually specify these in sector implementation and annual work plans.

Leaders must address gender issues and inequalities more comprehensively and consistently in energy policies. Further, such policies must link more closely to programming and budgeting to ensure implementation - and, consequently, meaningful change in the lives of the country's women and men - as envisioned in the SDGs.

There is a need for an initial overview of the regional status of gender integration in overarching national energy policies and strategies. Using this review as a starting point, stakeholder could conduct a more detailed and broader country and regional analysis. It should look at policy development and energy programmes as they relate to women and girls to inform good practices and share experiences for peer learning, replication, scalability and accelerating achievement of results for gender equality and the empowerment of women and girls.

It would be especially useful to conduct further analysis such as gender audits and impact assessments to see how countries implement these policy aspirations on the ground as well as their impacts for citizens. Such analysis could help demonstrate to policymakers the value added to the lives of women and girls, and men and boys. It might also ensure that the narrative depicts women as agents and active participants of change and move beyond an attitude of women as victims and mere recipients of energy solutions and services.

Conclusion

Climate change is a transboundary process that requires a multifaceted response as a basis for entering agreements, joint initiatives and potential solutions. Climate change drivers and impacts remain inherently unequal. Responses to it are difficult to implement due to conflicting decisions and priorities at multiple scales on everything from resource use to the degree and direction of social change - and for whom. This makes it into a

[64] Republic of South Africa (2018), Ministry Update for Department of Energy, available at https://www.ipp-projects.co.za/PressCentre/GetPressRelease?fileid...923C...

[65] United Nations Poverty-Environment Initiative (2017) Gender, Energy and Policy : A review of en-ergy policies in East and Southern Africa, available at http://www.unpei.org/sites/default/files/publications/Gender%2C%20Energy%20and%20Policy-%20A%20Review%20of%20Energy%20Policies%20in%20East%20and%20Southern%20Africa-%20Web-%20HR.pdf

phenomenon that influences both existing and future inequalities. Stakeholders need to address not only "who gets what" in terms of resources and services but also who "gets to interpret" and "who gets to represent" the needs and wants of others.

Development has addressed women, gender, nature and environment differently over time and in varied domains and debates. We have learned how the power and dynamics of gender play out in the context of multiple stressors such as food insecurity, ill-health, poverty, inequality and land-use change. By viewing adaptation, development and mitigation as major related processes and with institutional change and technology uptake as part of all three, one can compare preconditions for, and pathways to, gender-informed social change.

Three main finding emerge from a feminist sustainability and science perspective on climate change adaptation through a gender lens. First, the social goal of climate change responses is obviously to respond to impacts, in both a proactive and reactive way. Ideally, responses would mitigate environmental change simultaneously and synergistically while tackling food insecurity, ill-health, inequality and poverty. Second, while doing so, politicians, policymakers and practitioners would have to continually take gender into consideration as a defining institution in small-scale agriculture regarding both the discursive portrayal of women and the more material distribution of rights, risks and responsibilities. Third, such responses, which would take not only technological solutions but also social relations seriously, should consider structural and institutional change pertaining to norms, rules and values as a way to alleviate the pressure from multiple stressors while also having a synergetic and transformative potential towards increased sustainability.[66]

To conclude, gender is contingent and culturally constructed through norms, rules and values but social relations are also subject to change during major social processes such as those in focus here. Gender is a critical social category and a salient feature of both development and climate change. It has many institutional and structural implications for adaptation and mitigation as well as many practical implications for environmental justice. Beyond that it also enriches the very understanding of climate change impacts and responses - and gender debates provide reasoning and tools for how policy and practice for increased development and sustainability can deal with that.

Gender Links Botswana staff recycle paper on a "Green Friday". *Photo: Gender Links*

[66] Jerneck, A (2018), What about Gender in Climate Change? Twelve Feminist Lessons from Devel-opment, Lund University Centre for Sustainability Studies, available on www.mdpi.com:8080/2071-1050/10/3/627/pdf

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Next steps

- Prepare SADC regional positions to the UNFCC COP-24 Conference in Katowice, Poland.
- Lobby for a direct access mechanism within the Green Climate Fund to enable vulnerable groups within the member states to access the funds for climate change mitigation and adaptation.
- Urge UNFCCC parties, especially the industrial countries to make efforts in cutting emissions and providing financial and non-financial support to countries with fewer capacities. The wide failure of states to reach their emission reduction targets until 2020 proves that current efforts are not ambitious enough.
- Conduct gender audits and impact assessments to see how actors implement climate change and sustainable development policy aspirations on the ground, as well as their impacts for men and women.
- SADC legislators must move beyond planning and into implementation at a regional level.
- National sectors within SADC countries should ensure adequate support for climate change.
- Develop a SADC regional hub to support capacity development in various member countries in order to support implementation of climate change strategies.
- Stakeholders should re-think funding for climate change adaptation and mitigation initiatives and projects in SADC because without adequate funding to implement, and without integrated planning, there is a risk that some initiatives or infrastructure investments could be maladaptive.
- Monitor the implementation of the SDGs and the SADC Protocol to ensure that member states integrate gender in tackling the impacts of climate change.

Malawian farmers say"Adapt to climate change or die. *Photo: Gender Links*