African Union

AFRICAN UNION CLIMATE CHANGE AND RESILIENT DEVELOPMENT STRATEGY AND ACTION PLAN

(2022-2032)

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FOREWORD

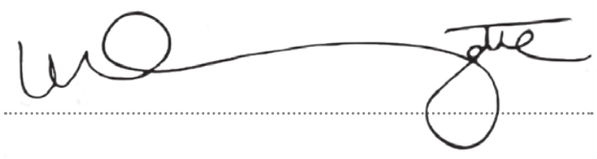
H. E. Hon. Uhuru Kenyatta, CGH
President of the Republic of Kenya and Coordinator (2022-2024), Committee of the African Heads of State and Government on Climate Change (CAHOSCC)

The realization of Africa's Agenda 2063 cannot be possible without proactive collective continental efforts aimed at addressing the impacts and encumbrances of climate change, which hampers our integration and development. There is sufficient scientific evidence – corroborated by the voices from diverse strata of our own communities – that Africa is bearing the brunt of climate change impacts, despite contributing less than 4% of global greenhouse gas emissions, and negligible historical responsibility. Our economies greatly rely on climate-sensitive sectors, which have great similarities across the continent. Increased frequency of climate related emergencies and conflicts across the continent continue to divert our meagre resources, hampering our overdue economic development. The message is clear – climate change is already significantly impacting Africa. We are the continent most vulnerable to climate change.

We also know that Africa has immense potential and capacity to innovate and adapt, to draw on our resilience, to prosper in the face of difficult circumstances. Endowed with rich and diverse culture and natural resources, with a youthful talented human resource base, Africa will emerge to be a global hub for climate change solutions.

Responding effectively to climate change is going to require deep collaboration. As a continent, we need to work together, and we must also build effective and meaningful partnerships with the broader international community. Much has already been achieved in this regard. The work of the Committee of African Heads of State and Government on Climate Change, the African Ministerial Conference on the Environment, the Africa Group of Negotiators, and countless other platforms and processes have supported coordination of our climate response and a consistent message to the broader international community. The core of that message is this: Africa is willing to play its part in the global response to climate change, but other parts of the world, particularly those most responsible for historical emissions, have a responsibility to assist us in our efforts. Africa's special needs and circumstances must be recognized and must inform climate support to our region. We need a quantum increase in climate finance and that finance must become easier to access. We need a greater focus on adaptation, including financing for adaptation. We need increasing ambition in emission reduction targets and a clear commitment to the full and effective implementation of the Paris Agreement.

The African Union Climate Change and Resilient Development Strategy and Action Plan is a key instrument in supporting regional collaboration on climate change and more effective international partnerships. It provides a framework for joint action and clearly expresses our needs and priorities. It will unlock Africa's potential in building climate-resilient communities and economies, which are an integral component of the continental vision for 'an integrated, prosperous and peaceful Africa, driven by its own citizens, representing a dynamic force in the international arena'. We all now have a responsibility to ensure that this becomes a living document, one that informs and enriches our actions at local, regional and global levels.



PREFACE

H.E Moussa Faki Mahamat
Chairperson
African Union Commission

Climate change is an existential threat to Africa's communities, ecosystems and economies. It places our developmental gains, our prosperity and the aspirations of Agenda 2063 in jeopardy. It is a critical issue that every African has to deal with on a daily basis, albeit in differentiated ways. We must respond, collectively and boldly, to the cross-scale challenges presented by climate change. Partnerships are critical to an effective African climate response, and such partnerships will need to span ministries, sectors, public and private divisions and across regional and national borders. We must work together, both within Africa and with our international partners, not only in addressing the threats posed by climate change, but also in leveraging the opportunities of a just, inclusive and equitable transition to an African green economy.

While informed and guided by the existing national climate efforts and aspirations of African Member States, this Strategy and Action Plan provides an outline for a harmonized and coordinated approach to respond to climate change, setting out common principles, priorities, and action areas for enhanced climate cooperation, strengthened adaptation capacity, and long term, equitable and transformative low-emission, climate-resilient development pathways for the continent.
The Strategy is founded on core principles including

VISION

A sustainable, prosperous, equitable and climate- resilient Africa.

GOAL

To provide a continental framework for collective action and enhanced cooperation in addressing climate change issues that improves livelihoods and well-being, promotes adaptation capacity, and achieves low-emission, sustainable economic growth.

OVERALL OBJECTIVE

Building the resilience of African communities, ecosystems and economies, and supporting regional adaptation.

1. Strengthening the adaptive capacity of affected communities and managing the risks related to climate change.

2. Pursuing equitable and transformative low emission, climate-resilient development pathways.

3. Enhancing Africa's capacity to mobilise resources and improve access to and development of technology for ambitious climate action.

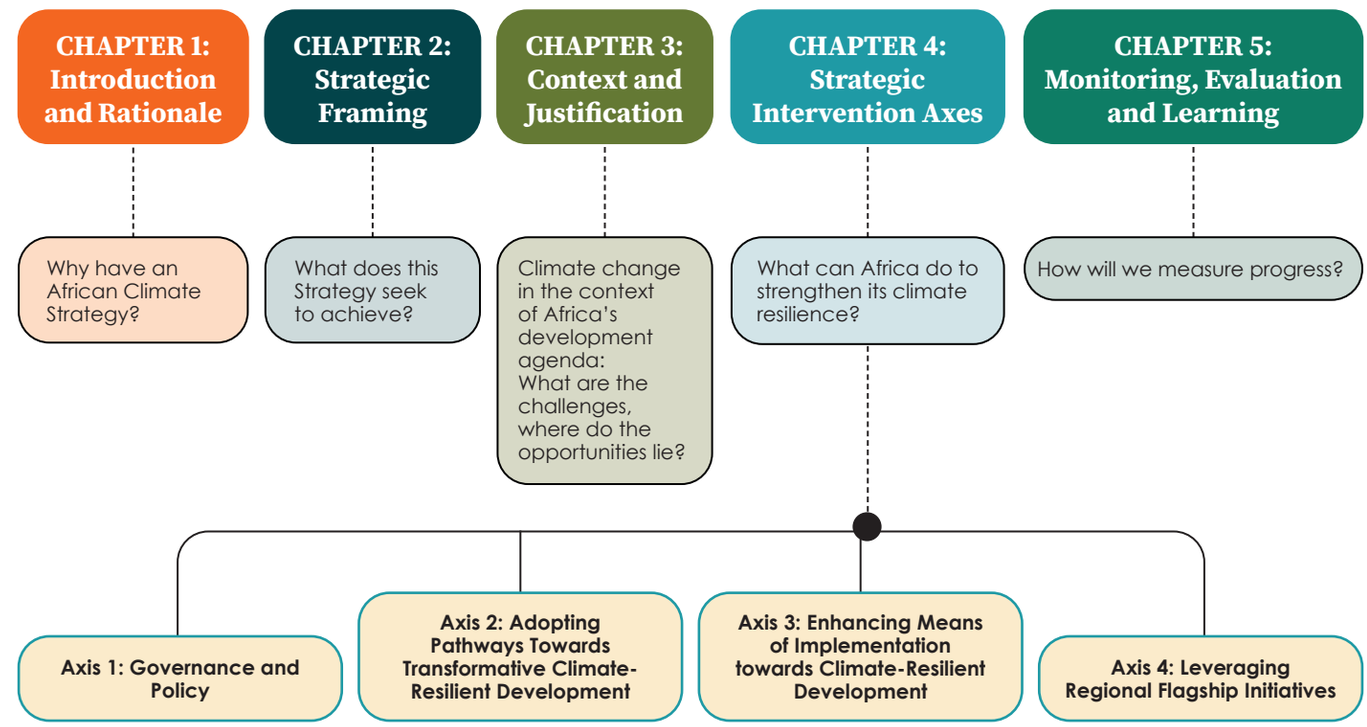
4. Enhancing inclusion, alignment, cooperation, and ownership of climate strategies, policies, programmes and plans across all spheres of government and stakeholder groupings.

African-led and African-owned innovation, social and cultural values, leveraging the continent's natural endowments, renewable energy potential, nature-based solutions, and transformative industrial pathways. A key principle that underpins the Strategy and Action Plan is a core emphasis on a people-centred approach and equitable access for all citizens to green economic recovery and sustainable development. The Strategy and Action Plan highlights the importance of supporting the most vulnerable communities and groups in addressing their particular challenges in responding to climate impacts.

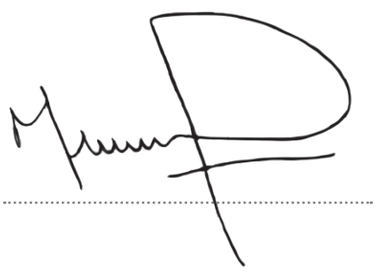
In addition, it acknowledges the importance of social inclusion, including the critical role that women and youth, and Indigenous People play as change agents in informing and driving climate responses at multiple levels. In order to promote an inclusive and ambitious climate approach, the Strategy and Action Plan seeks to enhance collective development, broad-based participation, implementation, and monitoring by providing a consolidated framework around which partnerships can be built with state and non-state actors.

Guiding Principles

1. A People Centred Approach
2. Conserving and restoring natural capital
3. Aligning plans and priorities
4. Leave no one behind/a just transition
5. Evidence and practice
6. African-led and African-owned
7. Whole of economy approach
8. Intersectionality
9. Common but differentiated approach



Support for the implementation of this Strategy and its Action Plan from regional economic communities, member states, citizens at large, and local and international partners, is key to achieving the climate goals of the continent over the next ten years.



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Strategic alignment

Josefa Leonel Correia Sacko
Commissioner
Agriculture, Rural Development, Blue Economy and Sustainable Environment
African Union Commission

The COVID-19 pandemic has been a stark reminder of the interconnectedness of the international system. We have seen the vulnerabilities that emerge from that interconnectedness, but we have also seen the potential for collaboration and shared solutions. Our environmental challenges, including climate change, biodiversity loss and pollution are similarly intertwined, and are in turn also linked to social and economic challenges. As Africa strives towards sustainable and resilient food systems, blue economies, cities and rural communities, as we strive to protect and restore the natural ecosystems on which our livelihoods and our economies rely, decisive action on climate change is fundamental.

On 15 July 2021 the African Union launched our continental Green Recovery Action Plan, which focuses on five priority areas:

1. Climate finance, including increasing flows, efficiency, and impact of funding.
2. Supporting renewable energy, energy efficiency and national Just Transition programmes.
3. Nature-based solutions and focus on biodiversity through work on sustainable land management, forestry, oceans, and ecotourism.
4. Resilient agriculture, by focusing on inclusive economic development and green jobs; and
5. Green and resilient cities, including a focus on water (flooding and water resources) and enhancing information, communication and technology.

The alignment between the Green Recovery Action Plan and Africa's Climate Change and Resilient Development Strategy is clear. In responding to the daunting challenges, we face, we have an opportunity to reassess and redesign our systems and put ourselves on a path towards sustainability. We must embrace this opportunity; we must recognize that time is not on our side. The health of our environment and the flourishing of our communities and our economies are inseparable. As the Climate Change and Resilient Development Strategy highlights, the growth Africa has experienced over the past decades has largely been driven by climate-sensitive sectors, including service sectors (such as tourism and hospitality, real estate, banking and transport), energy, industry and agriculture; as well as the blue economy. The Strategy also speaks to the role of climate change as a potential threat multiplier in the context of conflict and human security. Our response to climate change is therefore central to our ability to realise our continental vision of an integrated, prosperous and peaceful Africa, driven by its own citizens and representing a dynamic force in the global region. As we launch this Strategy, the real work begins. Let us all work together to make our climate and resilient development ambitions a reality.

ACRONYMS

AfCFTA	African Continental Free Trade Area
AfDB	African Development Bank
AGN	African Group of Negotiators
AIP	Africa Investment Programme
AMCEN	African Ministerial Conference on the Environment
ARBE	Department of Agriculture, Rural Development, Blue Economy and Sustainable Environment
AU	African Union
AUC	African Union Commission
AUDA-NEPAD	African Union Development Agency – New Partnership for Africa's Development
AUPSA	African Union Peace and Security Architecture
CAADP	Comprehensive African Agricultural Development Programme
CAF	Central Africa
CAHOSCC	Committee of African Heads of State on Climate Change
CBD	Convention on Biological Diversity
CDR	Carbon Dioxide Removal
CIS	Climate Information Services
COP	Conference of the Parties
DRC	Democratic Republic of Congo
EbA	Ecosystem-based Adaptation
ESAF	East Southern Africa
ESG	Environmental, Social and Governance
GCF	Green Climate Fund
GDP	Gross Domestic Product
GEF	Global Environment Facility
GI	Green Infrastructure
GHG	Greenhouse Gas
GW	Gigawatt
GWL	Global Warming Level
Ha	Hectares
ICLEI	Local Governments for Sustainability
ICT	Information and Communications Technology
IPCC	Intergovernmental Panel on Climate Change
IPP	Independent Power Producer
LDCF	Least Developed Countries Fund
M&E	Monitoring and Evaluation
MDG	Madagascar
MEL	Monitoring, Evaluation and Learning
MRV	Measure, Report and Verify
MW	Megawatt
NAP	National Adaptation Plan
NDC	Nationally Determined Contribution
NEAF	North East Africa
NGO	Non-Governmental Organization
NIS	National Innovation System
NMHS	National Meteorological and Hydrological Services
PA	Protected Area
PIDA	Programme for Infrastructure Development
RCP	Representative Concentration Pathway
RECs	Regional Economic Communities
SAH	Sahara
SCCF	Special Climate Change Fund
SDG	Sustainable Development Goal
SEAF	South East Africa
TNA	Technology Needs Assessment
UN	United Nations
UNCCD	United Nations Convention to Combat Desertification
UNECA	United Nations Economic Commission for Africa
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
WAF	Western Africa
WEF	Water, Energy, Food
WMO	World Meteorological Organization
WSAF	West Southern Africa

EXECUTIVE SUMMARY

The Africa Union's Agenda 2063 makes it clear that climate-resilient communities and economies are an integral component of the continental vision for an integrated, prosperous and peaceful Africa, driven by its own citizens, representing a dynamic force in the international arena. This African Union Climate Change and Resilient Development Strategy and Action Plan (2022-2032) supports the realization of this vision by setting out principles, priorities and action areas for enhanced climate cooperation and long term, climate-resilient development. The Strategy provides an outline for harmonized and coordinated actions to respond to the impacts of climate change, thereby supporting planning for the continent's low-emission future. The Strategy defines the main parameters and priorities in building African resilient capacities for adaptation and exploiting the benefits of the mitigation potential of the continent. It seeks to ensure that institutions, strategies, and decisions for climate risk management and climate-resilient development are integrated and implemented as a central aspect of achieving sustainable development, as framed by Agenda 2063 and the United Nations' Agenda 2030.

The Strategy builds on the continent's commitment to ensuring an effective multilateral approach to addressing climate change through the United Nations Framework Convention on Climate Change and the Paris Agreement adopted thereunder, while emphasizing equitable access to sustainable development and the eradication of poverty and recognizing the specific needs and special circumstances of African countries.

Through a focus on strengthening adaptation and resilience building of Member States across the continent, the Strategy identifies key priority areas, interventions, and actions to reduce the vulnerability of affected communities and manage the risks related to climate change and climate-induced extreme events. These key priority areas include enhanced governance and institutional collaboration with a wide range of state and non-state actors, policy coherence and enhanced climate knowledge systems, as well as anticipatory planning. The Strategy also seeks to enhance Africa's capacity to respond to climate impacts through the mobilisation of domestic and international financial resources, enhancing access to technology and innovation, and developing safety nets for loss and damage

In order to pursue low-emission, climate-resilient growth pathways across various sectors and systems, this Strategy highlights key principles of the green and circular economy, as well as innovation, sustainable development, poverty reduction and job creation. These pathways are aligned with Africa's green recovery efforts and provide opportunities to catalyse socio-economic transformation on the continent towards a resource efficient, environmentally sustainable, climate-resilient, and more equitable society.

The Strategy supports the commitments made by African countries under the 2015 UNFCCC Paris Agreement and is guided by the existing national climate efforts and aspirations of its 55 Member States, as expressed through Nationally Determined Contributions, National Adaptation Plans and long-term, climate-resilient development and decarbonization visions contained in national Long-Term Strategies. It is recognized that each Member State will direct their climate response in a self-determined manner, based on their unique national circumstances and capacities. While recognising differences in national contexts and circumstances, this Strategy builds upon the shared challenges and opportunities for the continent, encouraging African-led and African owned innovation, social and cultural values, and leveraging of nature-based solutions.

The Strategy aims to enhance inclusion, alignment, cooperation, and ownership across all spheres of government and stakeholder groupings. The Strategy highlights the importance of supporting the most vulnerable communities and groups. It recognizes that women and the youth face particular challenges in responding to climate impacts, but also acknowledges and seeks to support the critical role that they play as change agents driving climate responses at local, national, sub-regional and continental levels.

To promote an inclusive climate approach, this Strategy seeks to enhance collective development, participation, implementation, and monitoring. In particular, the Strategy provides a consolidated platform around which partnerships can be built with non-governmental and civil society organizations, as well as the private sector.

This Strategy was developed with the technical and financial support from the following institutions:

Accelerating Impacts of CGIAR Climate Research for Africa (AICCRA), the European Union (EU), the International Federation of Red Cross and Red Crescent Societies (IFRC), the Netherlands Red Cross, the United Nations Economic Commission for Africa (UNECA) and Sweden

01

INTRODUCTION AND RATIONALE

Climate change poses unprecedented challenges to the survival of humans, animals, plant life and ecosystems. It threatens social and economic systems, while putting development gains at risk. Relief programmes and other responses to disasters may require countries to redirect limited resources intended for other development priorities. Despite Africa having contributed less than 4% of global greenhouse gas (GHG) emissions, it is one of the regions that are most vulnerable to climate variability and change. This is due to the continent's biophysical makeup as well as numerous socio-economic vulnerabilities – including a high dependence on rain-fed agriculture (and natural resource-based sectors broadly), a lack of alternative livelihood support, widespread poverty and inequality, weak adaptive capacity, low levels of education, and inequitable access to financial resources, credit, markets, and climate information services (CIS).

Even as Africa grapples with the impacts of climate change, agricultural production will need to increase by approximately 50% by 2050 to meet the needs of the region's growing population. Cities need to provide services to ever greater numbers of urban residents and massive investments are needed to address infrastructure backlogs. It is therefore urgent for the continent to adapt to the adverse impacts of climate change and mainstream climate action into its broader social and economic development activities.

The average growth of Africa's economy between 2002 and 2018 was 3.37%. This was largely driven by climate-sensitive sectors – including service sectors (such as tourism and hospitality, real estate, banking and transport), energy, industry and agriculture; as well as the blue economy. It is therefore important for Africa to climate-proof these primary growth sectors and develop plans to ensure that the region's broader development objectives are attained.

The African Union's (AU's) 55 Member States collectively have an estimated population of over 1.2 billion people, making it the eleventh largest economy in the world, with a nominal gross domestic product (GDP) of about US$2.263 trillion. The African population is the youngest in the world and the continent is set to be the most populous by 2023.

Since climatic and ecological regions cut across national political boundaries, a continental, trans-boundary response is important in the formulation and implementation of climate change responses. It's within this context that the region, through the African Union Commission (AUC), has developed this 10-year, African Union Climate Change and Resilient

Development Strategy and Action Plan (2022-2032). This Strategy provides a broad outline for harmonised and coordinated actions to respond to the impacts of climate change, as well as to plan for the continent's low-emission, climate-resilient future.

The Strategy defines the main parameters and priorities to build African-resilient capacities for adapting to climate change and exploiting the benefits of the mitigation potential of the continent. It seeks to ensure that institutions, strategies and decisions for climate-risk management and climate-resilient development are identified, implemented and sustained as an integrated part of achieving sustainable development as framed by the AU's Agenda 2063 and the United Nations (UN) Agenda 2030 for Sustainable Development.

This Strategy supports the commitments made by African countries under the 2015 United Nations Framework Convention on Climate Change (UNFCCC) Paris Agreement and is guided by the existing national climate efforts and aspirations of its 55 Member States, as expressed through Nationally Determined Contributions (NDCs) and long-term, climate-resilient development and decarbonization visions contained in member countries' Long-Term Strategies (2050). The continent consists of diverse landscapes, ecosystems and weather systems, which are impacted differently by climate change. It is recognised that each Member State will respond in a self-determined manner to the impacts they experience, based on their unique national circumstances, the views of their citizens (including young people), and capacities to respond. While recognising differences in national contexts and circumstances, this Strategy builds upon the shared challenges and opportunities for the continent.

Agenda 2063 expresses a vision for the continent's future as an 'integrated, prosperous and peaceful Africa, driven by its citizens and representing a dynamic force in international fora'. Agenda 2063 emphasises that the achievement of climate-resilient economies and communities is an integral part of this vision and commits the region to play its part in supporting global climate action. The development visions and commitments expressed in Agenda 2063 therefore form the basis of the Strategy.

The Strategy is also aligned with several global frameworks, including the 2030 Agenda for Sustainable Development with the Sustainable Development Goals (SDGs), the UN Convention for Biological Diversity and the Sendai Framework for Disaster Risk Reduction. It is also aligned with existing regional protocols, policies and strategies that govern key sectoral and thematic actions of relevance to the region's climate response. This includes continental frameworks such as the Comprehensive African Agricultural Development Programme (CAADP), the Programme for Infrastructure Development in Africa (PIDA), the Science, Technology and Innovation Strategy for Africa, the African Continental Free Trade Area (AfCFTA), the Accelerated Industrial Development for Africa initiative, the AU's Green Recovery Action Plan, and many others. The Strategy further builds on existing work under various initiatives, including – but not limited to – the Africa Adaptation Initiative, the Africa Renewable Energy Initiative, the Africa Blue Economy Strategy, the Pan-African Action Agenda on Ecosystem Restoration for Increased Resilience, the Great Green Wall Initiative, the Climate for Development in Africa Programme, and the three regional Climate Commissions (the African Island States, the Congo Basin, and the Sahel). (See **Appendix 2** for a more comprehensive list of strategies and protocols). It also seeks to complement and support the climate strategies and green growth plans of Africa's Regional Economic Communities (RECs).

The Strategy provides a robust framework for ensuring climate justice for Africa through inclusive and equitable participation in climate action and climate-resilient development pathways. The Strategy engages with the disproportionate impacts of climate change on youth and women. A consolidated platform is provided around which partnerships can be built with non-governmental and civil society organizations, as well as the private sector. These stakeholders are also needed to advocate for the continent's adaptation capacity, champion Africa's needs and priorities, and play an important support role for the implementation of actions and the monitoring of the Strategy's outcomes.

Future planning for climate-resilient development will require strategic interventions and actions that consider multiple trends, drivers and uncertainties throughout the continent. It will necessitate the strengthening of governance systems and policy responses to enhance climate-resilient development. This includes planning tools that can help Member States to develop and implement policies to address both current and longer-term existential threats and assist governments to move away from reactive crisis-management approaches to dealing with climate risks. These anticipatory practices can help the region to manage and plan for future risks – and ultimately, to better protect vulnerable people and their livelihoods.

The Strategy can also assist Africa to take advantage of opportunities related to the transition to a low-emission green economy and green recovery efforts. Africa should embrace opportunities to catalyse


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socio-economic transformation towards a resource-efficient, environmentally sustainable, climate-resilient, and more equitable society. This can improve human well-being and economic growth over the long term, while mitigating the exposure of future generations to significant environmental risks and ecological scarcities.

The African Development Bank (AfDB) estimates that Africa will need investment of over US$3 trillion in mitigation and adaptation by 2030 to effectively implement its NDCs. While the Africa region has been consistent in its call for developed countries to support developing regions in addressing the financing, technology transfer and capacity building needs related to ambitious climate action, there is also a need for enhanced domestic resource mobilization and capacity development in support of African-led and African-owned climate responses.

The Strategy seeks to build the continent's capacity to utilise new evidence and knowledge that influences global discussions and agreements. It also addresses the means needed to tackle the implementation of climate policies and plans – including finance, insurance mechanisms, technology and inclusive partnerships. Monitoring and evaluation will be an integral component of the Strategy to allow for it to be adequately tracked and implemented.

The Committee of African Heads of State on Climate Change (CAHOSCC) was established in 2009 by the AU Assembly of Heads of State and Government to spearhead the African common position on climate change and ensure that Africa speaks with one voice in global climate-change negotiations. The African common position, which evolves in response to the progress of the negotiations and changing circumstances on the continent, is achieved through sustained consultations at the national, REC and the African Group of Negotiators (AGN)-levels. The outcome of these consultations is tabled for approval by the African Ministerial Conference on the Environment (AMCEN) and endorsed by the CAHOSCC. This is the position that guides the AGN members in their engagement at the UNFCCC across its mechanisms, bodies and panels. (For more information on the AU organs and decision-making structures, please see **Appendix 1.)**

A well-orchestrated and coordinated African agenda on climate change with common targets, indicators and milestones is key for a stronger climate change response and voice. This Strategy will help to determine Africa's common priorities, and it is key to guiding the AGN positions. It will also help to streamline approaches in implementing climate action – bringing about synergies, efficiencies and economies of scale.

This requires visionary leadership and partnerships that enable Africa to speak with one voice – which will strengthen its international presence, its negotiating power and the attainment of its climate change goals.

02

STRATEGIC FRAMING

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This Strategy is a 10-year strategic planning document that defines the main priorities, intervention areas and action areas required to build resilient capacities for adaptation – and to unlock the benefits of the mitigation potential of the continent. It is designed as a living document to keep pace with the latest science, technological advancements and other global, continental, sub-regional and national developments. As such, the Strategy will be revised every five years.

In realization of a shared vision for a prosperous, secure, inclusive and innovative future for Africa, the Strategy builds on the continent's commitment to ensuring an effective multilateral approach to addressing climate change through the United Nations Framework Convention on Climate Change and the Paris Agreement adopted thereunder, while emphasizing equitable access to sustainable development and the eradication of poverty and recognizing the specific needs and special circumstances of African countries. The Strategy outlines priority areas, sector-based interventions and actions for adapåtation. While prioritising adaptation, the Strategy recognizes the opportunities of adopting low-emission development pathways to develop green industrialisation and skills, and to position the continent strategically in terms of emerging economic, regulatory and technological trends.

This Strategy seeks to enhance the adaptive capacities of Member States. It further seeks to promote low-emission growth pathways aligned with the 1.5 degree Paris Agreement goal, and shaped by the principles of the green and circular economy, sustainable development, and poverty reduction. The Strategy also seeks to and orient governance, knowledge systems, planning, and national/regional/international structures to addressing climate change as a development imperative.

2.1 Vision

A sustainable, prosperous, equitable and climate-resilient Africa.

2.2 Goal

To provide a continental framework for collective action and enhanced cooperation in addressing climate change issues that improves livelihoods and well-being, promotes adaptation capacity, and achieves low-emission, sustainable economic growth.

2.3 Overall Objective

Building the resilience of African communities, ecosystems and economies, and supporting regional adaptation.

2.4 Specific Objectives

1. Strengthening the adaptive capacity of affected communities and managing the risks related to climate change.
2. Pursuing equitable and transformative low-emission, climate-resilient development pathways.
3. Enhancing Africa's capacity to mobilise resources and improve access to and development of technology for ambitious climate action.
4. Enhancing inclusion, alignment, cooperation, and ownership of climate strategies, policies, programmes and plans across all spheres of government and stakeholder groupings.

2.5 Strategic Intervention Axes

The Strategy's objectives will be achieved by concentrating on four main strategic intervention axes, namely:

- **Strategic Intervention Axis 1:** Strengthening Policy and Governance
- **Strategic Intervention Axis 2:** Adopting Pathways towards Transformative Climate-Resilient Development
- **Strategic Intervention Axis 3:** Enhancing the Means of Implementation towards Climate-Resilient, Low-Emission Development, Including through Climate Finance
- **Strategic Intervention Axis 4:** Leveraging Regional Flagship Initiatives

Under Strategic Intervention Axis 1 – 'Strengthening Policy and Governance', – the Strategy highlights five key policy and governance interventions areas and associated actions that are needed to pursue climate-resilient development. These include:

1. Enhanced climate policy, inclusive, multi-scalar governance and institutional coordination
2. Coordinated regional climate action
3. Anticipatory governance and long-term planning
4. Enhance climate information services
5. Improved climate literacy and awareness; and,
6. Governance solutions to address the climate-conflict nexus.

Strategic Intervention Area 2 – 'Adopting Pathways towards Transformative Climate-Resilient Development' identifies key systems transitions that must be achieved to address climate change, move towards a resilient and low-emission future, and support ecosystems and biodiversity. These systems face significant climate change impacts as well, making adaptation action critical across all eight areas. These systems are also critical to achieving a countries broader development goals. They require participation and collective action from the public and private sector to reduce the trajectory of emissions and limit climate vulnerabilities, but also to unlock major economic opportunities and create new markets and jobs. Interventions that support these key transitions will need to consider macroeconomic and fiscal impacts, in addition to managing social and labour impacts.

Drawing on the UNFCCC Climate Action Pathways, This Strategy identifies eight cross-sectoral opportunities that are essential for achieving climate-resilient development pathways and accomplishing the SDGs. It provides recommended interventions and actions for each priority area:

1. Transforming food systems
2. Protecting land-based ecosystems
3. Transforming energy systems
4. Transforming mobility and transport
5. Enhancing inclusive, low-emission industrialisation
6. Transforming water systems
7. Transforming the blue economy
8. Digital transformation
9. Resilience urban centres

The Strategy also requires key areas for intervention support. **Strategic Intervention Axis 3 – 'Enhancing the Means of Implementation towards Climate-Resilient, Low-Emission Development, Including through Climate Finance'** – is centred on the following key priorities:

1. Climate finance and resource mobilization
2. Promoting safety mechanisms for loss and damage
3. Technological development and transfer
4. Inclusive participation of marginalised and vulnerable groupings, especially women and youth
5. Capacity development

The Strategy also includes **Strategic Intervention Axis 4 - 'Leveraging Regional Flagship Initiatives'.** This section highlights African programmes and flagship initiatives that work towards climate resilience through generating political buy in for collective action, serving as the foundation for partnerships, facilitating information exchange, and mobilizing domestic and international resources. These initiatives address many of the themes outlined in the preceding axes, including food systems, climate information services and energy.

Monitoring, Evaluation and Learning has also been incorporated to allow for tracking and measuring the successful implementation of the Strategy.

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2.6 Guiding Principles

The Africa Climate Change Strategy and Action Plan is guided by seven fundamental principles that drive the African Union and Member States' work across all sectors:

1. **A people-centred approach:** People must benefit from the transition to a low-emission and resilient future. They are at the centre of climate action and need support to manage the transition and changes that accompany climate-focused policies. A people-centred approach is essential for the political feasibility of climate action – and to ensure that gains and losses from the transition to a low-emission, resilient economy are shared equitably. This approach requires citizen engagement and participatory processes that consider diverse viewpoints – including gender and youth. Given the strong interest that young people have in their futures, it is essential that young people are consulted and able to provide direction to climate action plans at national and regional levels. The Strategy will ensure that gender- and youth-sensitive approaches are central to driving climate action on the ground, as well as supporting the strengthening of social protection programmes. This includes job training, retraining and education initiatives that assist people to develop livelihoods and adapt to climate change. To promote a people-centred approach, the Strategy must be owned and driven by the inclusion of stakeholders and partners. This is best achieved through the collective development and implementation of the Strategy – guided by multilevel stakeholder participation and multi-sectoral engagement. To encourage stakeholder support, a public participation process to promote awareness of and engagement with this strategy at REC and Member State level is strongly encouraged. This includes engagement with development banks, international organizations, monetary and financial institutions, the private sector, think tanks and civil society organizations.
2. **Conserving and restoring ecosystems:** Healthy ecosystems are critical to addressing climate change in Africa. Conserving and restoring biodiversity and ecosystem services can contribute significantly to both mitigation and adaptation, while simultaneously producing multiple socio-economic co-benefits. Scaling up investments to strengthen and expand the waste value chain, including addressing marine plastics and land pollution, is critical to generating a sustainable circular economy. Deployment of technology, including fintech, can realise possibilities for rewarding farmers and local communities for stewarding and protecting ecosystems.

3. **Aligning plans and priorities:** The alignment of existing development plans and existing national development priorities within fiscal budgetary planning processes is recommended. This should be guided by frameworks such as Agenda 2063, the SDGs and post-COVID recovery plans. Co-benefits with these agenda should be promoted.
4. **Leave no one behind/a just transition:** The Strategy must address issues related to equity and justice, given that climate change has the potential to exacerbate current inequality throughout the continent. This includes procedural, distributional and recognitional justice, especially in relation to who is most vulnerable, where the burden of adaptation lies, and how to mobilise resources for adaptation.
5. **Common but differentiated responsibilities:** The Strategy reflects the need for ambitious climate action in line with the principle of common but differentiated responsibilities and respective capabilities, in the light of different national circumstances.
6. **Intersectionality:** The Strategy recognizes that vulnerabilities overlap in multiple ways (climate, gender, poverty, age groups, etc.) and supports comprehensive, integrated responses to resilience-building.
7. **Evidence and practice:** The Strategy must continue to draw on the best available science, knowledge and practice within the international, regional and national context. This should be based on existing experiences, climate science and traditional knowledge and practices.
8. **African-led and African-owned:** Built on the foundations of Agenda 2063, the continent must generate its own dynamic scientific, technological and entrepreneurial capability, and innovate new, predictable and sustainable sources of funding for its response to climate change that includes Africa's social and cultural values and natural capital endowments.
9. **Whole of economy approach:** Integrated, cross-sectoral and holistic manner throughout national and regional economic planning. The Strategy considers and integrates a systems approach to climate change sectors.

2.7 Beneficiaries/Stakeholders

The success of this Strategy is highly dependent on the active commitment and involvement of the main beneficiaries and stakeholders in its development and implementation. These players involve government institutions, individuals, social international organizations, funding agencies, etc. It is important that the Strategy helps to clarify the mandate, role and responsibility of each organization, particularly as it relates to the Strategy.

They include, but are not limited to, the following:

- The AUC
- Regional institutions such as the AfDB, the African Union Development Agency-New Partnership for Africa's Development (AUDA-NEPAD), United Nations Economic Commission for Africa (UNECA)
- AU technical and negotiating structure such as AMCEN, AGN, CAHOSCC
- RECs
- Heads of State of the 55 AU Member States
- Technical institutions responsible for implementing actions
- National policy institutions
- National scientific and meteorological institutions
- Health institutions
- National and regional research centres
- Non-governmental organizations
- Public and private sector entities
- Women's organizations
- Youth groups
- Farmer groups
- Communities and citizens
- International organizations, including UN agencies
- Technical collaborators
- Development partners
- Financial institutions.

2.8 Methodology

Appendix 3 illustrates the regional stakeholder and outreach meetings hosted by the African Union Commission in collaboration with UNECA on the Strategy. Extensive feedback was received from key stakeholders from various RECs, academia, UN agencies and civil society organizations. These comments and recommendations have been incorporated to produce a more detailed draft of the Strategy. Multiple sectoral experts were also directly approached for their specific input. Please see a list of contributors in **Appendix 4** of this document.

03

CONTEXT AND JUSTIFICATION

3.1 Africa's Climatic Change Conditions and Vulnerability

The Intergovernmental Panel on Climate Change (IPCC) Sixth Assessment Report (2021) indicates that it is unequivocal that human influence has warmed the atmosphere, ocean and land and that widespread and rapid changes in the atmosphere, ocean, cryosphere and biosphere have occurred. The average global temperatures for the past five years were the highest on record.

The future annual global mean near-surface temperature is likely to be at least 1°C warmer than pre-industrial levels each year over 2021-2025. Global warming levels (GWLs) of 1.5°C and 2°C will be exceeded during the 21st century. The IPCC AR6 Working Group I report further states that the 1.5 °C and 2 °C thresholds can only be avoided if deep cuts in carbon dioxide emissions are made rapidly (in the 2020's) and that net-zero emissions are reached by 2050. Moreover, global surface temperatures will continue to increase until at least the mid-century – under
all emissions scenarios considered. As the warming continues, an increase in the frequency and intensity of hot extremes, marine heatwaves and heavy precipitation is projected, as well as agricultural
and ecological droughts in some regions and reductions in Artic sea ice.

Africa is the driest of the world's continents, with 45% of its land mass consisting of drylands and 50% of the population living in arid, semi-arid, dry, sub-humid and hyper-arid areas. It is forecasted that climate change-induced water stress could affect up to 700 million people in arid and semi-arid areas. The impacts of climate change add to the already difficult water management challenges in arid and semi-arid regions.
Since 1797, the number of extreme hot days in Africa have increased sevenfold. The continent is projected to see an increase in average temperatures and hot extremes, and will likely experience drier conditions, with the exception of the Sahara and East Africa. Alarmingly, it is likely that surface temperatures in Africa will rise faster than the global average, particularly in more arid regions. Warming between 0.5°C and 2.5°C (relative to the 20th century mean) is projected by mid-century for Africa under all scenarios. Under medium scenarios, it is very likely that warming will stay below 2°C. Under high scenarios, all African regions will very likely experience warming greater than 3°C by the end of the century. Africa is likely to experience an increase in droughts in several regions. Heavy precipitation events and associated flooding are projected to increase in frequency and intensity almost everywhere in Africa.

The African continent is characterised by different climatic regimes, ranging from extremely arid to very humid conditions that remain highly variable and unpredictable. The IPCC divides the African continent into nine regions: Sahara (SAH), Mediterranean (North Africa), Western Africa (WAF), Central Africa (CAF), Northern East Africa (NEAF), Southern East Africa (SEAF), Western Southern Africa (WSAF), Eastern Southern Africa (ESAF) and Madagascar (MDG).

Temperature

A substantial increase in the magnitude of heat waves is projected for most of Africa, with potential effects for health and agriculture. For 2°C global warming (and under RCP8.5), mortality-related heat stress and deadly temperatures are projected to become more frequent in the future. This is particularly the case for equatorial regions where heat occurs with higher humidity levels. North Africa, the Sahel, and Southern Africa will experience the largest increase in heat stress.

Under 1.5°C and 2°C GWL, regional models project a substantial increase in hydrological drought affecting the West African basin. Given that global models disagree, confidence in these projections is however low. An increase in agricultural and ecological drought at 2°C GWL is projected for North Africa, WSAF, ESAF and MDG, and generally rises for higher emission scenarios. Southern Africa has been identified as a drought 'hottest spot' in Africa. Weather conducive to wildfires is also projected to increase in North and Southern Africa before the middle of the century.

Southern Africa has been identified as a drought 'hottest spot' in Africa. Southern Africa is likely to become generally drier, and reductions in precipitation can already be detected. Moreover, periods of drought will occur more frequently at 1.5 °C of global warming, and more so as the level of global warming increases. The region is warming at twice the global rate. Further strong regional warming with associated increases in heat-wave events will continue to occur as global warming continues. This points towards significant future challenges in terms of adaptation in the region.

Cold spells and low temperatures will decrease in West, Central and East Africa.

Precipitation

Total precipitation is projected to decrease in the northern and southern regions of Africa, while West and East Africa have a west-to-east pattern of decreasing-to-increasing precipitation. Most African regions are going to experience an increase in heavy precipitation events that could lead to pluvial flooding. Under 1.5°C and 2°C global warming, West and Central Africa, in particular, are projected to experience an increase in the intensity of extreme precipitation, threatening widespread flood occurrences before, during and after the mature monsoon season. For 2°C GWL, extreme precipitation is also projected to increase in several other regions – including SAH, NEAF, SEAF, ESAF and MDG.

Projected declines in precipitation and soil moisture indicate an increase in aridity over the 21st century for NAF, WSAF, ESAF and MDG, with low confidence for other regions. A growing number of studies indicate expanding aridity in East and West Africa.

West African Monsoon

Monsoon precipitation is projected to increase over the central Sahel and decrease over the far western Sahel. The monsoon season is projected to have a delayed onset and delayed response.

Wind and storms

By mid-century, there is high confidence of a decrease in windspeed and wind energy potential for North Africa, and medium confidence in increases for South and West Africa. Tropical cyclones making landfall are projected to decrease in frequency in eastern parts of the continent, and overall there is medium confidence that there will be a general increase in their intensity.

Coastal and oceanic

Coastal- and ocean-related hazards will increase over the 21st century. Relative sea level rise will contribute to increased coastal flooding in low lying areas and shoreline retreat will occur along most sandy coasts. Median shoreline change projections relative to 2010, under RCP4.5, show that shorelines in Africa will retreat by between 30m (SAH, NEAF, WSAF, ESASF, MDG) and 55m by mid-century (WAF and CAF). By 2100, marine heatwaves will increase around Africa, with a hotspot of around 2°C (5°C) along the 24 coastlines of South Africa under RCP4.5 (RCP8.5).

3.2 Africa's Socio-Economic and Development Context and Climate Change

The IPCC defines climate vulnerability as the degree to which a system is susceptible to, and unable to cope with, adverse impacts. Africa is one of the most vulnerable continents due to its high exposure and low adaptive capacity. The continent's peculiar vulnerability is caused by the effects of multiple stressors – notably by low adaptation and mitigation capacities, fuelled by scant finance and investments. The UN State of the Climate in Africa (2019) report shows that there are increasing climate change threats for ecosystems, biodiversity, human health, food and water security and socio-economic development in Africa due to climate hazards such as increasing temperatures, rising sea levels, extended dry seasons, changing precipitation patterns and more extreme weather events. Improving the continent's climate resilience is key to unlocking its development potential. Climate change is estimated to cost the region US$40 billion each year to 2030.

Globally, economic systems are growing in fragility, as increased sectoral co-dependence and the quest for increasing efficiencies lays them open to rapidly propagating shocks. The COVID-19 pandemic is an example of an unexpected and unprecedented event, with impacts cascading across national borders. As is typically the case, the impacts have been felt most strongly by those with the lowest levels of wealth and resilience.

Africa's development context is defined by many factors in addition to a warming climate. With respect to **demographics**, the continent is expected to experience the highest rate of population growth globally in the coming decades, although there is considerable range in the level of projected increase, depending particularly on changes in total fertility rate. The population increase could be between 50-300%, depending on the assumptions used. All scenarios see a substantial **youth bulge** up to mid-century and beyond. Africa's **urban population** is projected to expand threefold from 360 million in 2015 to 1.137 billion by 2050, with 55% of the continent's population living in urban areas by mid-century. Increased urbanization, along with slowly rising incomes, will continue to drive **dietary transitions** to increased consumption of highly refined food high in calories and fat, while for rural and poor groups, high levels of food insecurity and nutritional deficits are likely to remain. Africa in general is squeezed by a **double burden of health risks:** on the one hand, undernutrition and stunting – as well as high vulnerability to communicable diseases such as HIV/AID and malaria; and on the other, inadequate diets leading to obesity and a surge in non-communicable diseases. Although great strides have been made in reducing **food insecurity** in recent decades, there have been increases in the number of food insecure people in Africa since 2018.

Gender inequality, with women having less political, social and economic power than men, continues to be a major challenge in Africa, which is the least gender-equal of all regions of the globe, according to the 2019 SDG Gender Index – though some improvements have been achieved with participation in political representation and schooling for females. Africa has made some progress in achieving universal access to primary school **education**, with 70% of school-aged children enrolled, though drop-out rates are over 10% in most countries and secondary and tertiary school enrolment levels are low: typically 50% in lower secondary, 30% in upper secondary and under 15% in tertiary for most countries.

Africa continues to see high and persistent levels of **extreme poverty,** with significantly higher levels in rural areas. In general, low levels of **economic growth** and high levels of inequality in access to key productive assets inhibit successful and broad poverty reduction. The systems of **land tenure** are highly diverse across the continent, but customary systems are important for most. More transparent and equitable land tenure systems, that allow greater access and security of women to land, are needed. More than 90% of farms in Africa are less than five hectares in size; although in some regions there is growth in medium sized farms, the small farm sector and some of the pastoral lands are seeing increasing **fragmentation**. The contribution of the agricultural sector to GDP is highly variable across the continent, though its often the most important sector for employment. Increasing **youth unemployment** is a major challenge, along with increasing **food prices**, despite increased food imports and some expansion of food production. **Land degradation** remains a major constraint to raising the continent's agricultural productivity, owing to poor soils, reduced fallows, and nutrient mining. Much of Africa is characterized by low levels of **energy access**, particularly in rural areas. Energy demand is projected to grow rapidly to mid-century due to growth of the industrial sector, which creates opportunities for the expansion of energy production from decentralized and renewable sources, particularly wind, hydro and solar.

These are serious challenges, but at the same time, opportunities abound – in two realms in particular: innovation and localization. Some argue we are in The Great Acceleration, an era of unprecedented and increasingly rapid socio-economic and earth system changes, and this includes the rate of technological change. Transformation of energy and food systems offers a host of potential entry points for effective poverty

reduction strategies based on innovation bundles and appropriate enabling conditions. There are already African examples in the domain of information and communications technology, for example. Innovation can be fostered and accelerated by broadening participation in innovation dialogues, novel financing of discovery for open-source innovation, and reforms of intellectual property regimes that can impede affordable access to and adaptation of new discoveries. For food systems, transformative change can be driven by behavioural and dietary changes that in many places are already underway, moving from calorie-rich but nutrient-poor diets with high costs to human health and the environment, to more environmentally sustainable food systems that could reduce the social burdens and economic costs of malnutrition and associated non-communicable diseases. At the same time, geopolitical shifts are discernible, and these give pause to notions of a global future characterised by ever more liberal trade (consider the impact of the COVID-19 pandemic, but also geopolitical implications of climate change and more frequent environmental disasters). This offers considerable opportunities for sustainable local and regional food systems to develop and meet the burgeoning demand of growing, increasingly youthful populations.

Business as usual is not an option; and the future is increasingly unlikely to be a predictable extrapolation of the past. By embracing the energy transition and green economy skills and technologies, Africa can position itself strategically within the global economy to support its vision of a prosperous, equitable continent that represents a dynamic force in the international arena.

Green recovery and COVID-19

Within this context, COVID-19 represents the biggest global economic shock since The Great Depression and has hit Africa particularly hard due to existing vulnerabilities. The World Bank estimates that an additional 23 million people will be pushed into extreme poverty and 20 million jobs could disappear, costing Africa up to US$500 billion in revenue. Food insecurity and debt are rising, and hard-won development gains are being lost. Many countries entered the COVID-19 crisis with significantly greater debt vulnerabilities than they had at the start the global financial crisis. In the years leading up to COVID-19, the composition of debt held by many African countries shifted away from traditional multilateral and concessional lending to both non-Paris Club official creditors – including China, Gulf States and India – and privately held, non-concessional loans. In addition, levels of debt held by African countries also increased over this time, averaging debt-to-GDP ratios of above 50%, with several outliers having ratios in excess of 100%.

Before the pandemic, the majority of African countries had fiscal deficits in excess of 3%. Post COVID-19, the debt situation has resulted in a lack of fiscal space for Africa to simultaneously respond to the pandemic, build resilience to climate change, and get back on track to achieve the SDGs in this Decade of Action.

The United Nations Secretary-General's policy brief on the impact of the pandemic in Africa recognises that, in addition to the health impact, indirect consequences such as food insecurity, a lack of medical supplies, loss of income and livelihoods, looming debt crises, as well as related security and political risks will be significant. As the COVID-19 pandemic unfolds globally and in Africa, the situation remains fluid and rapidly evolving, and urgent responses, interventions, measures and responses are required. It calls for increased agility and heightened responsiveness from African states and other agencies to intervene and contribute positively in a timely and meaningful manner. There is a need to seize the opportunities in the recovery from the pandemic to support the transformation of the continent towards a more inclusive and sustainable future. As such, the recovery from COVID-19 is an important opportunity to deliver cleaner, healthier, more resilient and more inclusive economies and societies, accelerating progress towards the 2030 Agenda for Sustainable Development and the goals of the Paris Agreement.

Health

Human health will be negatively affected by climate change and its impacts, which can modify the transmission of diseases such as cholera, malaria meningitis, and zoonotic diseases such as Ebola and coronaviruses. The death rate from climate change is 60 to 80% higher in Africa than it is in the next most vulnerable region (Southeast Asia) due to pre-existing vulnerabilities and the weakened ability of Africa to adapt to the impacts of climate change. These results imply that there will be up to 70,000 additional deaths in Africa by 2030 because of climate change, with malaria and diarrhoea responsible for the largest proportions of these deaths. Furthermore, climate change-induced floods and cyclones can lead to contamination of water supplies, increasing the prevalence of vector-borne diseases. The health of animals and other plants that humans depend on is not spared as they are also impacted by climate change in ways that are still yet to be fully understood.

The COVID-19 pandemic has also highlighted the inextricable link between human health and the health of the environment. Recent research suggests that the emergence of new human diseases is closely linked to

loss and degradation of ecosystems and habitats, which in turn is driven by climate change, resource extraction, urban and agricultural expansion and pollution.
Finally, it should be recognised that transitioning to renewable energy sources has direct health benefits in terms of air quality. Combustion fuels like coal, oil and natural gas release pollutants that lead to widespread respiratory disorders, the exacerbation of asthma and other severe health implications. Atmospheric pollutants from the increasing rate of open burning of waste are also contributing to the rise in respiratory infection and cardiovascular diseases in African urban centres, in addition to contributing to climate change through the release of short-lived climate pollutants. Replacing biomass (wood and charcoal) as a cooking and heating source with solar cookers and electric-powered appliances (which can be powered by renewable sources) will also have significant direct positive health impacts.

Climate, conflict, movement and human security

Changes in climate, demography and urbanization are rapidly changing Africa's security landscape. By 2050, parts of Africa will become hotter and more arid while others will become increasing more prone to flooding, rising sea levels, and related natural disasters. This may continue to increase international migration and see levels of internally displaced persons grow, while also creating competition for resources. Over the next decade, the continent's proportion of people of working age is projected to increase sharply and new entrants to the job market may find it increasingly difficult to gain employment. Increased urbanization and internal displacement will cause a rise in the number of urban dwellers living in slums. In this context, a lack of service delivery, unemployment and underemployment, and political and social marginalization will make vulnerable groups, and particularly youth, more susceptible to recruitment into various forms of violence.

Nevertheless, movement or migration is an adaptation strategy employed by hundreds of millions of people, both in response to negative stimuli and as a means of pursuing a worthwhile life. Migration decisions are highly context-specific and vary according to interactions between economic, political, social, cultural, demographic, and other factors that operate across scales to create vulnerability and adaptive capacity. Migration outcomes reflect a continuum of agency, from voluntary movement to involuntary displacement, and a continuum of time scales, from temporary, seasonal to permanent, and spatial scales, from local to regional to international. Despite narratives that can portray international migrants as a threat to national security, the overwhelming majority of those who migrate are peaceful, productive, and bring many economic and social benefits to the places they settle as well as to the places they leave.
Climate change undermines human security and acts as a driver of conflict in Africa under certain circumstances and through different pathways. Defining a direct causal link between climate change and conflict can be challenging. For example, statistical studies have found no direct causal link between precipitation levels and violent conflict.

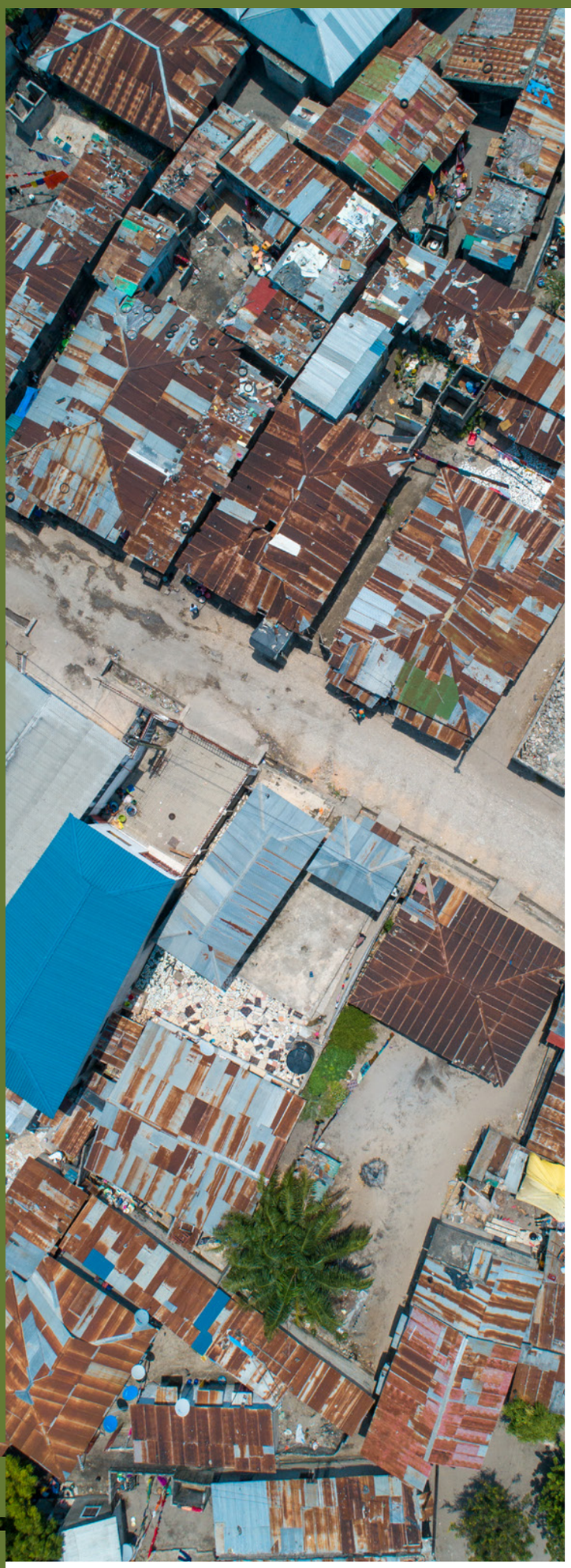
Rather, climate change undermines human security and drives local conflicts and other types of violence by interacting with other intervening variables, such as social, political, and economic marginalization; water scarcity and resource competition; food insecurity; low economic development; weak institutions; population displacement and migration, among others.

It must be noted that conflict and human security threats are multi-layered and highly complex, even without climate change as a contributing factor. Climate-induced risks may only be one factor to exacerbate existing issues, which is why climate change is often described as a threat multiplier/ intensifier/ catalyst. However, the importance of climate change as a threat-multiplier should not be underestimated or trivialised.

Climate change may contribute to an increase in the frequency and intensity of conflict and human security issues on the continent, creating protracted and multifaceted humanitarian and security crises that will strain the capacity of the African Union Peace and Security Architecture (AUPSA) and other peace and security mechanisms to effectively respond. Recent framings in the research literature highlight the past and potential effectiveness of migration in all its forms as a means of adaptation, and there may be a considerable role for governments in normalizing and facilitating the movement of people in situations where climate variability or conflict pose an acute risk.

Urbanization and cities

It is anticipated that more than a quarter of the world's fastest growing cities are in Africa and that by 2050, its urban population will have tripled. This exponential growth, coupled with weak governance structures, limited infrastructure and resources, high levels of poverty, a growing demand for resources, lack of reliable data and limited service delivery, puts immense pressure on local and regional governance, ecosystems and infrastructure, and increases the vulnerability of urban



populations to climate change and other impacts.
It is estimated that 59% of sub-Saharan Africa's urban populations live in informal settlements, slums or peri-urban areas. Despite an increase in improved housing from 11% to 23% from 2000-2015, 53 million urban Africans were still living in unimproved housing in 2015, often in highly overcrowded conditions. Despite growing faster than other areas, large deficits in city infrastructure and public service provision exposes much of the population to high levels of risk.

Linear transport infrastructure, such as roads, railways, and pipelines, are expected to rapidly expand in the coming decades across Africa. In Africa, dozens of development corridors have been proposed or are being created, involving large-scale expansion of infrastructure such as roads, railroads, pipelines, and port facilities. While facilitating trade and development, these corridors also open up extensive areas of land to new environmental pressures. There is a high likelihood that these new and existing investments in infrastructure risk exposure from extreme weather events (for example flooding that could lead to destruction, water canal blockages, waterway diversions, and downstream sedimentation). These risks can be lowered through life cycle planning, development and management of infrastructure, rigorous mitigation and protection measures, strategic foresight, and appropriate environmental regulations, licensing, contracting and enforcement of regulations, together with well monitored and deliberate investments, and inclusion in planning with the communities which are both impacted and dependent upon them.

Africa is known to be one of the most rapidly urbanising continents. In this way, Africa's urban transition is a key global game-changer: the way that African cities develop will determine whether or not we achieve our collective global climate mitigation and adaptation targets, SDGs, biodiversity, poverty and inequality targets, and resource sustainability. About 60% of the built environment that African cities will require has yet to be built, and this provides a unique opportunity for African countries to leapfrog into more low-emission and climate resilient infrastructure. On the contrary, if this is laid into place using business-as-usual and conventional approaches, we will not meet our development goals. Therefore, there is global interest in ensuring that Africa urbanises sustainably.

The growth of cities is also one of the primary drivers of the loss of urban natural assets, which undermines the quality and functioning of ecosystems, and thereby diminishes the ability of nature to provide the very

services on which our growing urban communities - and in fact, all life on Earth - ultimately depend. This loss undermines the resilience of city-regions and ultimately impacts on socio-economic systems, governance as well as human health and well-being. To sustainably accommodate urban growth, cities must 'think beyond the city limits' to develop mutually beneficial urban-rural linkages, and territorial scale development, to invest in regeneration and the renewability of their urban, peri-urban and hinterland natural environments, and embrace a planning approach that puts the ecological landscape first, before embedding urban development. This landscape approach can improve the circular economy at the city region scale, aid in disaster risk reduction, draw attention to ecosystem service synergies and promote agroecological food systems localization.

African cities, while currently responsible for a negligible amount of total global GHG emissions, are also under significant threat from climate change, which significantly exacerbates all the conditions mentioned above. Changes in precipitation levels, likely increases in temperature extremes and rising sea levels will have a wide range of direct and indirect impacts on Africa. To adapt to these future climate challenges, it is important for decision makers to help reduce the negative consequences for society and, in particular, to protect vulnerable groups. Referring to sound research, it is necessary to understand what the future changes to the climate are likely to be (especially at a downscaled level), how impacts will be distributed across different regions, the direct and indirect impacts of these changes, and the appropriate adaptation responses to these impacts.

Furthermore, ensuring climate and biodiversity/ ecosystem considerations are embedded in all city planning policies – not just in standalone climate plans – is crucial to ensuring resilient and sustainable development. Climate change is a multi-sectoral issue. It will affect all of us, in multiple ways, and therefore integrated and systemic approaches are needed.

Harnessing the skills and opportunities within all municipal departments is therefore vital. And perhaps even more vital is proactively securing finance for climate change and sustainability actions – to ensure that they don't just remain in policies, but lead to tangible, on-the-ground change. Fortunately, African cities are not alone in this effort, and both regional and international networks for learning and exchange between cities and territories have been rapidly evolving to bolster this urban transformation toward resilience (such as Local Governments for Sustainability (ICLEI), C40 cities, United Cities and Local Governments (UCLG) and others).

Inadequate human, financial and technological resources

While Africa has achieved significant development gains in recent decades, the continent still lags behind other world regions in terms of many social and economic development indicators. Financial resource constraints, inadequate skills development and governance challenges all contribute to this reality. Planning and implementing effective climate responses at local, national, sub-regional and continental levels, while at the same time addressing other developmental challenges, requires appropriate and effective institutional structures and coordination mechanisms.

A key challenge stems from insufficient data and capacity to generate accurate, site-specific forecasts regarding the changing climate. The regional and national climate information service centres are inadequately resourced to capture, analyse and effectively communicate climate data, undertake modelling, and make accurate, timely and user-friendly weather forecasts.

The competition for limited resources between responses to climate change and other pressing developmental needs undermines progress; when disasters occur, resources and capacities must be diverted from planned development actions to managing and recovering from the disasters. Yet, if a small proportion of the resources that are channelled into disaster relief and recovery is invested into effective early warning, preparedness and resilience-building, the negative impacts and reconstruction costs will be greatly reduced. Recovery would be faster and more resources would be invested to support development and prosperity.

Africa must continue to insist on appropriate, accessible and adequate support from partners in developed countries to address climate challenges. Such support includes financial, technological and capacity development components. At the same time, AU Member States should strengthen domestic resource mobilization, capacity development, and support domestic public and private investment in research and development, green technologies and climate information services.

Photo: © Felix Clay (Duckrabbit)

Groupings particularly vulnerable to climate change

Gender

Gender norms and power structures play a critical role in determining how women and men of different backgrounds are impacted by, and respond to, climate change. Pre-existing inequalities, gender-related roles and expectations, and unequal access to resources can deepen inequality and leave some groups disproportionately vulnerable. Women are more exposed and vulnerable to climate change because they are often poorer, receive less education, and are not involved in political and household decision-making processes that affect their lives. Women are also more vulnerable to climate shocks due to their role in subsistence rain-fed agriculture and weaker access to resources and decision-making power. Research suggests that even after controlling for socio-economic characteristics, women still had about a 13% higher chance of experiencing moderate or severe food insecurity than men, and that their chance was close to 27% higher for being severely food insecure at the global level. As such, addressing inequalities is an essential part of building resilience and addressing climate and environmental challenges. Numerous studies indicate that if adaptation actions do not consider age and gender in their application, the loss of future livelihoods and educational opportunities will occur. This highlights the need to include gender and youth dimensions of climate adaptation at all levels.

Women and girls require support tailored to their specific needs to mitigate the changes that threaten their social and economic well-being. For example, women's participation at the political level has resulted in greater responsiveness to citizen's needs and increased cooperation. Conversely, if policies are implemented without meaningful participation of women, inequalities can increase and effectiveness decreases. Women, children and the elderly are the most frequent victims of natural and man-made disasters. Therefore, empowering women and building their resilience has a positive impact on the family and community. Access to education by women, young girls and adolescent females must be a priority in the fight against climate change, its impacts and poverty – which are interlinked.

Youth

Youth are among the key players identified in achieving the SDGs and Africa's developmental ambitions. Young Africans are one of the continent's greatest resources. Africa has the world's youngest population and future generations who are young today will experience significant climate change impacts over the course of their lifetimes if climate impacts are not efficiently and effectively managed. These include school disruptions, social and political disorders, food insecurity, diseases, and threats to water and sanitation services – to name a few. Today's young people will also enter the workforce in coming years as economies and industries are impacted by, and must respond to, climate change.

The '*Africa We Want*' articulated in Agenda 2063 has a strong focus on children and the youth of today, as they are the elders and leaders of tomorrow and the key to the survival of mankind. African youth are projected to experience the worst impacts of climate change. As a result, their welfare and interests should not only be provided for, but their voices should also be heard – and they should play key roles in the development and implementation of solutions to the challenges they face – from today and going into the future.

3.3 Key Sectoral Challenges and Opportunities Related to Climate Change

While adaptation and resilience-building remain Africa's top priority, mitigation actions will also be required as part of the region's climate response. It is recognised that the continent has an immense mitigation potential due to its vast land mass, forests, agricultural systems and oceans. Africa also has unrivalled potential for renewable energy – especially solar – for its own development and export.

Africa's leadership has an opportunity to evolve and entrench a new ethos and establish pan-African networks for creating sustainable green jobs and livelihoods, based on enhancing the continent's natural capital, ecosystems and biodiversity. The continent's population demographics are an opportunity and latent strength, as most of the population is of school-going age, and can therefore be equipped with the skills to become innovative and enterprising citizens supporting the realization of '*The Africa We Want.*'

The continent possesses significant mitigation potential which, if fully unlocked, can attract substantial resource inflows to fund adaptation and resilience-building. The massive untapped source of clean renewable energy on the continent is an advantage for its own low-emission development, and potentially for powering and selling technology-driven carbon dioxide removal. Africa is well positioned to tap into the ever-rising global demand for clean energy, including green hydrogen, which is set to become the fuel of the future as the technology develops and costs are reduced. Climate-smart sustainable land and water use, agricultural practices and ecosystem management can transform Africa from a hungry continent into a net food exporter in a short period.

Climate actions are at times presented as a hindrance to growth or a diversion from more pressing development priorities. In truth, ambitious action in support of clean, low-emission growth can position the
continent strategically in terms of the skills, technologies and industries of tomorrow, thereby supporting job creation, global competitiveness and sustainable growth and industrialization.

As countries move from a focus on containing the COVID-19 virus to economic recovery, choices are being made that will shape trajectories on emissions, resilience, and biodiversity for decades to come. A clean and resilient recovery in Africa will lead to employment in the industries of the future, while ensuring that the region addresses the linked challenges of public health, prosperity and climate change. National or sectoral masterplans, climate change adaptation plans and the NDCs – as well as a host of other national plans – provide blueprints for action. Within this context, the AU's Green Recovery Action Plan (2021-2027) will tackle the combined challenges of the COVID-19 recovery and climate change, by focusing on critical areas of joint priority – including climate finance, renewable energy, resilient agriculture, resilient cities, land use and biodiversity.

Food systems, health and nutrition in a changing climate

A World Meteorological Organization (WMO) report on the State of the Climate in Africa 2019, indicates that recent years have witnessed some of the highest temperatures on record, with the latest decadal predictions, covering the five-year period from 2020-2024, showing continued warming and decreasing rainfall, especially over North and Southern Africa, and increased rain-fall over the Sahel. IPCC Assessment Report 5 projects that extensive areas of Africa will

exceed 2°C warming above pre-industrial levels by the last two decades of this century under medium GHG emission scenarios. IPCC projections suggest that warming scenarios risk having devastating effects on crop and livestock production and food security, with key risks to agriculture including "reduced [agricultural] productivity associated with heat and drought stress and increased pest damage, disease damage and flood impacts on food system infrastructure, resulting in serious adverse effects on food security and on livelihoods at the regional, national and individual household levels".

Anticipated challenges

By the middle of this century, major cereal crops grown across Africa will be adversely impacted as they are at the edge of physical thresholds at which yields decline, albeit with regional variability and differences between crops. This includes primary sources of carbohydrates in African diets, such as maize, rice and millet, with each vulnerable to temperature increases, irregular rainfall and other deteriorating growing conditions. Other crops such as cassava may be more resilient to droughts and heat, but have far less support in terms of production-related research or infrastructure developed to provide sufficient substitute sources of nutrition.

The climate-related challenges to the livestock sector have also been evaluated in recent research, including the decline in quality and quantity of animal feeds and forage; a reduction in water availability; heat stress; biodiversity change; changes in the distribution and occurrence of livestock pests and diseases; and increased livelihood and income vulnerability affecting food security, purchasing power and resilience. Climate challenges to the livestock sector will need to be addressed at the same time as the sector responds to existing challenges. An assessment carried out in all regions of Africa determined that the livestock sector is not producing according to its potential due to multiple factors, including under-investment in more productive breeds, poor quality feed, poor disease control measures, low compliance with sanitary and phytosanitary standards, and poor planning or monitoring and a low commitment of resources devoted to improvements of rangelands and their management.

Climate change and increasing climate variability present a growing threat to food security and nutrition in Africa because of the region's heavy dependence on climate-sensitive activities. The threat of these climatic uncertainties is linked to all determinants of malnutrition, ranging from underlying factors such as socio-economic status and environmental conditions to direct determinants such as droughts, floods, diseases and inadequate food and nutrient intake. It exacerbates malnutrition through three main pathways: household food security, child feeding and care practices, and health. There is growing evidence that these effects are exacerbated by gender and social disparities between and within households and communities.

Africa (along with Southern Asia) is projected to be most exposed to an increased risk of hunger due to climate change. Malnutrition is a major cause of morbidity and mortality on the continent and statistics show that a quarter of a billion Africans suffered chronic undernutrition. 426 million experienced moderate food insecurity, 51% could not afford "nutrient-adequate" diets, and 11.3% could not afford "energy-sufficient" diets.

Health status affects how nutrients are absorbed and used by the body. Climate-change projections for Africa for the full range of emissions scenarios indicate that 350-600 million people will be at greater risk of water stress by the 2050s, and similar numbers at greater risk of heat stress and reduced labour productivity. In addition to the impacts on agricultural production, reduced health status affects food utilization and nutrition through increased incidence and prevalence of diseases such as diarrhoea, limiting nutrient uptake and further driving undernourishment.

Increasing frequency of very hot days is already having effects on the capacity of people to work in the fields, with major implications for livelihoods based on human labour, such as non-mechanized agriculture. Globally, rural labour capacity declined by more than 5% between 2000 and 2016. Further declines in labour capacity during the current century are very likely under all future climate scenarios.

By 2050, 54% of the projected increase in undernourishment globally will be in Africa, particularly sub-Saharan Africa. In sub-Saharan Africa, child malnutrition, measured by severe stunting, may increase by 23% by 2050, compared with a future without climate change. Climate change will continue to counteract the benefits of socio-economic development, exacerbated by rapid population growth.

Opportunities

The main challenge will be to establish the backbone infrastructure and services on the large scale needed to enable the majority of farmers in outlying areas to achieve a reasonably dignified life – as well as establishing mechanisms to ensure equity and fairness in sharing of risk and value along value chains. Digital technology offers significant opportunities for providing information, education, awareness and other climate risk management services at scale, speed and in a targeted and differentiated manner. It can also be used to enhance fairness and equity in the distribution of risk and value. Policy innovations also have the potential to

effect change at scale and at the lowest cost. Finally, the development of a new generation of data driven and ICT-enabled climate sensitive farmers, which is both environmentally and financially rewarding, is going to be a critical lever for the region's climate response. The development and selection of climate-resilient crops and breeds, using some of the new tools of genetics and genomics as well as traditional approaches, also represents significant adaption opportunities for the agricultural sector.

Priorities for research and innovation needs to focus on addressing the fundamental challenges faced by farmers, which relates to policies, institutions, and society in general. The prevailing focus or research and innovation tends to concentrate largely on technical solutions and less upon the needs and opinions of farmers who are on the frontline of climate change and most exposed to the risks. Although entire agricultural chains are anchored on farmers as primary producers on the front-line of climate risk, the majority are uninsured and have no other adequate social safety nets. In addition, farmers' contribution to the management of various ecosystems is neither properly valued nor remunerated, yet they provide essential and valuable products and services.

Land-based ecosystems and carbon sinks

According to Swiss Re (2020), 55% of global GDP, equal to US$41.7 trillion, is dependent on high-functioning biodiversity and ecosystem services. Regrettably, ecosystems and the services they provide, such as oxygen water and protection from flooding, are also affected by climate change and its impacts. Additionally, climate change is projected to decrease biodiversity and wetlands, leading to loss of soil and trees and the possible proliferation of zoonotic diseases. The poor and vulnerable communities mostly depend on ecosystem services and are therefore the most affected by the crisis.

If natural ecosystems continue to be degraded and habitat loss is left unchecked, human-wildlife conflict is inevitable and the experiences so far suggests that the odds are stacked against wildlife and ecosystems.

Africa is highly vulnerable to climate change, which is further exacerbated by the significant rates of land use change, population growth and industrial development.

Land-based ecosystems and the carbon sinks they comprise are concomitantly Africa's biggest risk and opportunity in the face of projected impacts of climate change. Terrestrial biodiversity conservation is dependent on the protection and restoration of key ecosystems such as forests, wetlands, grasslands, highlands and coastal systems, which all serve as carbon sinks. Human-induced modification of the structure and function of many ecosystems through land use change and degradation (e.g., agricultural conversion, forest/grassland clearing and burning, urban expansion, mine and road expansion etc.) has significantly altered the relationships between natural carbon sources and sinks. Africa's extensive tropical forests, mangroves and rangelands are critical land-based ecosystems in combating global climate change and provide valuable ecosystem services to its people. These ecosystems hold significant carbon stocks, 17.5 billion tons (Gt) of irrecoverable carbon, more than 12% of the world's total. Additionally, 62% of Africa comprises rangeland, mainly supporting extensive livestock production, wildlife conservation, and agro-pastoralism. Africa's rangelands contain 36% of the world's total carbon and, if fully restored, can sequester carbon in amounts equal to that of the Amazon rainforest. However, an estimated 700 million hectares of rangeland in Africa requires restoration.

Climate change poses a real threat to the African continent, with 85% of the people dependent on the natural environment to meet at least one of their basic human needs (shelter, energy for cooking, income, and clean water), and 65% dependent on subsistence agriculture for food production. This highlights the importance of the sustainable use and management of natural resources to maintain the livelihoods of people across the continent that are affected by climate change, while avoiding practices that contribute to environmental degradation.

Anticipated challenges

Globally, Africa had the highest net annual loss of forests (4.3 million ha) from 2010-2020, due to unsustainable agriculture, fuelwood harvesting and logging. Desertification affects approximately 45% of Africa's total land area, with 55% of this area at high or very high risk of further degradation. According to the IPCC, Africa will see increased droughts, which will continue to affect livelihoods, agriculture, water systems and ecosystems. Already, 18 of the world's 20 most food insecure countries are in Africa. Furthermore, two of the world's areas most vulnerable to ecosystem collapse within the next decade (due to resource scarcity and natural disasters) are in African rangelands.

Additionally, international interest in utilising African lands for Ecosystem-based approaches carbon dioxide removal activities may present unique governance challenges with regard to development trade-offs, land-use rights, safeguarding of biodiversity and food security, and water resources. Balancing potential financial benefits of these activities with risks may require new policy frameworks and collaboration.

Opportunities

Data indicates that nature offers more than 30% of the mitigation action needed by 2030 to limit the worst effects of climate change through natural climate solutions. In effect, Africa could reduce its greenhouse gas (GHG) emissions by 22% by implementing a multi-pronged approach to natural climate solutions that entails protecting key carbon ecosystems, avoiding further loss of nature and restoring important ecosystems. Therefore, many African countries could exceed their national climate targets through natural climate solutions alone. For example, innovative, regenerative farming approaches to livestock management that are community-driven, climate-smart and wildlife-friendly can support rangeland restoration at scale, making livestock farmers and pastoralists part of the solution, and enabling livelihood diversification and resilience. There is some experience in Africa of schemes that provide payments to land users for ecosystem services such as biodiversity conservation. Taking successful PES pilots to scale has considerable potential for helping to diversify livelihoods and increase resilience. Furthermore, modelling has shown that the protection of 30% of Africa's land area could reduce total species extinction risk by more than 60% under both 1.5°C (RCP2.6) and 4.5°C (RCP8.5) scenarios. This presents an opportunity for investment in protecting and restoring natural ecosystems to achieve not only climate benefits, but also biodiversity and social and economic development, thereby ensuring a green development pathway for Africa. Protecting and restoring Africa's ecosystems also has implications for the health of the population as land use change is increasingly linked to the occurrence and risk of zoonotic and vector-borne diseases.

Energy and infrastructure

Africa's energy systems face several climate risks. Extreme weather can lead to widespread damage to electricity generation, transmission, and distribution networks. Higher temperatures reduce the operating efficiency of thermal generation, while simultaneously increasing energy demand for air conditioning. Reduced rainfall and associated streamflow can limit hydropower output and other water-dependent energy generation.

Several African countries are particularly vulnerable to reduced rainfall and runoff due to their heavy reliance on hydropower for generation. As of 2018, Africa had over 36 Gigawatt (GW) of installed hydroelectric capacity, roughly 20% of installed generation capacity, which was highly concentrated along the continent's major river basins. In East and Southern Africa (excluding South Africa), hydropower represents over half of electricity generation. In the Democratic Republic of Congo (DRC), Ethiopia, Malawi, Mozambique, Namibia and Zambia, hydropower accounts for over 90% of capacity.

Constrained hydropower generation due to reduced rainfall and runoff has already resulted in drought-induced electricity rationing in several African countries. The 2015-2016 El Niño drought led to severe reductions in electricity generation in Southern Africa due to low water levels at the Kariba and Cahora Bassa dams on the Zambezi River. Malawi, Tanzania, Zambia and Zimbabwe all experienced load shedding due to the drought. Zambia resorted to importing costly emergency power. The energy shortages resulted in a decline in the mining sector, along with overall economic growth.

Energy production is central to addressing developmental challenges, such as poverty, inequality, climate change, food security, health and education. Energy poverty can be defined as an absence of sufficient choice in accessing adequate, affordable, reliable, clean, high-quality, and safe energy services to support economic and human development. In Africa, climate change does not affect all members of the population in the same way. For example, women and girls are the most at risk and require support tailored to their specific needs to adapt to the changes that threaten their social and

[1] Energy justice refers to the need for social and economic equity in the energy system and the remediation of the social, economic, and health burdens of those historically affected by it.

economic well-being. This is most evident for women in rural areas who are particularly time-poor and the associated drudgery of their tasks is mainly fulfilled through their own physical labour, particularly fuelwood collection, fetching water and food processing. It is therefore critical that energy access programmes focus on women and promote energy justice[1] through better access to and control of energy resources, thereby contributing to the empowerment of women.

Anticipated challenges

Current actions to eradicate energy poverty and promote energy justice are falling short both in terms of scale and pace. Should this trajectory remain unchanged, more people will be without access to modern energy in 2030 than is presently the case. The climate risks that Africa's electricity systems will face in the future are heavily influenced by the infrastructure decisions that governments make in the near term. Hydropower plays a central role in African governments' plans to scale up generation. The African Union's (AU's) PIDA, along with other national energy plans (jointly referred to as PIDA+) aim to add 80 GW of hydroelectric capacity to the existing 36 GW, with an estimated cumulative cost of US$75 billion over the period 2015-2050. The majority of these future additions would occur in the Congo (44.4 Megawatt (MW)), the Nile (21.4 MW), the Zambezi (8.2 MW) and the Niger (4.7 MW) river basins.

As African economies expand hydroelectric production, they risk becoming more sensitive to climate variability. Current climate models disagree on whether Africa's major river basins will become wetter or drier. Regardless, future levels of rainfall, evaporation and run-off will have a substantial impact on hydropower production. The biggest risk to hydropower output is in the Zambezi River Basin, where the driest scenarios would see a 58% reduction in revenues relative to a scenario without climate change.

Opportunities

A global political commitment that goes beyond abstraction and sets out actions and associated benchmarks is required. Innovative and interdisciplinary approaches have been developed, notably, the operationalization of the energy justice framework has led to new energy justice indicators, such as affordability that includes opportunity cost (time and distance travelled). As research activities continue, it will be essential to integrate insights and lessons related to energy access and energy justice on an ongoing basis. There are also opportunities related to off-grid and smart-grid solutions, designed around renewable energy technologies, to support rapid expansion of energy access. Investment opportunities can also arise from appropriate policy frameworks and programmes, such as South Africa's Renewable Energy Independent Power Producer Procurement Programme.

Climate change, transport and mobility

Transport systems in Africa are exposed to extreme climatic events and weather conditions, such as flooding (surface, fluvial and coastal), tropical cyclones, and high temperatures. The impacts of flooding on infrastructure can prove catastrophic for food security, communication, and the economy of affected regions. Simultaneously, transport systems can compound climate impacts, contributing to heat stress and air pollution. Increasing urbanization, motorization, and poor transport and urban planning exacerbates climate vulnerability and reduces the ability of cities to adapt. For example, in many African countries, the majority of poor urban residents commute by foot and are forced to walk through corridors of land unsuitable for development, such as swamps, floodplains, and hillsides, thereby increasing their exposure to extreme weather.

Anticipated challenges

Trade is crucial to food security, and transport infrastructure is the conveyance mechanism for trade. Food security in many African countries is exacerbated by a lack of resilient transport infrastructure. As critical trade routes face significant risk to disruption by climate impacts it is expected that food insecurity will worsen. Further, it is estimated that a direct liability of over US$73.2 billion will be incurred to repair and maintain African roads damaged by projected climate change impacts, up to the year 2100.

Opportunities

Modelling suggests that proactive adaptation in the transport sector to account for temperature increases is a 'no regret' option in all cases, but precipitation increases should be considered on a case-by-case basis. By implementing adaptation measures, climate-related road maintenance could be reduced by 61% in Mozambique, 47% in Zambia and 43% in South Africa by 2050.

There is a dearth of literature on observed and projected climate impacts on the African transport sector. This presents an opportunity for research and innovation in the sector, to come up with timely solutions.

There are significant opportunities for Africa in transitioning to low-emission transport modalities (e.g., electric vehicles) for both public and private transport.

Water systems

Water is a key driver for development across the African continent and a critical enabler for productivity and sustainable economic growth. It contributes significantly to human development, poverty reduction, and the attainment of the African Union Agenda 2063 and the SDGs. Despite the critical role water plays towards economic and social prosperity, investments into Africa's water sector are not advancing at the rate needed to achieve SDG6. The AfDB estimates that investments totalling approximately US$64 billion per year are required to meet the targets set out in the Africa Water Vision of 2025. The AfDB states that the current financial flows for water sector investment programmes are approximately US$10.5 billion per year.

Water systems across Africa are characterized by stark differences in both hydrological and climate dynamics that shape their risk and vulnerability to predicted climate futures. However, one constant across the continent is that livelihoods, ecosystems, and biodiversity are inextricably dependent on the sustainable functioning of water systems. Key examples include:

- Higher temperatures are projected to cause increases in water deficits of about 71% in agriculture, 27% in hydropower, and 1% in livestock production;
- RCP8.5 projections put 1.2 billion African people at significant risk of being negatively impacted by water pollution due to reduced water quality regulation by natural ecosystems;
- Climate change projections will reduce available habitat for aquatic species due to increases in water temperatures above optimal physiological limits; and,
- Minor climatic variations have been linked to significant impacts on ecosystem functioning in Africa's freshwater ecosystems.

The observed and projected increases in heavy precipitation and pluvial flooding, as well as observed and projected increases in aridity, agricultural and ecological droughts, will affect primary productivity (forests, grasslands, fodder). Also affected will be subsistence agricultural productivity, with repercussions for increased dependence on natural resources for sustenance, which are already under pressure from climate and other threats. These will increase water use and abstraction, causing further impacts for freshwater ecosystems while also increasing conflict between people and wildlife.

Many studies report the significant socio-economic consequences of climate variability and extreme

weather events on water systems, increasingly in urban areas, often related to flooding. Notably, the El Niño event in 2015-2016 and associated drought in Southern Africa impacted, among other things, hydropower generation and electricity supply in Lusaka with serious implications for businesses. In 2017, the Day Zero water supply crisis in Cape Town had unequal impacts on communities and prompted intense debate over the role water resource management decisions, investment and drought prior to and during the crisis. An Indian Ocean Dipole event in 2019 produced high rainfall over East and the Horn of Africa triggering mud slides, destruction of crops and property, and loss of lives.

Marine heat waves have become more frequent since the 20th century and are projected to increase around Africa. Relative sea level has increased at a higher rate than global mean sea level around Africa over the last three decades. Relative sea-level rise is likely to virtually certain to continue around Africa, contributing to increases in the frequency and severity of coastal flooding in low-lying areas and coastal erosion along sandy coastlines.

Example of human and property losses due to climate events

- **1960s to present day:** Lake Chad (the vanishing lake), receded from 25,000 km2 in the 1960s to between 2,000 km2 and 15,000 km2 (depending on the season) over the last 40 years, affecting the lives of about 30 million people.
- **2000:** Floods in Mozambique caused 800 deaths, affected about 2,000,000 people, 329 people were displaced and agricultural land was negatively impacted.
- **2001:** Floods in Northern Algeria resulted in approximately 800 deaths and caused an economic loss of about US$400 million.
- **2011-2012:** Severe drought affected the entire East Africa region and was said to be "the worst drought in 60 years". Within the same year floods affected the region and caused further damage.
- **2014-2019:** In Central and West Africa, a total of 700,000 people were displaced mainly due to flooding. This also resulted in localized crop and livestock losses.
- **2019:** Flooding due to Cyclone Idai destroyed about US$1 billion of infrastructure, about 100,000 homes were damaged/destroyed and at least 400,000 ha of crops were destroyed.
- **2019:** Heavy rainfall triggered widespread flooding, which resulted in a loss of life, displacement, damage to crops and livestock deaths, mainly in central and southern Somalia, south-eastern Ethiopia, northern and eastern Kenya and South Sudan. The heavy rains created conditions conducive to the severe desert locust outbreak, the worst in decades, affecting most parts of East Africa.

Anticipated challenges

Poverty is arguably the biggest challenge facing Africa, and more specifically in relation to changes in climate and the water sector, inequities in adaptive capacity for poorer populations. Adaptive capacity in Africa is often largely a function of access to natural and/or financial resources. Africa accounts for two-thirds of the world's extreme poor; combined with the fact that Africa's population is projected to double by 2050 and the significant water stress that already exists across the continent (to be compounded further by climate change), water access and governance presents the most significant challenge for this decade. The increased drying of the continent will result in food shortages, conflicts over increasingly scarce resources and increasing dependence on natural resources.

There is a need to improve the efficiency and effectiveness of transboundary cooperation to ensure that decision-making and investment occur at appropriate timeframes to respond to the speed of changes in the climate and environment. In general, investment in water in Africa is low, contributing to inadequate capacity to minimise climate risks and enhance climate-resilient water systems. Although water is identified as one of the priority sectors affected by climate change, there is a lack of support and financing/resource mobilization required to facilitate climate-resilient water investment policy development.

Through potentially rapid and large changes in socially and economically critical aspects of the hydrological cycle, climate change represents a major cross-cutting challenge, in terms of availability, exposure to hazard, management capacity (both supply and demand), and individual well-being. Africa's size and diversity of climate conditions, often with high spatial and temporal variability, make it difficult to generalise about the current and future status of water resources. This is further compounded by limited availability and quality of climate data in Africa. Despite these challenges, it is evident that surface and subsurface water availability is being altered by changes in the timing, amount, intensity, and state of precipitation as well as atmospheric evaporative demand due to changes in temperature, humidity, radiation, and windspeed.

Increases in climate variability are likely in the future with possible long-term shifts in climate characteristics, including areas of wetting and drying. However, multiple atmospheric and oceanic processes, incompletely understood and represented in climate models, lead to uncertainty in the detail of future climate. Nevertheless, during the last 50-100 years observed warming over land in Africa has increased and is very likely to continue, including higher frequency and intensity of heat waves.

A comprehensive analysis of global and regional climate model rainfall projections shows both differences and similarities. There is limited consistency between ensembles in projections of seasonal mean rainfall (global models tending to be wetter than regional models) and large spread between model results, which often show opposite signs in the direction of projected change. Consistent patterns include higher maximum

rainfall intensities in all regions during the wet season and a decrease in frequency of daily rainfall events. The length of dry spells increases over Southern Africa and the Ethiopian Highlands in most models.

The latest IPCC review notes from global studies of fluvial impacts increases in river discharge in terms of the 30-year return period (of five-day average peak flows) by end of this century for most river basins in tropical Africa. This suggests higher frequency and intensity of floods and as a consequence more extensive impacts and greater need for action on flood mitigation.

Opportunities

There are numerous opportunities for enabling the most vulnerable populations to adapt to the impacts of climate change. For example, the adoption of water-efficient technologies, such as drip-irrigation or small-scale water harvesting, can both help to adapt to the impending impacts of climate change but also create significant private sector business opportunities across the continent.

Furthermore, the development of bankable/investable solutions for adaptation, particularly through ecosystem-based approaches and ecosystem-based adaptation (EbA)[2], that benefit the most vulnerable populations and ecosystems across Africa. This includes investing in water-efficient agricultural systems, rural/urban developments and using natural systems to ameliorate water pollution. For example, adaptation and disaster risk reduction could include reforesting hill slopes to prevent landslides from increased rains, re-vegetating riverine areas to prevent silt and flooding or wetland restoration to act as carbon sinks and to absorb floodwaters. These adaptation solutions present significant opportunities for carbon storage and avoided emissions, as well as ecosystem protection and restoration. Ultimately, these types of solutions will capitalise on integrated revenue streams (e.g., water, carbon, ecosystems, biodiversity etc.) that are enabled at the landscape level through multi-sector and multi-stakeholder partnerships.

International climate change legislative frameworks such as the Paris Agreement of 2015, SDGs of 2015, Sendai Framework for Disaster Risk Reduction (2015-2030), climate finance mechanisms such as the Green Climate Fund (GCF), and continental, sub-regional and national water and climate policies provide strategic directions and commitments that governments, non-state actors, the private sector and communities can apply in designing, implementing and managing climate-resilient water investments.

Climate finance mechanisms and development funds provide an avenue for mobilising financial resources for practical climate-resilient water investments. Furthermore, the current Nationally Determined Contributions (NDCs) and National Adaptation Plans (NAPs) developed by respective Member States provide an opportunity for outlining integrated water-related climate change adaptation and mitigation programmes. For example, the continental Africa Water Investment Programme (AIP) has systematically incorporated water resources, SDG6 investments, climate resilience, gender transformative action and transboundary water cooperation and is ready for financing.

[2] Involves a variety of ecosystem management activities to increase the resilience and reduce the vulnerability of communities and the environment to climate change.

Climate-resilient urban areas

Inadequate city planning, inefficient land use, and poor regulatory systems have created an unsustainable model of urban growth that has resulted in unmanaged, fragmented and hyper-informal cities and all forms of pollution. Moreover, the potential consequences of climate change such as the rise in sea levels and increased frequency of extreme weather events are expected to increasingly strain the capacities of Africa's urban systems and heighten their vulnerability.

The ability of cities to mainstream climate goals into their activities is, to a large extent, influenced by the vertical divisions of responsibilities across different levels of government, which provides a key opportunity to overcome these challenges. Improved multi-level governance arrangements and processes, improved progress with implementing decentralization reforms, increased alignment of sectors that could influence those with significant emissions reduction potential and strengthened systemic capacity and resource mobilization all offer the potential to develop proactive climate governance.

Anticipated challenges

An estimated US$20-25 billion per year needs to be invested in basic urban infrastructure, and an additional US$20 billion per year in housing to respond to urban population growth; these investments need to be climate-proofed to ensure a sustainable pathway for urban development. This surge in urban population (particularly in Africa's secondary cities) is paired with rapid urbanization and increased transportation.

Consequently, harmful emissions from transportation and land-use change are growing significantly across Africa, further driven by urban sprawl and low levels of institutional capacity to manage growth and its impact.

Opportunities

Nature-based solutions in the form of ecological (or green) infrastructure have emerged as spatial planning tools for ensuring functional networks of natural and semi-natural areas: demonstrating the importance of ecological systems as part of the infrastructural fabric that supports and sustains society and builds resilience. In various cases across Africa, well-functioning ecosystems provide diverse provisioning, regulating, supporting and cultural services that can buffer against risks, with benefits for physical/psychological health, social equity and well-being.

For example, hill forestation, terracing, green public open spaces, and clearing invasive alien plants can all help to reduce erosion, filter grey water, provide timber, fodder, windbreaks, and shade, promote the provision of downstream water, regulate flood shocks, reduce sedimentation and run-off, complement drainage, and create opportunities for social interaction, community cohesion, foster inclusion and attachment to space. Green infrastructure can also help in recovering from hazards (e.g., poles for construction) or provide a safety net (e.g., wild foods in times of drought). Maintaining or restoring green infrastructure is considered to complement or substitute for more expensive infrastructure investments that are not available to meet local needs. Moreover, green infrastructure can lengthen the life of existing built infrastructure and make areas more attractive for investment, promoting multi-functionality, connectivity, and accessibility. Preferences and values differ by scale, proximity to natural areas, land prices, users' needs (e.g., design vs. use), and socio-economic classes.

The application of green infrastructure to enhance climate resilience in the African context is unique compared to other developing countries, considering the sociocultural context, and spatial challenges. Africa must therefore not necessarily emulate Western models of green infrastructure planning. Adaptation strategies should sensitize decision makers about the value and benefits of ecosystem-based adaptation and prioritize green infrastructure within broader land-use, valuation and spatial planning approaches. Integrated planning needs to prioritize capturing multiple functions, zones, ensure quality and accessibility in relation to function and form, and promote more even distribution in high- and low-income neighbourhoods (including backyard dwellings).

Green infrastructure needs to be understood as part of the infrastructural fabric and economic good, rather than a "luxury and visual good, in comparison to more pressing needs". In small, secondary and even mega-cities, low-income and other marginalised urban residents are typically more dependent on ecosystem services than higher-income groups. However, these resources have not been included in previous assessments of the informal economy to show economic benefits. For green infrastructure to be successful, sustainable landscapes and regions require both stewardship and management at multiple levels of governance and social scales to maintain the composition, structure and function of ecosystems. With changing precipitation, we need to maintain and restore degraded wetlands, riparian corridors, and rivers to enhance flood regulation, water purification functions, reduce contamination, and the spread of communicable and waterborne pathogens. Land use land cover change needs to be monitored, and urban ecosystem services incorporated in scenarios, and not managed intensively for one type of ecosystem service at the expense of others.

Climate change and Africa's blue economy

The challenges posed by climate change to the region's blue economy is highlighted in the Africa Blue Economy Strategy (2019), the Policy Framework and Reform Strategy for Fisheries and Aquaculture in Africa (2014) and other key thematic and sectoral frameworks and strategies. Addressing climate threats to Africa's blue economy will be central to realising the region's commitment to SDG14 'Life under Water' and Agenda 2063's vision for the region's oceans, coasts and inland water bodies to serve as major contributors to continental transformation and growth.

The oceans play a key role in regulating the earth's climate, having absorbed over 90% of the excess heat generated by greenhouse gases in the climate system, as well as 20-30% of anthropogenic carbon emissions. This regulating capacity is not unlimited, however, and there is a growing understanding of the diverse ways in which climate change is impacting oceans. The key climate impacts on oceans are changes in water temperature, ocean acidification and deoxygenation. These drive a number of secondary impacts such as changes in ocean circulation and chemistry, rising sea levels, increased storm intensity, as well as changes in the diversity, distribution and abundance of marine species and phenomena such as coral bleaching. In turn, these changes impact society through physical risk to infrastructure and human life, as well as economic and food security risks. These risks are particularly acute for coastal and island communities who rely on marine resources for food security and a range of ecosystem services, and who are particularly vulnerable to climate impacts such as extreme weather events.

Anticipated challenges

Climate change is already impacting coastal and island communities in Africa through more frequent and intense extreme weather events, coastal erosion, sea level rise, saltwater intrusion, coral bleaching and other impacts. A critical factor in the ocean is the dynamism and movement of whole systems, such as current regimes, increasing unpredictability and the magnitude of fluctuations and biodiversity responses and loss resulting from climate change. These climate-induced changes impact on entire economic sectors – for example, the change in productivity and dynamics of upwelling currents affects fishery stocks (e.g., in the Canary Current); and the collapse of coral reefs impacts on small scale fishers and tourism industries (e.g., in east and southern Africa). These impacts will intensify over the medium term (to 2030), underscoring the need for effective climate responses to protect coastal and island infrastructure, livelihoods and industries.

Opportunities

While oceans and coastal zones are impacted by climate change in significant ways, they can also be an integral part of climate responses, for example through ecosystem-based adaptation approaches. Restoring mangrove ecosystems has both mitigation and adaptation advantages, while also providing important economic and biodiversity co-benefits. Efforts to increase the resilience of coastal economies and communities to sea level rise, and efforts to further enhance the ability of oceans to drawdown carbon dioxide, via expansion of mangroves, ocean alkalinization, and other approaches, can create livelihoods as well as financial flows for mitigation efforts. Mapping and analysis of ecosystems

services, including economic production, carbon sinks and carbon dioxide removal potentials, can generate policy space for these activities.

It is important that climate responses are integrated into existing governance approaches and mechanisms, building on the significant investment in co-management, ecosystem-based governance approaches, integrated coastal zone management, and emerging practice around marine spatial planning. Regional and adaptive governance approaches will be central to addressing climate challenges; it is therefore essential to leverage existing regional institutions and programmes to support joint research, sharing of data and good practice, and joint programme implementation in strengthening the climate resilience of Africa's blue economy.

Climate information services

The past several decades have witnessed phenomenal advances in the understanding of the laws that govern the characteristics and behaviour of the global climate system. This led to the development of Climate Information Services (CIS). CIS can be broadly defined as the generation, tailoring and provision of weather and climate information to inform all levels of decision. CIS are provided by a range of actors across the continent but are primarily the remit of National Meteorological and Hydrological Services (NMHSs). Types of CIS offered may include, observational data, daily to weekly forecasts, seasonal forecasts, impacts advisories and climate change projections. General packaging of climate data, information and related products find application in multiple climate-sensitive socio-economic sectors such as: agriculture; disasters risk management; water resources; health; and energy for societal benefits. CIS builds on continued improvements in climate forecasts and climate change scenarios to expand access to the best available climate data and information. Policy makers, planners, investors and vulnerable communities need climate information in user-friendly formats so that they can prepare for expected trends and changes.

Emerging Issues for Climate

While the primary strategy for reducing and eliminating climate change and limiting its impacts remains the rapid reduction in the burning of fossil fuels, as well as protecting and enhancing natural carbon sinks, atmospheric concentrations of carbon dioxide and other GHG continue to rise. Many governments, universities, and private institutions are now actively researching, developing and in some cases deploying new and novel approaches to fighting climate change. Notable examples include: carbon dioxide removal (CDR), the process of capturing carbon dioxide from the atmosphere and sequestering it; synthetic biology and genetic engineering approaches to changing properties of plants and crops to enable enhanced carbon drawdown or to make leaves more reflective; solar radiation modification, which by various proposed approaches would reflect increased amounts of solar radiation back into space, cooling the lower atmosphere. Each of these carries potential benefits and risks, with physical impact, legal, ethical, and social aspects to consider, and will require the development of governance frameworks that are relevant and appropriate for African contexts.

Anticipated challenges

Over the next decade, emerging technologies for responding to climate change can present a number of challenges. Governance of these technologies at international, regional and national levels will require increased attention from policy makers. Governance considerations of these technologies in African contexts may include access to and control over technologies, access to finance, questions of liability and accountability, development of insurance mechanisms, questions of private versus public control or use, access to and control over data, and more. Further, some emerging climate response technologies carry significant risk in use, which will have to be weighed against the risks inherent in climate change impacts in the absence of the use of the same technologies.

Opportunities

Many new and proposed responses to climate change, either to enhance mitigation or adaptation capacity, are in early stages of development and research. Some are inherently global in nature, in their likely impacts, benefits and risks, and therefore will require input and shaping from African governments, research institutes, and civil society actors. Engaging in early-stage research, development, and regulation can ensure that African interests help to shape new technologies and their use.

Opportunities inherent in early engagement with emerging topics include: conducting, shaping and directing research to ensure consideration of African contexts and needs; shaping of technology transfer standards; engage and encourage innovation in African research institutions.

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04 STRATEGIC INTERVENTION AXES

4.1 Strategic Intervention Axis 1: Strengthening Policy and Governance

4.1.1 Enhanced Climate Policy, Inclusive Multi-Scalar Governance and Institutional Coordination

Climate policy at a national level presents unique multi-scalar governance challenges by requiring the co-ordination between different spheres of government and non-state actors, across multiple sectors of society. It is also multi-dimensional, centring on different objectives, which can impact other developmental priorities. For this reason, the evolution of climate policy requires high levels of participation and coordination amongst ministries, spheres of government, non-state actors and citizens. Appropriate climate policy also requires relevant and up to date scientific knowledge, an understanding of anticipate climate risks and impacts, mitigation potentials and adaptation needs, the potential economic, social and biodiversity/ ecosystem co-benefits, as well as the identification, prioritization and costing of the requisite measures. Capacitated institutions with the requisite mandates to implement policy and facilitate well-coordinated climate action are also necessary drivers.

Countries are at different stages of addressing climate change, with NDCs having varying levels of detail and differing structures, and many Long-term Strategies (LTSs) still in the initial stages of planning and development. Many have developed national climate policies and/ or strategies and in some cases have developed dedicated National Adaptation Programmes of Action and mitigation policies such as REDD+ strategies. The mainstreaming of climate change considerations across other sectoral policies is, however, ongoing and there are different levels of coherence on climate change issues within, for example, water and agricultural policies. Equally, governance structures and process for Africa climate policies need to be enhanced. Weak institutions, inadequate coordination and collaboration amongst sectoral line ministries have been identified by African governments as impediments to effective policy implementation. Research indicates that a lack of or limited authority by certain government ministries to implement national climate policy, as well as limited data, are presenting barriers to successful NDC implementation. Other challenges identified in the development and implementation of African climate policies, plans and strategies have included inadequate emphasis of gender dimensions, inclusion of local communities and engagement with district and local level governance actors.

Climate legislative frameworks are considered to play a determinative role in influencing the successful implementation of climate policy. Robust legislative frameworks, both climate change specific and non-specific, are likely to drive better adaptive responses. Research has indicated that outdated legislation can present a barrier to NDC implementation, an issue identified as a barrier by a number of African countries. A few African countries have developed or are in the process of developing dedicated framework climate change laws, whilst others have developed dedicated sector specific laws, for climate change trust funds, and forestry laws. A review of these laws indicates evidence of cross-pollination in design across African jurisdictions, creating the potential for a unique and regionally appropriate body of law with a strong focus on adaptation. Whilst there is evidence of a regional influence, there remains a need for domestic analysis of the national legal landscape to craft suitable climate laws that adequately take into account national climate priorities, institutional requirements and the relevant legal culture.

Table 1. Priority interventions and suggested actions for enhanced climate policy, multi-scalar governance and institutional coordination.

Intervention area	Suggested actions
1. Continued **development, review and update of climate change policies and implementation plans** at a regional, national, sectoral and local level.	1a. Review and revise existing policies and plans to ensure alignment with revised NDCs and LTS's under the Paris Agreement. Update or develop related implementation plans, investment plans and M&E plans.
	1b. Mainstream climate change considerations (including gender, youth and indigenous knowledge considerations) and updated NDC policy actions across sectoral policies, including national development plans, water, agriculture, health, energy, human settlements, environment, transport and infrastructure, utilizing an open and transparent engagement process with stakeholders.
	1c. Adopt a "whole-of-economy" approach to climate change, prioritizing the integration in long-term climate priorities in countries' macro-economic frameworks, national budgets and expenditure frameworks, financial sector regulations and incentives; and in systems planning.
	1d. Develop/implement sound monitoring, review and reporting processes and systems, including MRV of GHG emissions, sinks and removals, and M&E of adaptation, climate finance and technical support outcomes to obtain the relevant data and information for policy development.
2. **Strengthen institutional structures for policy implementation,** through fostering good governance structures at the regional, national and sub-national levels.	2a. Strengthen of mechanisms for co-ordination and collaboration between countries, sectoral line ministries and spheres of government, as well as communication with citizens and stakeholders.
	2b. Identify line ministries and institutional bodies for the implementation of climate policy, development of legal mandates and delegations for these ministries/bodies, and capacitation of these bodies with qualified, well-equipped and motivated staff.
	2c. Develop systems for the monitoring and reporting of policy implementation, as well as open data and information sharing platforms to foster accountability and transparency.

Intervention area	Suggested actions
3. Cultivate **robust climate change legislative frameworks.**	3a. Review of the national legal barriers to successful climate change policy implementation through a legal landscape analysis, including existing provisions which hinder implementations as well as empowering provisions required for implementation, to determine the most appropriate legal instrument(s) to develop as well as their content.
	3b. Develop national, district and local level climate relevant laws to facilitate and enable effective policy implementation that give effect to the legal landscape analysis.
4. **Improved multi-level governance arrangements, equitable partnerships and coordination platforms for dialogue and learning.**	4a. Focus on the process, not just the output. Too often, the focus when developing strategies is on the "what" and not on the "how" or the "why", and yet the process followed to design activities is at least as valuable as the end product.
	4b. Support the implementation of well-resourced decentralization reforms and local stewardship. Awareness raising and contextualising issues for citizens immediately improves local stewardship and participation in co-designing of solutions.
	4c. Promote equitable partnerships, local buy in and shared visioning. Shared visioning of future pathways, open dialogue, and a close analysis of assumptions underpinning worldviews, identities, beliefs, and stigmas based on social circumstances.
	4d. Mainstream climate-resilient development objectives and targets across all areas of governance and into all local development and sector plans.

4.1.2 Coordinated Regional Climate Action

Various structures of the African Union deal with climate change policy and implementation. However, the role of these various structures and bodies in supporting Member States' transition to low emission, climate development needs to be further refined and unpacked. This includes clarifying the role of the African Union and its structures, as well as the AU's specialised agencies and institutions, specialised technical committees, and the 8 African RECs. In addition, the role of UNECA and other UN agencies, as well as other partners, in supporting Africa climate change vision needs to be well coordinated. Please see Appendix 8 for further detail on the existing AU structures.

The AU has a three-tiered climate change negotiating structure, which comprises of the technical African Group of Negotiators (AGN), the African Ministerial Conference on the Environment (AMCEN) and the Committee of African Heads of State and Government on Climate Change (CAHOSCC). Strengthening collaboration and coherence between these structures is integral to pursuing a unified African voice at the global climate negotiations.

Table 2. Priority intervention areas and suggested actions for coordinated regional climate action.

Intervention area	Suggested actions	
1. Strengthen coordination among the African Union and its structures, as well as key regional partners, in supporting Member States to achieve climate action	1a.	Mainstream low-emission, climate resilient development across all continental and regional level polices, frameworks and action plans
	1b.	Promote synergies between African Union institutions and structures in addressing climate change matters.
	1c.	Enhance coordination between the regional economic communities and Member States in addressing and managing transboundary and cascading climate risks.
	1d.	Support Member States to develop and implement ambitious NDCs, consistent with national priorities and global Paris Agreement goals.
2. Strengthen Africa's common position in global climate negotiations	2a.	Encourage Member States to negotiate as a consolidated Africa bloc.
	2b.	Strengthen collaboration between the AGN, AMCEN and CAHOSCC.
	2c.	Pursue an integrated and cohesive engagement in global negotiations on collective action, including in relation to Article 6 of the Paris Agreement.

4.1.3 Anticipatory governance and long-term planning

Climate change policies are developed considering the current challenges we face and what we expect to change (based on a certain vision of the future), recognising that this idea of the future can change. To improve the effectiveness of long-term policies we need to consider what might change in our environment, speculate about how a range of possible futures might look, and use this knowledge to shape better decisions. This will not only make polices more effective but will also increase the confidence of countries in setting ambitious climate goals. Planning processes therefore need to be adaptative and flexible to avoid locking governments and other stakeholders into specific designs and operating procedures as the climate evolves or new information becomes available. In the face of uncertainty and variability, many approaches to natural resource management, infrastructure development and investment may need to be strengthened to deal with the level of uncertainty associated with climate change. Foresight tools can bring citizens, designers, and planners together to reimagine social-ecological connections and overcome sectoral and institutional silos.

An example of an emerging issue for anticipatory governance is engaging the rapidly evolving field of CDR, which is inherent in many net-zero promises and increasingly in NDCs. African government officials, policy bodies and relevant stakeholders have not been fully engaged in the discussions on CDR as a concept, the approaches to CDR that are being researched, nor understand what role CDR could play in African or global climate policy.

There is broad agreement that African states should be shaping CDR research to understand better how nature-based and technology-driven CDR can support sustainable development and climate adaptation in Africa and globally. Research shows that almost all approaches to CDR would involve both risks and benefits to sustainable development, and African states and organizations should be working to identify the specific approaches that would benefit their states and Africa more broadly.

Not engaging these processes poses a risk to African states related to climate and trade negotiations, the pursuit of finance, efforts to achieve the SDGs, adaptation planning and development planning, as well as access to relevant technologies.

Table 3. Priority interventions and suggested actions for anticipatory governance and proactive, long-term planning.

Intervention area	Suggested actions	
1. **Increase the robustness of climate policy processes** by strengthening their effectiveness in possible future conditions.	1a.	Identify the assumptions the climate policies are based on and the shaping and hedging of actions to assure climate goals will be reached.
	1b.	Identify drivers of change in national, regional and global contexts, create scenarios to explore possible futures of Africa, and use these to test and enhance climate policies in a participatory manner, involving stakeholders from different groups, ages and backgrounds.
2. **Consider the assumptions that underpin climate change plans.**	2a.	Consider alternative options and back up plans.
	2b.	Use assumption-based planning methodologies.
3. **Move to a more collective process when developing NDCs, NAPs, other climate and long-term policy planning and development.**	3a.	Include a broad range of stakeholders throughout the climate policy cycle – from development and design, participatory scenarios development, to implementation and monitoring.

4.1.4 Increase Uptake of Climate Information Services

Despite significant international investment in African CIS, there is an incommensurate uptake of CIS into decision making. Reasons for this include: inaccessibility to and lack of understanding of CIS products; lack of trust in CIS products; a mismatch between the type of information supplied through CIS and the type of information required for decision making. While these represent challenges to the uptake and use of CIS, there are corresponding challenges in the supply/provision of CIS. Limited observational networks in many Africa countries, together with outdated technology, limited internet bandwidth and constrained financial and personnel resources, represent a barrier to provision of quality African-led CIS. These constraints perpetuate a reliance on the global North for provision of CIS for African decision making. However, within the current CIS landscape there is scope to strengthen the supply of CIS from within Africa, as outlined in the table following.

These actions refer to enhanced collaboration, partnerships and/or co-production, which is a theme that runs through the suggested actions. Collaborative and co-productive processes require equitable partnerships between a variety of knowledge holders, ranging from producers of CIS to intermediaries and users of CIS. Substantial knowledge regarding collaborative processes has been gained in recent years and can be used to guide the processes needed to inform the development, tailoring and delivery of CIS.

Table 4. Priority interventions and suggested actions for the increased uptake of CIS.

Intervention area	Suggested actions
1. **Build and enhance weather and climate observational infrastructure and networks for medium and long-term planning.**	1a. Harness financial resources for maintaining observation networks, data rescue, storage and sharing. This could include proposals for funding to international (as well as national) funding agencies.
	1b. Motivate for central NMHS budgets from government.
	1c. Investigate and formalise public-private partnerships. This could be facilitated under the WMO Open Consultative Platform for publicprivate engagement.
2. **Improve the uptake and effectiveness of CIS by increasing the coordinated delivery and sustainability of CIS interventions**, including through User-Interface Platforms (UIPs).	2a. Enhance collaboration between the NMHS, sectoral experts, practitioners and policy makers to enable central delivery of decision-relevant CIS.
	2b. Develop CIS capacity, based on regional need and developed within African institutions in response to that need. Reduce reliance on international sources of CIS where possible.
	2c. Ensure regular and sustained monitoring and evaluation of CIS interventions.
	2d. Identify and prioritise initiatives that enable CIS interventions to be sustained after funding ceases.
3. **Build capacity in the generation, uptake and effective use of CIS across various stakeholder groupings.**	3a. Enhance user-informed co-production of CIS, based on good practice guidance.
	3b. Develop capacity to understand and use CIS through training courses, experiential learning (placements, internships etc) and inter-institutional partnerships.
	3c. Enhance methodologies for combining trusted indigenous and scientific knowledge to generate CIS products.
	3d. Develop regional institutional knowledge related to climate modelling and CIS to enhance policy making and increase effective monitoring

4.1.5 Improved Climate Literacy and Awareness

Climate literacy can be defined as an understanding of one's influence on climate and the influence of climate on one and on society. Our response to climate change is affected by our perception of change and an understanding of its causes, impacts and future risks. In general, people with knowledge of the human causes of climate change and who have experienced its impacts are more likely to understand it as a serious threat. As a result, climate change literacy is recognized with "high confidence" by the IPCC as a key foundation for climate change adaptation and mitigation globally. The United Nations Environment Programme (UNEP) has also recognized the importance of climate change literacy for decision-making and governance, reflected in their development of a new curriculum on environmental law for judiciaries across Africa.

At a minimum, climate change literacy includes both having heard of climate change and understanding that it is, at least in part, caused by people. Advanced levels of climate change literacy include knowledge and skills enabling individuals to make informed decisions

and actions. Understanding the human cause of climate change is a strong predictor of climate change risk perception and can enable responses to climate change that go beyond simply reacting to climate change or business as usual. This is important for Africa, as uninformed and inappropriate responses to climate change can lead to maladaptation and exacerbate vulnerability.

Although perception of climatic change is common across Africa, this alone cannot inform the depth and scope of transformative responses that climate change requires. Furthermore, perception commonly houses misconceptions on the cause of climate change, highlighting the importance of climate change literacy. The average national climate change literacy rate in Africa is only 39%, with large variations within and between countries.

Education is the strongest predictor of climate change literacy in Africa, particularly those with post-secondary education. In every country, the average climate change literacy rate is higher among men than women (mean difference of country means for men and women was 12.8%). The gender difference varies between 5-25% across African countries; 60% of countries had gendered climate change literacy rates that differed between men and women by more than 10%, and 11 of the 15 countries with the largest gender gap are in West Africa. These are concerning findings given that women are often more vulnerable to climate impacts than men. Poverty undermines climate change literacy and perception that droughts and floods are getting worse by those in poverty highlights exposure to climate change impacts by those with least adaptive capacity.

These observed drivers of climate change literacy overlap with broader developmental challenges on the continent, affording opportunities for co-benefits between progress towards SDGs and climate action, particularly for education, gender equality and poverty reduction. Progress in climate change literacy would therefore afford a concrete opportunity to mainstream climate change within core national and sub-national developmental agendas in Africa, thereby supporting more climate-resilient development pathways.

Table 5. Priority interventions and suggested actions for improved climate literacy and awareness.

Intervention area	Suggested actions
1. **Increase regional climate change literacy** across all levels of formal and informal education curricula.	1a. Develop and include climate change literacy curricula for formal education (primary, secondary and tertiary levels), extending skills and knowledge for responses to climate change.
	1b. School girls need to be the focus of gender-sensitive approaches to education, emphasising attendance and completion of their schooling.
	1c. Develop regional climate change literacy programmes for informal education (e.g., civil society and other partnering actors), extending skills and knowledge for responses to climate change.
2. **Mainstream climate change literacy into targeted sectors** most vulnerable to climate change in Africa (across food systems, health, cities, infrastructure, economies, water, heritage, with an emphasis on gender).	2a. Develop extension services that include climate change literacy in programmes for small holder farmers with concentration on skills and knowledge, particularly for adaptation to climate change.
	2b. Promote climate information services co-production and communication in ways that enhance climate change literacy and improved access to useable climate information, particularly for adaptation to climate change.
	2c. Address gendered vulnerability to climate change across all sectors, together with the implementation of equity-based approaches, including provision of skills and knowledge for adaptation to climate change for women.

Intervention area	Suggested actions
3. **Mainstream climate change literacy across government policy and decision makers** for greater climate action.	3a. Enhance training of and support to high-level government officials with regards to skills and knowledge for climate action (both mitigation and adaptation), for example for the Minister of Finance, and with regards to new and rapidly evolving approaches to climate response, including carbon dioxide removal.
	3b. Advance climate change literacy across all implementing levels and departments of government extending skills and knowledge for responses to climate change.
	3c. Advance climate change literacy for key environmental decision makers, e.g., the Judiciary (UNEP has recognised the importance of climate change literacy for decision making and governance with a new curriculum on environmental law for judiciaries across the continent).

4.1.6 Governance Solutions to Address the Climate-Conflict Nexus

Over the next decade, climate change will have a significant impact on human security in Africa in a variety of ways, such as increasing the number of natural disasters and humanitarian crises, contributing to agricultural loss and food insecurity, and increasing water scarcity. To mitigate the impact of climate change on human security and its potential to induce conflict, it is crucial that steps are taken to improve our understanding of the links between climate change-induced conflict and insecurity, as well as to take pre-emptive action to improve resilience and adaptive capacity, particularly of the most vulnerable states and communities.

Key security institutions in the field of conflict prevention/ resolution/ management need to be trained in a climate sensitive approach, while the adaptation to climate change also needs to happen in a conflict sensitive manner. An overly technical approach to climate change adaptation may not take other security-related issues (again, this includes development as a whole) into account and therefore even create more tension. Political and societal realities must be considered. Linking the two processes could, on the one hand, contribute to friction and tension, on the other hand, it can also lead to cooperation and understanding and therefore contribute to a more sustainable peace.

Furthermore, what causes conflict in one area does not necessarily cause the same outcome in another area. Thus, highly context-based and localized solutions are crucial (especially with regards to the respective country's history of violence/conflict).

Table 6. Priority interventions and suggested actions for governance solutions to address the climate-conflict nexus.

Intervention area	Suggested actions
1. **Strengthen the capacity of AUPSA and institutions** to analyse climate-related peace and security risks and develop appropriate detection, mediation, and resolution strategies.	1a. Provide intelligence and regional early warning centres with training on integrating climate risks into existing analytical tools and conducting in-depth climate-sensitive conflict analysis and climate-sensitive peacebuilding strategies.
	1b. Provide the AU Mediation Support Unit and RECs Mediation Support Units with training in climate-conflict dispute resolution.
	1c. Call on RECs to develop regional climate-conflict prevention frameworks that identify context, institution performance, and the role of key actors, and recognises the multifaceted and multidimensional nature of climate risks.
	1d. Advance post-conflict reconstruction and peacebuilding activities through climate development objectives and common activities.

Intervention area	Suggested actions	
2. **Strengthen the capacity of Member States and RECs to develop more integrated responses** to climate-related security risks.	2a.	Support the development of national structures and processes that allow for integrated responses to climate-related security risks and coordination between policy areas and monitoring and evaluation systems.
	2b.	Establish training for government members across departments and agencies on climate risks, development and peacebuilding strategies.
3. **Strengthen the capacity of vulnerable communities** to better engage in national climate policy process.	3a.	Identify communities most vulnerable to climate-change human security risks, such as farmers, coastal fishing communities, internally displaced persons (IDPs) and provide them with training in national climate policy planning, agenda setting, monitoring and implementation.
	3b.	Develop national mechanisms that allow vulnerable communities to engage with parliament on national climate adaptation and green industrialization initiatives.

4.2 Strategic Intervention Axis 2: Adopting Pathways Towards Transformative Climate Resilience Development

This section addresses the key cross-sectoral systems transitions required to address climate change, including systems related to food, ecosystems, energy, infrastructure, mobility, cities, water, the blue economy and the digital economy. In addition to their central role in achieving mitigation objectives, these systems themselves face significant climate change impacts, making adaptation action in these systems critical. These systems are key drivers for development across the African continent and are critical enablers for productivity, sustainable economic growth, job creation and social inclusion. These cross-cutting systems also contribute significantly to human development, poverty reduction, and the attainment of the Agenda 2063 and the SDGs, and research shows that investing in these cross-sectoral opportunities, including as part of post COVID-19 stimulus packages, can aid in a sustainable green recovery. Transforming them is key for countries at all stages of development and requires action from the public and private sector to unlock major economic opportunities and create new markets and jobs, and to reduce the trajectory of emissions and limit climate vulnerabilities. Interventions and actions that support these key transitions will need to take into account macroeconomic and fiscal impacts, in addition to managing social and labour impacts.

This Strategy identifies eight systems for transformation and recommends key intervention strategies and actions for each. Climate action includes both mitigation and adaptation across these key systems. Significant investment in education, training, and retraining to develop skills in these key systems is essential for people to benefit from the jobs created in the green economy. The Strategy will thus prioritize climate action across these systems to advance development objectives through impactful country operations and programmes – including support for policy reforms, public and private sector investments, guarantees, and advisory services – and to support a just transition for African Union Member States, including through additional financing, technical and capacity support. In addition to these eight key systems, the Strategy will also support adaptation action in other priority areas such as disaster risk management.

The interventions and actions outlined below require a strong foundation of cross-cutting themes to be successful:

- **A strong, integrated and cohesive policy environment**: Governments should revise and strengthen policies to realign incentives across all land tenure and oceans systems, ensure integrated land-use and spatial planning, clarify tenure and rights, provide better management related to land use planning and protected areas, and develop carbon trading opportunities.
- **Economic development, financial opportunities and job creation**: Governments should prioritize green job creation and enterprise development to support economic development in all sectors of the economy.
- **Strengthening effective governance systems**: Governments should invest in technical and institutional capacity building, as well as supporting stakeholder-driven and responsive participation, transparency and accountability.
- **Effective and equitable application of safeguards towards high-quality outcomes**: Governments should develop frameworks and mechanisms for the effective inclusion of Indigenous Peoples and local communities, ensure to not only do no harm but also achieve positive social outcomes for communities, and promote gender-sensitive inclusion in decision-making.
- **Emphasis needs to be placed on regional and localised differences in climate change impacts and development contexts**. Regional strategies often apply broad approaches to challenges and opportunities. Institutional coordination at local, national, sub-regional and continental level is key. The AU, working with RECs and Member States, can play a key role in driving climate responses by integrating climate change into key development, trade, finance, environmental and economic policies, strategies and action plans.
- **Trade-offs between objectives need to be explicitly addressed to prevent significant disconnect between strategies and actions on the ground**. For example, attracting capital for climate mitigation activities may lead to conflict with food security, biodiversity, and local development initiatives. Although not easy, developing a hierarchy of priorities/objectives/goals goes a long way towards addressing national and local trade-offs.
- **Finance, investment and resource allocation** are key to support the implementation of NDCs, climate policies more broadly, as well as climate change projects.
- **Strengthening capacity building and development** so that all stakeholders can effectively engage in climate action.

4.2.1 Food Systems Under a Changing Climate

Africa's commitment to transform its food systems is articulated in Agenda 2063 and associated policy frameworks. CAADP and the African Union's Malabo Declaration on Accelerated Agricultural Growth and Transformation for Shared Prosperity and Improved Livelihoods provide a coherent framework for tackling intrinsic challenges within Africa's many food systems. These frameworks spell out the continent's targets for food and agriculture by 2025, using 2013 as the baseline. The targets are to end hunger, halve poverty, triple intra-Africa trade and ensure that at least 30% of livelihoods dependent on agriculture are resilient to climate change. The challenge is to reconcile between these frameworks and provide a mechanism for tracking progress in multiple domains based on country reporting.

Deeper commitments to addressing climate change will need to take on board multiple linkages to food systems that have been identified through forums, processes, and institutions such as the 2021 UN Food Systems Summit, the UNFCCC Conference of the Parties (COP) processes and the work of the IPCC. Opportunities to intensify efforts on biodiversity and land health are also included in the Decade on Ecosystem Restoration; the UN Convention to Combat Desertification (UNCCD) and Convention on Biological Diversity (CBD).

Accelerating this progress requires a profound change in all facets of the food system, especially in the context of climate change, emerging pandemics, and threats to biological diversity. Food systems continent-wide are under increasing pressure and have yet to produce sufficient quantities of food of appropriate quality, or to prioritise nutritional outcomes and needs in agricultural sector planning. National and regional organizations and governments will need to work hard to benefit populations equally and equitably, and to account for and address the negative impacts of food systems on the environment and natural resources. At the same time, large amounts of investment will need to be sought so that biophysical, social and ecological performance indicators can be monitored rapidly and efficiently to ensure progress towards the continent's food system targets.

The challenges of prioritising, financing and implementing the changes needed in Africa's food systems need to be urgently addressed, so that existing failings can be rectified and the threats from climate change addressed. Central to these challenges are dimensions of inclusion, equitable distribution of risks and benefits across food systems, and a focus on gender, youth empowerment, and rural employment

Priorities for research and innovation need to focus on addressing the fundamental challenges faced by farmers, which relate to policies, institutions, and society in general. In the past, the prevailing focus of research and innovation has tended to concentrate largely on technical solutions. For the future, technical innovation needs to be supported by appropriate enabling conditions so that the finance, markets, capacity development, policy and regulatory frameworks and social safety nets needed are all in place. Crucially, the needs and voices of farmers who are on the frontline of climate change and most exposed to the risk need to be at the centre of the transformation agenda.

Table 7. Priority interventions and suggested actions for food systems under a changing climate.

Intervention area	Suggested actions
1. **Promote the equitable sharing of climate risk and reward** amongst all food system actors, especially small-scale, rural farmers	1a. Establish a climate-risk insurance facility at a regional level to which every food systems player contributes, directly or indirectly.
	1b. Enhance availability of and access to appropriate climate-related insurance products to farmers, as well as novel risk-sharing mechanisms like risk pooling and other innovative models.
	1c. Develop regional mechanisms that ensure that the financial costs of climate disasters are not borne solely by farmers, but spread more equitably across the range of food systems actors, including consumers.
2. **Enhance resilience** of food systems against climate effects, while emphasising nutrition outcomes and integrated planning.	2a. Enhance regional capacity development, communication and social movements around blended local and international food systems.
	2b. Extend use of smart, innovative and climate-resilient technologies, renewable energy production, breed/variety development/switching and technologies that preserve and enhance nutritional qualities in food.
	2c. Implement appropriate valuation framework for the ecosystems management services provided by farmers to the general public and pay them fair value.
3. Emphasise **production toward agro-ecological transition**, to reduce GHG intensity (including methane and other gases), and dependencies on external inputs.	3a. Support research, extension and implementation of public sector and market-based instruments toward agroecological, regenerative, nature-based and indigenous approaches for integrated farming and pastoral systems or resilient landscapes).
	3b. Provide resources to enable/facilitate the transition to more nature positive production systems by farmers.
4. Strengthen food system **governance interventions across Africa's regions.**	4a. Conduct systematic review of existing policies, strategies and incentive mechanisms that support/inhibit transition to sustainable food systems.
	4b. Modify policies, processes and strategies to become more inclusive and participatory (farmers, women and youth) and support sub-national scales of food systems governance (territorial/landscape) while linking them with resources and authority to national level.
	4c. Enhance the role and influence of public procurement in food purchasing to support diverse and nutritious diets (for example, municipal support for local sourcing to public canteens, home-grown school feeding programmes).
	4d. Develop synergies across sectoral planning and investments in infrastructure and related investments (for example, how energy and transport dependencies can better cohere with resilience goals for food systems, as well as how to improve infrastructure to reduce post-harvest losses).
	4e. Align food system visions and targets with other national strategies and commitments (for example, NDCs, UNCCD net-zero land degradation targets, AFR100 and CBD biodiversity frameworks, SDGs and national development plans).

Intervention area	Suggested actions
5. **Strengthen finance, investment and resource allocation interventions.**	5a. Coordinate and augment investments by channelling flows toward sustainable food systems from philanthropy, private sector direct investment, and multi-lateral donors.
	5b. De-risk investment toward transition by distribution roles across philanthropic, public and private finance by avoiding single source funds; ensure better coverage across short- and long-term investing; maintain balance of risk to investors across spectrum of scales; ensure that ESG and social impact investment reporting by private sector is well monitored and promoted.
	5c. Analyse subsidy and investment programmes to ensure that direct payment schemes for food system actors are aimed toward sustainable food systems transformation.
	5d. Assess how financial and non-monetary incentives are applied to shift behaviours into more resilient, collaborative and integrated approaches.
	5e. Draw from cross-value chain initiative models that recognise and remunerate champions of transformation – highlighting successes (for examples, Beacons of Hope, Milan Urban Food Policy Pact and Rockefeller Food System Vision Prize).
	5f. Support development of market-based mechanisms to reward social and environmental outcomes (Ecosystem outcome verification, bundling of ecosystem services with carbon markets for agriculture sector, etc.).
	5g. Explore and establish innovative mechanisms that enhance availability and access to financial resources (both mitigation and adaptation) by farmers, such as soil carbon management carbon dioxide removal.

4.2.2 Managing and Protecting Land-Based Ecosystems

Ecosystem protection and restoration practices may be the best means in African contexts for removing atmospheric carbon in many different future scenarios. Such practices, if governed well, can also generate social, environmental, and economic benefits. For example, water and food security (and energy security, to a lesser extent) is highly dependent on functioning ecosystems.

Sustainable intensification and integration of agricultural systems into landscapes and ecosystems that improve soil carbon storage are a priority for the continent. This includes regenerative agricultural practices that disincentivise clearing of forests and natural vegetation, maintain/improve groundwater recharge, and improve biodiversity outcomes.

African governments need to prioritise investment in ecosystem protection and restoration practices, and other ecosystem-based approaches, to build green economies, mitigate climate change and increase peoples' resilience to climate shocks. The 'Restoration Economy' refers to enhancing the environmental integrity of a landscape through a variety of place-appropriate interventions built on sustainable investment streams that deliver economic returns. In this context, ecosystem restoration, enterprise development and conservation finance methods can be utilised to support long-term climate security through accessing private sector finance for small, micro- and medium-sized enterprises. The interventions have co-benefits of enhancing community-level resilience to climate change and delivering EbA through livelihood and business activities. This can lead to the creation of social, and for-profit enterprises, which support both ecosystem restoration and economic development in remote, rural communities. Potential value chains in Africa include red meat, alien biomass, ecotourism and carbon.

Table 8. Priority interventions and suggested actions for protecting land-based ecosystems and carbon sinks.

Intervention area	Suggested actions
1. **Develop bankable measures** for ecosystem protection/ restoration, sustainable water resources management and regenerative agriculture.	1a. Study and implement a broad range of economic incentives for sustainable businesses that contribute to ecosystem protection/ restoration, sustainable water resources management and regenerative agriculture. This includes Article 6's carbon trading opportunities.
	1b. Ensure incentives and bankable solutions align with continental, sub-regional, national and local policy directions and socio-political contexts.
2. **Build technical capacity** for implementing and investing in regenerative and biodiversity positive agricultural systems across the region.	2a. Develop and support landscape scale multi-stakeholder partnerships for sustainable agricultural intensification and expansion.
	2b. Design regional agricultural intensification and expansion plans in line with projected changes in climate change.
	2c. Lobby for and develop intra-African agricultural trade, development and investment partnerships to aggregate performance and risk.
3. **Finance sustainable land-based ecosystems to enhance** for climate adaptation and mitigation.	3a. Develop continental financing mechanisms for EbA that consider a wider range of costs and benefits in credit risk assessments.
	3b. Develop regional financing facilities (including nationally nested facilities) for supporting the development of EbA that have both social and environmental benefits.
4. **Protect key carbon sinks** in all ecosystems found in Africa.	4a. Support the establishment and improve management of Protected Areas (PA) in irrecoverable carbon ecosystems through integrated land use planning for new PA siting, increased enforcement of PAs and capacity building for PA managers, and incentives for community monitoring of PAs.
	4b. Increase designation of community managed ecosystem-rich areas, capacity building for community management, and empower Indigenous Peoples and local communities through clarifying land rights, providing training and strengthening governance.
5. **Avoid** further degradation of and enhance sustainable management of all ecosystems.	5a. Encourage zero loss of biodiversity commodity supply chains by leveraging climate-positive commitments/investments by private sector companies to support activities that strengthen landscape governance; facilitate alignment and action across stakeholders; support capacity building on land use planning; provide extension services and training; clarify land tenure, enhance governance and undertake policy revisions.
	5b. Remove perverse incentives that lead to destructive activities (fossil fuel subsidies) and encourage nature-positive activities (through tax incentives).

Intervention area	Suggested actions	
5. **Avoid** further degradation of and enhance sustainable management of all ecosystems.	5c.	Leverage climate finance opportunities to encourage REDD+ implementation at site-scale and jurisdictional level in alignment with national GHG accounting, including by creating the appropriate policy and technical processes and infrastructure, attracting private sector investment, clarifying carbon rights and benefit-sharing arrangements, and providing capacity-building.
6. **Restore and sustainably manage agricultural systems** (including crop and livestock systems) to reduce and remove GHG emissions, reduce human-wildlife conflict, enhance food security and water regulation benefits.	6a.	Catalyse continent-wide actions on commitments (such as AFR100) to scale restoration, with a key focus on cost-effective and science-driven assisted natural regeneration through a mix of active planting and eliminating barriers and disturbances to native vegetation recovery.
	6b.	Promote agroforestry systems with local and climate-resilient species that provide diversified livelihoods.
	6c.	Prioritise novel, integrated livestock management approaches, such as the Herding 4 Health model, which is scalable and traditionally acceptable, enables wildlife-livestock coexistence, climate-change adaptation, carbon sequestration and water regulation.
	6d.	Develop policy to allow livestock development strategies that support rural development and contribute to a restoration economy, including the development of national policies and mechanisms to allow for carbon credit trading and benefit sharing for communities that implement rangeland restorative practices.
7. **Integrate biodiversity conservation and sustainable management** in climate change actions.	7a.	Promote and expand conservation of biodiverse areas, including sustainable use and community management.
8. **Ensure focus on food security, land-use rights and protection of biodiversity** in projects for ecosystem-based approaches approaches to carbon removal.	8a.	Integrate full community impact assessments into projects for afforestation, soil enhancement, coastal wetland expansion, and others which are driven by goals of carbon dioxide removal for either credits or payment.
	8b.	Develop 'sustainable ecosystem-based approaches' frameworks to ensure that carbon dioxide removal is not done at expense of development needs and local rights.

4.2.3 Enhancing Climate-Resilient and Low-Emission Energy and Infrastructural Systems

Renewable energy generation and sustainable domestic energy consumption are key target areas for achieving a climate-resilient and low-emission future in Africa.

Energy generation

Access to adequate and reliable electricity services is a necessary pre-condition for economic growth. Yet nearly half of Africans lack electricity access in their homes. Furthermore, around 80% of companies in Africa face regular disruptions to their electricity supply. Many African countries are failing to build the distribution networks required to connect poor households or add sufficient generation supply to meet growing demand. The International Energy Agency projects that total generation in the region must more than double by 2030 to meet demand. Outside of South Africa, it must triple.

Renewable energy is central to addressing both these challenges. Africa is endowed with a wealth of renewable resources. Its river systems, bioenergy, sunshine and wind could meet the region's current and future electricity needs. Hydropower already generates 22% of sub-Saharan Africa's electricity. However, wind, solar, biomass and geothermal collectively contribute only 1%.

The cost of non-hydro renewable electricity has declined dramatically in recent years. Off-grid solar home systems are the cheapest option for providing electricity to nearly a quarter of unconnected homes, negating the need for extending distribution lines to rural areas. Renewable electricity generation from solar PV, wind, biomass, geothermal and hydropower is also increasingly the most cost-effective option for expanding grid-connected supply in many African countries. By 2030, solar is expected to be the cheapest or second-cheapest domestic energy source in most African countries.

In the International Renewable Energy Agency's Renewable Energy Roadmap 2030 scenario, renewable energy contributes 58% of sub-Saharan Africa' electricity mix by 2030, with non-hydro renewables contributing 23%. Underpinning this scenario is a dramatic increase in investment, with over US$500 billion needed between 2015 and 2030 – 50% of which is needed for renewable energy. Both public and private finance will be required to close this spending gap.

Furthermore, given abundant renewable energy potential in different parts of the continent, there is also the possibility that some renewable energy could power technological carbon dioxide removal approaches, such as direct air capture and storage, potentially funded by developed countries. Also, some carbon dioxide removal approaches, such as Bioenergy with carbon capture and storage, if designed and governed sustainably, could both generate energy and remove carbon from the atmosphere to meet obligations, or to generate financial flows and livelihoods, enabling development or further expansion of renewable energy infrastructure.

Domestic energy consumption

Most of the domestic energy consumed in rural Africa comes from biomass (wood energy and charcoal), the use of which not only causes deforestation and health problems, but also contributes to climate change. This has led to the development of technological solutions such as improved stoves for cooking, biogas and solar energy systems for pumping water. However, the uptake of these technologies remains insufficient for Africa to realise a low-emission and climate-resilient future.

Africa needs to fully commit to overhauling its modes of energy production, transformation and consumption to strengthen a security of supply, preserve the competitiveness of its economy, and protect the environment. An analysis of African countries' energy systems and the challenges faced over the past decade highlights the need for system transformation via two priority areas:

- Use of renewable energies
- Strengthening energy use efficiency

Table 9. Priority interventions and suggested actions for enhancing climate-resilient and low-emission energy and infrastructural systems.

Intervention area	Suggested actions	
Energy generation		
1. **Integrated water resource management.**	1a.	Ensure that hydropower infrastructure is planned in coordination with other sectors that compete for the same water resources.
2. **Promote power system planning** for a climate-resilient, low-emission electricity network.	2a.	Set long-term targets for renewables to stimulate a pipeline of investible renewable projects.
	2b.	Hydropower development must include projections of potential future patterns of hydrological variability, not just historical data.
3. **Increase power capacity by harnessing the regional potential of river basins** to strengthen resilience to droughts and get renewable electricity to markets.	3a.	To enable cross-basin trade, the transmission networks and market structures in the Southern Africa Power Pool (SAPP) and East Africa Power Pool (EAPP) should be interconnected, as is currently planned, not developed independently.
4. **Strengthen power sector reforms** to enable renewable energy.	4a.	Allow broad-based participation in power supply to deliver financial needs and to harness the expertise of international renewable energy developers and investors, including independent power producers (IPPs).
	4b.	Enhance regional policy and regulatory frameworks to encourage power sector reforms.
5. **Expand renewable capacity** through competitive auctions**.**	5a.	Increase competitive tenders can simulate a pipeline of bankable projects, if held regularly, through transparent and predictable planning processes.
6. **Strengthen finance and risk mitigation** for efficient and renewable energy.	6a.	Governments and development finance institutions should crowd-in private investment by providing robust power purchase agreements, affordable loans and risk guarantee facilities to mitigate risks that the private sector is ill-equipped to handle.
Domestic energy consumption		
7. **Enhance access to energy efficient solutions for all.**	7a.	Improve access to energy for more people by enhancing energy efficiency.
	7b.	Focus efficiency interventions on electricity use and fuel types used for cooking.
	7c.	Promote policies and organizational frameworks more conducive to enhanced energy efficiency and new market development.
	7d.	Increase access to modern cooking fuels and promote nation-wide energy efficiency, in collaboration with implementing partners, local governments and communes.

Intervention area	Suggested actions
8. **Increase adoption of new low-cost, energy saving technologies.**	8a. Identify appropriate energy efficiency solutions/technologies that could be scaled up for larger development impact.
	8b. Promote improved cooking stoves, mini-grids and other innovative solutions.
	8c. Exchange knowledge and technology between rural and urban households to support rural households in the adoption and use of improved stoves.
	8d. Build knowledge on energy efficiency.
9. **Build climate resilience and a just transition** with a focus on women, girls and young people.	9a. Ensure that sensitization and awareness-raising campaigns target women, as they are almost exclusively in charge of collecting fuel for cooking.
	9b. Support households in reducing energy poverty and address the challenges of cooking with solid biomass.
	9c. Encourage the adoption of improved stoves and modern cooking fuels. This reduces cooking time (alleviating women's time-poverty), greenhouse gas emissions, and health risks.
	9d. Provide high quality training to those who play a key role in the dissemination and implementation of energy efficiency.

4.2.4 Inclusive, low-emission and resource-efficient industrialization

Agenda 2063 recognizes the centrality of industrialization as one of the key strategic objectives that will drive the social and economic structural transformation of the continent. The first 10-year implementation plan for Agenda 2063 also identifies industrialization and manufacturing as one of the seven core priority areas for its implementation. Agenda 2063 clearly highlights the need to implement continental strategies for industrialization in Africa. This has provided for the development and implementation of major continental strategies that support Africa's industrialization.

The implementation strategy for The African Union Action Plan for the Accelerated Industrial Development of Africa (AIDA), which aims at fostering sustainable economic growth, wealth creation and global integration using manufacturing as a dynamic force, provided a major strategic underpinning for industrialization. AIDA focuses on driving the integration of industrialization in national development policies, especially in poverty alleviation strategies, development and implementation of industrial policy, with priority accorded to maximizing the use of local productive capacities and inputs through value addition and local processing of natural resources in each country. The coming into force of the African Continental Free Trade Area (AfCFTA), has also provided a new impetus for promoting industrialization in Africa.

There is no doubt that Africa has enormous potential for industrialization, given its rich natural resources as well as prospects for developing intra-African value chains and integration into global value chains. Industrialization in Africa, however, does not necessarily need to follow the same path of polluting and inefficient industrialization process that had been followed by countries in other regions. On the contrary, following the conventional industrialization path under an increasingly carbon and resource constrained world is neither viable nor tenable. In this context, African countries need to adopt a new path of industrialization that creates jobs and livelihoods for its people, while at the same time responding to climate change and maintaining the sustainability and integrity of its natural ecosystems.

Effective industrial policy and strategy is about anticipating important long-term trends of technology and market development and providing incentives to adopt the structure of a national economy in such a way that it can take advantage of the change. Looking back at the economic history of Africa, it is evident that the region has not adequately leveraged earlier stages of the industrial revolution. We are now faced with the prospect of the fourth industrial revolution (4IR). Depending on how African countries prepare and position themselves, they would either be further marginalized from the global economy or be an active contributor and beneficiary from this transition.

Africa has a unique leapfrogging opportunity to build inclusive, resource-efficient and climate-resilient industrial economies. This would require learning from the mistakes made by developed countries and transition economies, taking advantage of existing and emerging knowledge and technology systems, fostering innovation, developing appropriate skills, and capitalizing on emerging global and continental opportunities related to sustainability and green economy transitions.

Table 10. Priority intervention areas and suggested actions for inclusive, low emission and resource efficient industrialisation

Intervention area	Suggested actions	
1. **Develop institutional infrastructure** that could effectively guide sustainable industrial development.	1a.	Develop coherent and integrated industrial development policies and strategies for low-emission and resource-efficient industrialization.
	1b.	Promote effective university-industry linkages that generate qualified human resources equipped with the required skill-sets for low-emission industrial development.
2. **Develop industrial infrastructure** that provides a sustainable basis for industrialization.	2a.	Ensure that all industrial infrastructure is developed and managed in a climate-resilient resource-efficient approach.
	2b.	Develop eco-industrial parks that are horizontally and vertically integrated with local, national and regional economies.
3. **Develop distributed renewable energy systems** for decent job creation and wellbeing.	3a.	Promote development of distributed renewable energy systems as drivers for sustainable local and regional value addition and job creation.
	3b.	Facilitate digital technology application to enhance the economic empowerment and inclusivity of communities, with particular focus on youth on women.
4. **Promote energy efficient industrial development.**	4a.	Develop and implement national industrial energy efficiency improvement programmes that are aimed at reducing both the material and energy intensity of economic activities.
	4b.	Provide incentives and institutional support that encourages industries to increase the share of renewable energy in the overall energy mix.
5. **Promote waste management systems** that emphasise waste to resource conversion.	5a.	Promote national industrial waste management programmes, with a particular focus on prevention at the source and waste-to-resource conversion
	5b.	Develop properly designed and managed waste management infrastructure that reduces emissions and the discharge of toxic and hazardous pollutants.

4.2.5 Promoting Low-Emission, Resilient Mobility and Transport Systems

Discussions and priorities around climate change in the mobility sector can be grouped into three broad categories: mitigation, adaptation, and planning.

In terms of mitigation, there is a growing interest in the electrification of vehicles on the continent, with their work on electrifying 2- and 3-wheelers in East Africa and the uYilo programme in South Africa being leaders in the discussion. The conversation on the electrification of bus fleets has started among operators, often linked to Bus Rapid Transport and other public transport reform programmes, with Marrakesh and Cape Town leading the way.

The electrification of the paratransit industry in African cities is entangled in the complex relationship that it has with the state, but opportunities exist in programmes like the South African Taxi Recapitalization Scheme. Improving fuel standards and regulating the import of used vehicles has seen considerable progress across the continent in recent years, though the air quality in many cities continues to decline and an acceleration of this progress would be welcomed by the environmental and public health sectors. Adaptation discussions in the African transport sector have primarily focused on the climate resilience of road infrastructure. For example, in response to anticipated climate change, the Ethiopian Roads Authority has proposed increasing the flood levels for road design by 10% up to 2030 and by 20% from 2030 to 2090.

While vehicle electrification, improvements to fuel standards and road infrastructure resilience are important climate change actions, arresting the rise in motorization across the continent and retaining the high public and non-motorised transport mode shares through low-emission infrastructure investment has the potential for a significantly larger effect. Under the Nationally Appropriate Mitigation Action (NAMA) programme, some African states have identified investments in public transport and transit-oriented development as desired mitigation-adaptation interventions within their cities.

These interventions have been highlighted as examples of 'triple-wins', which simultaneously reduce the vulnerability of low-income residents to climate shocks, prevent lock-ins into carbon-intensive development pathways, and reduce poverty. African cities have the opportunity to build resilient, transit-oriented cities from the outset, but the higher upfront financial burden on the state may need support from the international community. The combined 'mitigation-adaptation' interventions in the land use-transport systems of African cities are also likely to have sufficient short-term co-benefits (reducing air pollution, congestion, and traffic fatalities) to be no-regret investments.

To facilitate these mitigation and adaptation interventions, the approaches to planning mobility systems in African countries need to become more climate aware. It's a process that many countries themselves are leading, but it requires greater collaboration and discussion at the continental level. The coming transitions in transport planning, such as incrementalism, hybridity, digitalization, access-based planning and decision-making under deep uncertainty all need to be contextualised within African environments and cognisant of the associated climate risks. The traditional transport planning paradigm premised on travel time savings during the peak hour commute to formal employment nodes is being questioned heavily, and new paradigms – such as the Avoid-Shift-Improve framework – are gaining momentum. Homegrown frameworks for the design and planning of low-emission mobility systems in African countries need to be explored to achieve specific goals and remain resilient to the unique risks the region will face in the years to come

Table 11. Priority interventions and suggested actions for promoting low-emission, resilient mobility and transport systems.

Intervention area	Suggested actions	
1. **Build climate-aware transport planning capacity** to better shape resilient mobility systems and infrastructure.	1a.	Train transport planners and engineers in climate policy, planning under deep uncertainty, access-based planning, incrementalism, hybridity, adaptive project implementation and dynamic monitoring.
	1b.	Collaborate in developing climate-aware, locally appropriate transport-planning masters and undergraduate courses at African universities.
	1c.	Invest in research around the 'just transition' to low-emission, resilient mobility in African cities through a continental knowledge platform.
	1d.	Invest in research on green and efficient fuel supply options.
2. **Change the project financing and evaluation requirements for development banks** to prioritise resilience, modal split, access equity, and emission mitigation, alongside travel time savings.	2a.	Guide the use of development, concession and blended financing arrangements to include the complex climate and social risks – including risks that stem from the projects themselves.
	2b.	De-prioritise the use of travel time savings as a metric for transport project benefit to acknowledge its effects on carbon intensity, as well as its weakening correlation with access, economic productivity, and social progress.
3. **Support the adaptation of road standards and transport planning guidelines** to include resilient designs, as well as prioritise the needs of the most popular and lowest carbon transport modes – walking and cycling.	3a.	Compile African design standards for public transport systems and roads, including the infrastructure for non-motorised transport, which adheres to African resilience and universal accessibility principles.
	3b.	Include the voices of vulnerable walking and cycling groups within local, national and regional planning processes.

4.2.6 Building Low-Emission, Resilient Urban Areas

African cities, and current and future urban transitions, can contribute significantly to the continent's climate mitigation and adaptation targets, as well as SDG, biodiversity, poverty, resource sustainability and inequality targets. It can do this by developing mutually beneficial urban-rural linkages, and territorial scale development, in order to invest in regeneration and the renewability of urban, peri-urban and hinterland natural environments – as well as embracing a planning approach that puts the ecological landscape first, before embedding urban development. This landscape approach can improve the circular economy at the city region scale, aid in disaster-risk reduction, draw attention to ecosystem service synergies and promote agroecological food systems localization.

Table 12. Priority interventions and suggested actions for building low-emission, more resilient urban areas.

Intervention area	Suggested actions
1. Promote resilient, nature-based solutions and urban green infrastructure.	1a. Promote opportunities to realise the multiple co-benefits of incorporating ecosystem-based approaches, including hybridised blue-green-grey infrastructure, to help regulate water flow, reduce the heat island effect, treat wastewater, reduce stormwater runoff, and improve water supplies.
	1b. Adopt an integrated landscape approach as a basic framework to balance competing demands, manage multiple land uses, and understand connections in a specific area.
	1c. Invest in long-term maintenance and security and surveillance measures in both individual nodes (e.g., parks) and connections (e.g., pedestrian walkways) to support nature-based solutions in urban centres.
	1d. Scale monetary and non-monetary valuation of nature-based solutions, enhance appreciation of natural capital and complement this with cultural ecosystem assessments that consider production capacities, cultural practices, and access to markets.
	1e. Employ new metrics such as Biodiversity Net Gain, where infrastructure development leaves biodiversity in a measurably better state than beforehand.
	1f. Implement and enforce robust environmental impact assessments and strategic environmental impact assessments prior when expanding urban centres.
	1g. Promote soil biodiversity and soil organic carbon management as vital elements to ensure the land's ability to produce food, store water, control soil erosion and dust, maintain soil stability during extreme rainfall events, reduce carbon losses, among other benefits.
	1h. Plant indigenous trees for shade, reduction of heat stress, and, buffering against storm surges (e.g., mangroves and seagrass), thereby preventing the loss of property and human lives.

Intervention area	Suggested actions
2. Invest in the **circular economy, smart mobility, decarbonization and net zero** carbon buildings.	2a. Focus on resource efficient, compact, and mixed-use urbanization as well as net-zero carbon building designs.
	2b. Prioritise smart mobility, transit-oriented bicycle, and walking infrastructure in new or refurbished designs.
	2c. Integrate water resource use efficiency in the design of infrastructure as well as building a circular economy for waste.
	2d. Decarbonise and detoxify energy systems by considering renewable energy in new or existing infrastructure designs.
	2e. Scale up district heating. In dense urban areas, district heating radically increases thermal efficiency and decreases heat loss through heat recycling, combined heat and power systems, and economies of scale.
3. Build technical **capacity** in African cities to adapt to the impacts of climate change.	3a. Support cities access to climate finance by developing concept notes, investment cases and pre-feasibility studies for pilot projects to developers/funders.
	3b. Train local government officials in climate finance processes, language and opportunities.
	3c. Strengthen national education and outreach campaigns related to climate-resilient urban development.
	3d. Promote knowledge exchanges around best practices. These are particularly valuable in data poor regions where information sharing is challenging, ecological and social observations are scarce, institutional mandates for monitoring are ill-defined, and data access is often cost prohibitive.
4. Prioritise risk reduction and building adaptive capacity of residents living in **informal, or peri urban settlements.**	4a. Accelerate and simplify land tenure reforms to stimulate phased restoration of urban natural ecosystems to buffer against hydroclimatic risks and heat stress.
	4b. Upgrade informal settlements and slum areas in cities to build urban climate resilience and therefore should be considered in policy making.
	4c. Develop extended and inclusive planning processes that rely on assessments to help prioritise specific needs of a city and its communities. Co-producing relevant interventions is crucial to ensure social ownership of strategies.
	4d. Change the perceptions around how decision makers see areas of informality to foster better engagement between informal sector representatives and municipalities. These are the ideal entry point to service these settlements with the potential to take implementation from the unplanned to the planned.

4.2.7 Enhancing Resilient Water Systems

Building the resilience of water investments in Africa is a critical response to the projected severe and more frequent impacts of climate change. Climate-resilient water interventions need to consider gender inequalities since men and women are impacted by, and respond differently to, the impacts of climate change. Africa needs to move towards a gender equal and climate-resilient water system to ensure water security that will support sustainable socio-economic development.

Major decisions require careful planning; in cases involving large investments, long lifetimes and irreversibility, there is a strong argument for assessing resilience to future climate change. However, uncertainty is particularly high in relation to future rainfall patterns due to differences between climate model results. It is exacerbated by the fact that changes may not be unidirectional; it is possible for rainfall to fluctuate over decadal timescales, inducing wet and dry periods in the same location. This uncertainty has important bearing on research directions and practical approaches to climate resilience in the water sector.

While many features of water-resources management have evolved measures to build resilience in the face of uncertainty and variability (such as forecasting, supply augmentation, storage, the use of groundwater and in some cases, demand management), many traditional approaches to infrastructure design for long-term assets and investments may be inadequate for the level of uncertainty associated with climate change. In such situations, Robust Decision-Making or Decision-Making Under Uncertainty approaches can help to identify adaptation strategies that work reasonably well under a range of conditions ('stress testing' system performance under a range of climate projections is recommended). This requires identifying what is at risk, for whom, under different policies. Flexible options that avoid locking into specific designs and operating procedures can be useful as the climate evolves or new information becomes available. Flexibility and robustness are generally desirable properties for resilient water systems.

Another important requirement for resilience is the recognition of interdependencies between water and other sectors. The water-energy-food (WEF) nexus is a good example, and its growing prominence is driven by concern about natural resource scarcities and the recognition that the WEF nexus sectors and other resources are strongly interdependent– such that development may imply significant trade-offs. In Africa, this is compounded by, among other things, the consequences of rapid development trajectories, including an upsurge in new dam construction, and high levels of physical and socio-economic exposure to climate in nexus sectors with crucial economic roles throughout the continent. However, few studies in Africa fully integrate all three nexus sectors, and they rarely include an explicit focus on climate change. This is a gap in our knowledge base.

While most climate impact assessments consider the physical components of nexus sectors and their interdependencies, understanding their management and governance structures is also important. Resilient systems require a cross-sectoral understanding of vulnerabilities and management decision points, and a cross-sectoral coordination for effective implementation. Barriers to coordination include institutional structures, limited resources, issues around cost recovery, free-riders and a need to protect roles and responsibilities to ensure future budgets. Political will and appropriate budget and human resource allocation can help to address such barriers.

Table 13. Priority interventions and suggested actions for enhancing resilient water systems.

Intervention area	Suggested actions
1. **Increase water investment.**	1a. Increase political commitment for gender equal and climate-resilient water investment.
	1b. Mobilise financial and other resources for water investment.
	1c. Strengthen capacities (institutional and individual) for developing, implementing, operating and managing water investment programmes/ projects.
2. **Establish systems for developing and transferring technologies** to support climate resilience building.	2a. Develop innovation to produce water-efficient and climate-sensitive technologies, including water harvesting.
	2b. Develop innovation and practices to deal with cost-effective wastewater treatment
	2c. Develop national systems for transferring, adapting and applying technologies.
3. **Integrate water resource management.**	3a. Take actions to ensure that the natural resource base (water, land other natural resources) is maintained to support development in a changing climate.
	3b. Protect water-related ecological systems and build their climate resilience. Also deal with demand management challenges.
	3c. Establish systems for managing water resources, considering hydrological boundaries as units of management/development.
4. **Strengthen transboundary water management and cooperation.**	4a. Develop cooperative mechanisms for managing shared water resources.
	4b. Take actions for joint investment projects in shared water resources for benefit sharing.
	4c. Develop and implement a basin-wide development and management plans/programmes considering climate change.

Intervention area	Suggested actions
5. **Integrate water security issues into development plans/ programmes.**	5a. Integrate water security into national and sectoral development plans/ programmes.
	5b. Integrate water security into climate response strategies such as NDCs and NAPs.
6. **Strengthen the characterisation of climate risk** in water systems.	6a. Include a focus on past and recent variability and extremes and their impacts.
	6b. Improve linkages between technical departments on weather/climate and water, build capacity in climate-risk assessment.
	6c. Agree on principles for risk-assessment approaches, share experiences on how future risks are assessed, and develop practical approaches suitable for operational implementation.
	6d. Consider the range of impacts – including who is affected and why/ how risk assessments need to consider local perspectives about who is vulnerable, and which risk mitigation steps are appropriate.
7. **Strengthen the mandate to undertake climate risk assessment** of major investment decisions aiming for system resilience.	7a. Lobby donors to adopt risk assessment into planning and financing decisions.
	7b. Work through international adaptation mechanisms to support national government and relevant line ministries to design policy for climate risk assessment, consider policy to make it a requirement in some situations.
	7c. Work with technical departments to facilitate design and adoption of these approaches.
	7d. Raise awareness of decision-making under uncertainty approaches to planning and management. Where major decisions/investments are involved incorporate 'stress testing' of water resource systems under a range of climate (and other) conditions.
8. **Improve coordination between multiple sectors,** particularly water-energy-food, but also environment and land.	8a. Address governance and institutional barriers to coordinated planning and management.
	8b. Promote tools and decision-making approaches that incorporate multi-sector objectives and performance indicators.
	8c. Build the evidence base to demonstrate the value of greater coordination in planning.

4.2.8 Building a Climate-Resilient African Blue Economy

There has been a growing interest in the role of oceans in supporting sustainable development and providing broader social and economic benefits, commensurate with a growing awareness of the pressures that marine ecosystems face through drivers such as pollution, habitat destruction, unsustainable and illegal harvesting of marine resources and climate change. The oceans agenda, often framed in terms of the blue economy or oceans economy, has been included in the UN Sustainable Development Goals (SDGs) as SDG14 'Life Under Water', and has also been promoted through a range of international platforms and processes, such as the UN Ocean Conference and the High-Level Panel for a Sustainable Ocean Economy.

In the Africa region, too, the blue economy has become more prominent in national and regional policy arenas. African coastal and island states have combined ocean territories of 13 million km2. Fisheries and aquaculture, marine and coastal tourism, offshore extractive industries and other ocean-based industries have been estimated to generate a value of US$296 billion and support 49 million jobs. Investing in coastal/blue carbon infrastructure, mangrove expansion and shellfish fisheries can also draw down carbon and create jobs.

Several regional policy frameworks recognise the importance of Africa's blue economy, with the Africa Union's Agenda 2063 envisioning the region's blue economy as a major contributor to continental transformation and growth (it is important to note that in key policy frameworks, Africa's blue economy is defined as including both marine and freshwater ecosystems). Africa's Blue Economy Strategy (2019) and preceding regional frameworks have highlighted the risk posed by climate change to the region's blue economy. Climate-related risks are impacting communities and ecosystems already threatened by pressures such as the overharvesting and illegal harvesting of fisheries and other marine resources, pollution, unsustainable coastal development, habitat destruction and governance challenges.

The foundations for climate resilience lie in ensuring the natural assets on which economic activity depends are secured and even enhanced, and that economic production and consumption processes do not degrade them. Healthier, more productive ecosystems are inherently more resilient to climate pressures, and therefore drivers undermining ecosystem health must be addressed as part of an integrated approach to ocean health. Integrated, adaptive and inclusive governance is therefore central to addressing climate change impacts and ensuring that Africa's maritime and freshwater ecosystems can effectively support a vibrant, prosperous, equitable, resilient and sustainable blue economy.

Table 14. Priority interventions and suggested actions for building a climate-resilient African blue economy.

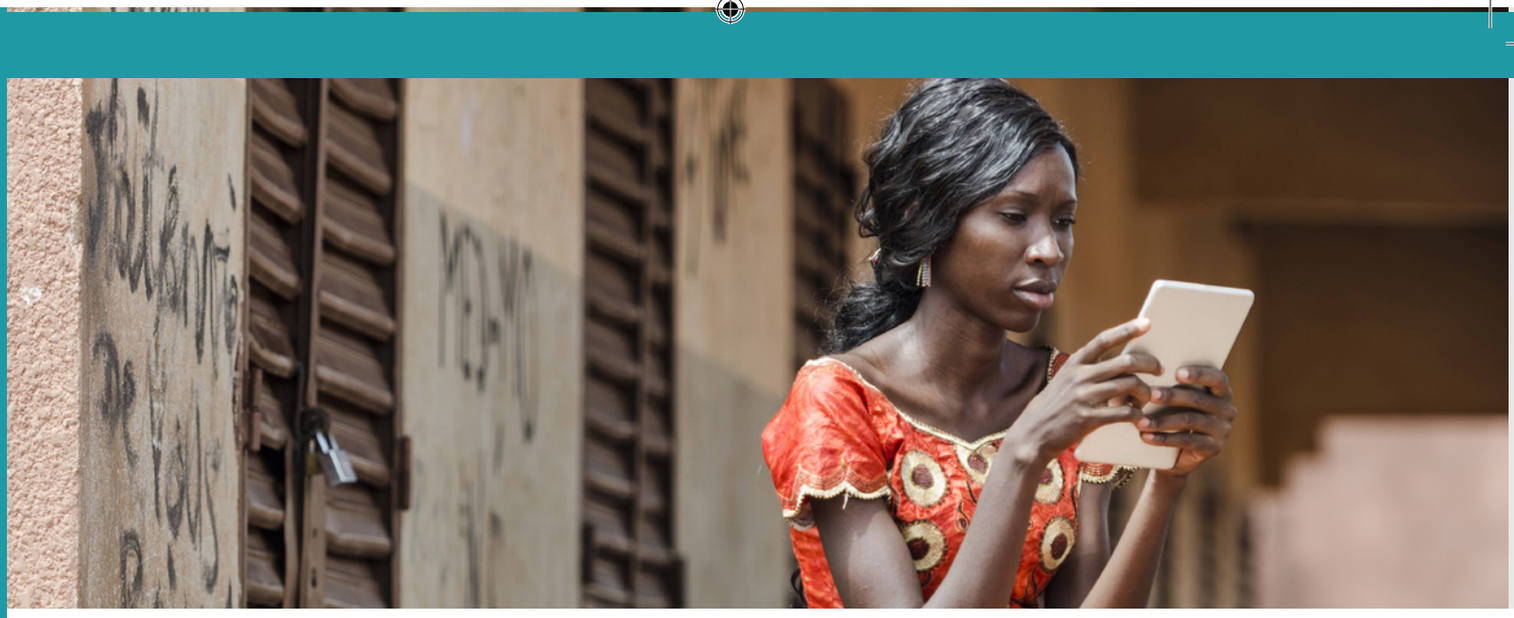
Intervention area	Suggested actions
1. Promote **climate-resilient coastal development.**	1a. Invest in ecosystems and natural assets as multi-benefit providers, thereby enhancing natural capital that supports livelihoods and climate resilience.
	1b. Strengthen grey and green (ecosystem-based/nature-based) adaptation in coastal zones.
	1c. Enhance financing for adaptation in marine and coastal zones (blue carbon, 'blue finance', private sector partnerships, debt-for-nature swaps and other mechanisms).
	1d. Integrate climate risk in coastal development planning.
	1e. Strengthen disaster risk reduction and preparedness plans and strategies.
2. Support **sectoral and integrative blue economy interventions.**	2a. Strengthen co-governance and regional fisheries governance mechanisms for enhanced climate resilience.
	2b. Integrate climate in marine spatial planning, integrated coastal zone management and other planning frameworks.
	2c. Support sector-specific interventions for key blue economy sectors, including tourism, shipping, fisheries and aquaculture.
3. Strengthen **research and policy.**	3a. Strengthen the role of oceans and coasts in NDCs and other climate-related policies and strategies.
	3b. Support research to predict, monitor and respond to ocean-related climate impacts.
	3c. Ensure ocean-related climate policy interventions consider equity and the unique position of vulnerable groups.

4.2.9 Digital Transformation

Timely and accurate information is critical in building climate resilience across Africa. Digitalization within the context of the climate change agenda should be framed as a continent-wide capacity-building process that enables access to up-to-date climate data for informed decision-making and service-provision and ensures that the continent is ever-ready and able to rapidly adapt when required. To achieve this, a process of changing data from analogue to digital form (digital enablement) is needed. With the foundation of digitization, actors such as individuals, businesses and governments will be able to leverage digital innovations and business processes to transform climate responses and green economy development.

Within the agricultural sector, digitalization is seen as a game-changer for agricultural transformation across Africa as it has huge potential for product development, service delivery, and operationalization of services. However, for digitalization to work, especially in building resilience against climate variabilities, a holistic approach is needed. This means ensuring that the provision of climate advisory services for farmers would have to be consistent, sustainable, and scalable across the sector.

Digital innovations, consisting of digital solutions and services and digital technologies, are critical in data capture, processing and service delivery. The effective functioning of digital services and solutions such as



production information services, access and use of climate sensitive inputs, and financial services – including index-based insurance services – depend on pioneering digital technologies such as drones or sensors, satellite technologies, artificial intelligence, cloud technologies and high-end devices for service delivery and access. However, access to accurate, customised, targeted and tailored advisory services, which is needed now more than ever before, depends on up-to-date user data and quality content data management. This requires complex data infrastructure to support the effective functioning of content data, derived from varied sources, and user data across diverse value chain actors.

A holistic approach also means understanding financing models for digital innovations, subsequent investments by private sector investors, the business models behind the delivery of the digital services, and the willingness of users to pay for the products and services to ensure continuous adoption, scale, and sustainability.

Furthermore, the rules of the game that define the enabling environment for digitalization, such as infrastructure and access, policies and strategies, knowledge and networking, and literacy and skills, are key to a holistic approach. Without the involvement of private sector investors, the holistic approach will fail, and for the private sector to invest in the innovations, an enabling environment is needed.

The following considerations are suggested at the intersection of digital transformation and climate change:

- Give environmental concerns prime importance in the development of digital technologies, services and interventions;
- Support multi-sectoral approaches to address digital transformation issues and involve all relation holders and stakeholders to ensure that digital technology is developed wisely and environmentally responsibly;
- Employ a holistic approach to the environmental impact of technologies;
- Incorporate energy efficiencies and account for the power consumption of digital health interventions (including, for instance, mobile base stations, server farms, and air conditioners) and the replacement of batteries;
- Control electronic waste, for example, by prioritising repair over replacement and aiming for circularity in digital apparatus;
- Avoid constant equipment upgrades and accelerating hardware-software cycles; challenge related unsustainable business models and practices;
- Limit the need for air travel by digital transformation projects; and,
- Assess the impacts of digital transformation on the environment (not only on climate) in relation to government action and international agreements.

It is important to note that digital transformation narratives have largely been framed by the Global North. Therefore, the first step to achieving meaningful African engagement is the decentring of digital transformation.

Promoting and implementing digital transformation in an interdependent, decentred and climate conscious way means:

- Building on African knowledge and capacities;
- Focusing on African people, communities and their demands, resources and agency;
- Respecting African authority;
- Aligning with African policies, standards and regulations;
- Being inclusive and leaving no one behind; and,
- Balancing human rights and human responsibilities.

Table 15. Priority interventions and suggested actions for digital transformation.

Intervention area	Suggested actions
1. **Governments should coordinate their national digital climate-related data infrastructure.**	1a. Ensure governments take the lead in coordinating their national climate data infrastructure and connect them across the continent for policy and decision-making.
	1b. Involve private sector investors in the development of necessary facilities/ systems to support climate data for sustainability.
2. **Engage private sector digital innovators and service providers** as business partners.	2a. Involve young digital entrepreneurs across the continent to support local data ownership models and safeguard the continent's climate data.
	2b. Explore viable business models for scaling digital climate advisory services through big data and analytics.
3. **Strengthen community engagement and digital inclusion.**	3a. Develop and implement digital transformation frameworks that glean common values from the African concepts like ubuntu (communal love), guiding interactions, research and capacity development in the Africa.
	3b. Involve dynamic and integrative approaches, focus on local agency, seek reciprocity and the pragmatic inclusion of different ways of knowing, conceptualization, and meaning-making.
4. **Promote workforce enhancement.**	4a. Recognise and expand African capacity for climate-conscious digital transformation.
5. **Develop and promote thought leadership.**	5a. Develop communities of practice to contribute to conversations in international digital transformation.
6. **Strengthen system conciliation.**	6a. Acknowledge that digital transformation is a social action that requires empathy and the incorporation of all views.
	6b. Recognise that system experiences and standards in affluent settings are not necessarily useful to guide systems elsewhere.
	6d. Appreciate that solutions proposed by exogenous industries present technical, political, and climate challenges for African communities and governments.

4.3 Strategic Intervention Axis 3: Enhancing the Means of Implementation Towards Climate-Resilient Development

The effective implementation of climate-resilient development plans and policies will require support in terms of climate finance and resource mobilization; technology transfer and enhanced capacity building; and awareness creation and outreach.

4.3.1 Enhanced Finance Flows and Resource Mobilization

Developed-country Parties to the UNFCCC have committed to mobilising US$100 billion per year by 2020 to support climate action in developing countries. The UNFCCC defines climate finance as local, national or transnational financing, drawn from public, private and alternative sources, which seeks to support mitigation and adaptation actions to address climate change.

Climate change is a cross-cutting macro-economic issue, and climate finance is 'strategic' in the sense that it enables the delivery of multiple development outcomes such as food and water security, energy security, good health, employment, and other benefits. As such, climate finance can support countries to deliver not only on SDG13 (Climate Action), but also on several other related SDGs. Without financial support for action to reduce risks from climate change, most SDGs may not be achieved.

Climate finance can come from bilateral and multilateral sources. Bilateral climate finance comes directly from a country or an institution in that country, such as government development agencies. Multilateral sources are finance institutions that have multiple countries as contributors or shareholders, bringing together funding contributions from these different countries. Multilateral sources include Multilateral Development Banks, such as the World Bank, regional development banks, international public funds, and UN agencies. International public funds include those under the Convention such as the Global Environment Facility (GEF), the Special Climate Change Fund (SCCF), the Least Developed Countries Fund (LDCF), and the GCF. There exist also carbon markets, private equity and other alternative sources. Most OECD countries provide funding bilaterally and also channel some of their financial support to developing countries via multi-lateral institutions.

Most publications point to the fact that the amount of adaptation finance, although on an upward trend, falls far short of the scale of investments needed. Annual adaptation costs in developing countries alone are estimated at US$70 billion currently, according to the UNEP Adaptation Gap Report (2020). Although research costing climate-resilient development in Africa is limited, many African countries, particularly Least Developed Countries, express a stronger demand for adaptation compared to mitigation finance.

Africa is struggling to access climate finance and to deliver sustainable and transformative responses to climate-change impacts at scale. For example, the total financial commitments from bilateral and multilateral funders for adaptation between 2014 and 2018 remained well below US$5.5 billion per year. This is far below the various estimates of adaptation costs in Africa, which range between US$7-15 billion per year for 2020.

Moreover, the UNFCCC and its Paris Agreement are clear on the need for developed countries to provide financial support to developing countries in view of their constraints and the need to balance mitigation and adaptation finance. However, research on quantifying international public finance for climate change adaptation in Africa (2014-2018), found finance targeting mitigation (US$30.6 billion) was almost double that for adaptation (US$16.5 billion), with more adaptation-related finance provided as loans (57%), compared to grants (42%), and 50% of that amount targeting mainly two sectors: agriculture, and water supply and sanitation. Adaptation financing has not preferentially targeted the most vulnerable African countries. Furthermore, the disbursement ratio from 2014-2018, indicating whether approved projects are actually receiving funding and being implemented as planned, or whether they are encountering challenges on the ground, was found to be as low as 56% for mitigation and 46% for adaptation (compared to 96% for other development projects). This suggests constraints particular to climate-related projects.

Adaptation costs in Africa are expected to rise rapidly as global warming increases. Africa is highly vulnerable to climate change as many of the continent's key economic sectors, such as agriculture and hydropower, are climate-sensitive, making adaptation financing a key priority. Annual adaptation costs in developing countries are expected to reach US$140-300 billion in 2030 and US$280-500 billion in 2050. However, this could be a substantial underestimate. For example, the Coalition for Urban Transitions, which advises governments on economic development and climate change, estimates investments of about US$280 billion will be needed to cope with the effects of climate change by 2050 in 35 cities in three African countries alone (South Africa,

Kenya and Ethiopia). The 2010 global goal of mobilizing US$100 billion per year by 2020 is therefore outdated and it is hoped that by 2025, Parties will set a more realistic and collectively quantified goal.

Cumbersome procedures for gaining direct access accreditation to multilateral funds makes it difficult to access international climate finance for African countries. The capacity to develop fundable projects in Africa is also inadequate, including required upfront investments (e.g., for feasibility studies and co-financing) and lack of reliable data and evidence for a climate rationale. An analysis of proposals submitted to the GCF up to 2017 shows African countries had the lowest percentage of approvals (39%) compared to all other regions.

Not just the quantity, but also the quality of climate finance is important for climate-resilient development. For example, in contrast to finance for mitigation projects, such as renewable energy, many adaptation interventions for the most vulnerable countries and communities provide low or inadequate financial return on investments for private funders and can therefore only be funded with public finance. Yet public finance targeting adaptation in Africa has been provided mostly as loans rather than as concessional finance such as grants. This hinders adaptive capacity, because many African countries are at high risk of debt distress, especially due to the COVID-19 pandemic, and will need to decrease their debt levels for governments to have more fiscal space to invest domestically in climate resilience. The total external debt servicing payments across African countries currently far exceed commonly discussed or committed levels of near-term climate finance for adaptation.

Nonetheless, African governments already invest a substantial amount in national adaptation action, such as drought relief programmes, agricultural support programmes, and disaster management programmes. Research estimates public spending on adaptation from domestic budgets may average 3.4% of GDP, potentially diverting resources from other development priorities in cases where integrated project planning is not used to align multiple development goals. Work on adaptation planning and mainstreaming of climate into budgeting and financing, such as climate public expenditure reviews, is still at nascent stages in Africa.

Public funds are very likely insufficient to meet rapidly growing adaptation needs. Public mechanisms should leverage private sector finance for climate-resilient development by reducing regulatory, cost and market barriers through blended finance approaches, public-private partnerships, or innovative financial instruments and structuring to support of private sector investment, such as green bonds. Subnational actors can be key agents to unlock domestic resources in the implementation of adaptation action, provided they are sufficiently resourced, and their participation and agency are supported.

Once finance is flowing, tracking of climate adaptation at a national level is challenging for many African countries, due to factors such as different tracking approaches and data gaps and limitations. Many countries lack the capacity to measure, report and verify (MRV) climate finance, thus putting Africa in a position where it is less able to demand accountability from funders because of the lack of transparency and challenges in how climate finance is defined by funders, as well as being less able to demonstrate transparency and effectiveness of financial support in climate-related projects.

Many climate funds continue to be programmed through multilateral entities. However, more recently direct access modality has enabled national and regional entities from African countries to manage their resources, promote national agency for climate action and to build in-country capacity for sustained climate action. Direct access also has an important role to play in strengthening the pathways for translating international climate finance disbursements into local action by building and reinforcing important connections between actors and structures on multiple domestic governance, decision-making and implementation levels. Many African institutions and agencies are still struggling to get accredited as a direct access entity (DAE) though, making them dependant on multilateral implementing entities.

Table 16. Priority interventions and suggested actions for enhanced finance flows and resource mobilization.

Intervention area	Suggested actions
1. Establish mechanisms to mobilise climate finance at scale in Africa.	1a. Manage the decline in public climate finance and address the unfulfilled international finance-related obligations and commitments.
	1b. Assess current climate financial flows to Africa and develop a roadmap for achieving Africa's adaptation financial needs (as set out in NDCs).
	1c. Establish and maintain an MRV system for financial support for Africa as a means to enhance transparency.

Intervention area	Suggested actions	
1. **Establish mechanisms to mobilise climate finance at scale in Africa.**	1d.	Implement policy, institutional and legal reforms for enhanced resource mobilization and scaled-up, transformative climate finance.
	1e.	Integrate climate action in fiscal policy and public financial management systems.
	1f.	Strengthen climate and disaster risk financing mechanisms in Africa.
2. **Balance mitigation and adaptation finance**	2a.	Prioritize predictable and sustainable finance for adaptation at scale.
	2b.	Ensure that adaptation finance is delivered on grant basis.
	2c.	Address the decline in grant finance and the climate-related increasing debt burden of many African countries.
	2d.	Mobilise finance for the just and equitable transition in Africa.
3. **Strengthen Africa's readiness and** capacity to access and absorb international climate finance.	3a.	Provide support for accreditation of African entities.
	3b.	Build a cadre of African climate finance experts and establish a climate finance portal for Africa.
	3c.	Strengthen Ministries of Finance/Planning leadership role in resource mobilization for climate action.
4. **Promote investment from non-state actions, including the private sector**, in climate action.	4a.	Build capacity for local, small and medium private sector engagement and win-win contracting.
	4b.	Identify barriers to private sector investment and promote use of policy and financial de-risking instruments.
	4c.	Develop capacity for formulation of investment ready project pipelines and enhance matchmaking platforms.
5. Mobilise **new financial instruments and accountability structures** to support climate adaptation and mitigation.	5a.	Mobilise financing from the private sector to reduce risk and enhance the quality and life of existing urban infrastructure.
	5b.	Promote the uptake of nature positive infrastructure to reduce business risks, fewer stranded assets and new market opportunities.
	5c.	Given the historical legacies across African cities (e.g., from colonialism and apartheid), investments should be targeted to address legacies of unequal development.
	5d.	Local governments should re-examine the impact of cost recovery policies on low-income communities (e.g., for water, storm water drainage, waste services) - considering the need to achieve distributional and procedural equity in service delivery.
	5e.	Increase public sector funding for adaptation in cities to mitigate and adapt climate change impacts and address infrastructure development needs.
	5f.	Align local plans and policies with NDCs and NAPs to ensure climate finance flows to a local level and national targets and actions are achieved.
6. Strengthen climate **finance effectiveness.**	6a.	Encourage cross-sectoral approaches to adaptation planning that emphasize reducing risk across interconnected sectors affected by climate change, such as the water-energy-food nexus and the biodiversity-health nexus.
	6b.	Strengthen gender equality and the empowerment of women and girls in climate finance projects.

4.3.2 Safety Mechanisms to Reduce Loss and Damage

Social protection mechanisms have significant potential to improve or support households' adaptation to climate change through social assistance (cash or in-kind transfers), social insurance (cover against designated contingencies), or labour market programmes (such as unemployment benefits). Evidence is emerging that demonstrates by alleviating credit, savings and liquidity constraints, such transfers can stimulate agricultural production through investment in technology and productive assets (farm, livestock, non-farm), and increased own-farm household labour allocation. There may also be positive impacts on savings and reduction of pressure on informal insurance mechanisms. Adaptive social protection emphasizes livelihood promotion in addition to protection, via mechanisms to increase benefits per participant and to reach more beneficiaries in the face of emerging shocks. Innovations in risk finance can increase the effectiveness and timeliness of adaptive social protection programmes.

Institutional risk management options can complement risk-reducing production technologies. They intervene in different aspects of the risk-poverty connection: technologies can reduce production or income losses when weather-related stresses occur, whereas institutional risk management can increase access to capital and uptake of improved production technologies and practices. For those living in chronic poverty in rural areas, adaptive social protection can provide a complementary safety net to reduce climate risk. They can also be complementary through bundling risk-reducing technologies to stabilize production in the face of moderate climate fluctuations, plus social protection to buffer the effects of extreme events such as drought.

Early Warning Systems can help to build resilience by responding to crises before they occur. If properly linked with national social protection systems, forecast based financing has the potential to not only help smooth climate-related shocks, avoiding set-backs in development, but also to enable poor and vulnerable people to manage climate risks more effectively and in a proactive manner.

Social Behavioural Change and Communication interventions can be linked to social protection programmes with the purpose of addressing some of the values, preferences and social norms that influence a behaviour, including maladaptation.

Social transfers should be predictable and flexible and the value and duration should be sufficient to protect and promote livelihood diversification.

Home-Grown School Feeding programmes can provide a platform for delivering other services and reaching schoolchildren, promoting knowledge and innovations, and strengthening relevant capacities of households and communities, and help to advance successful outcomes for climate change adaptation.

Asset-creation programmes can improve food security and boost income among the poorest people. However, in terms of climate change, there is a trade-off in some of these types of programmes, as there is a high carbon 'hoofprint' of livestock production, so improving livestock feeding is crucial.

Climate risk insurance also plays a role in reducing climate risks and uncertainty through transferring risk, incentivising risk prevention and management and mobilising capital to help manage climate risks:

- Risk transfer: insurers protect households and businesses by absorbing financial shocks due to climate disasters.

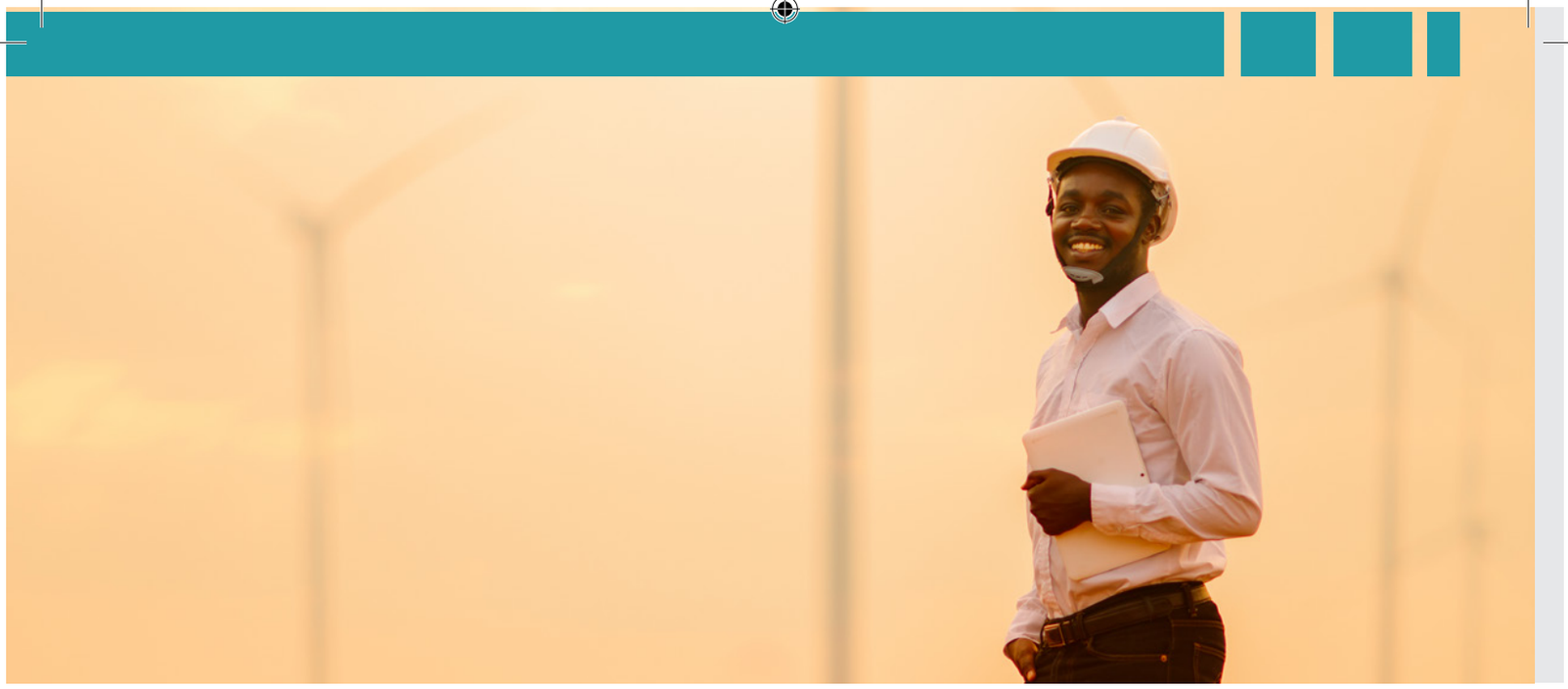
- Risk managers: insurers help stakeholders understand, prevent and reduce risk through research and analytics, catastrophe risk models and loss prevention. Insurers also advocate proper land-use planning, zoning and building codes, and promote disaster preparedness. Furthermore, insurance pricing provides risk signals and rewards risk reduction efforts.

- Institutional investors. Insurance for, and investments, in renewable energy, green buildings, low-emission transportation, sustainable agriculture, carbon dioxide removals and climate-resilient infrastructure promote sustainable development.

A large risk protection gap currently exists, with 91% (US$1 billion) of losses from climate risks in Africa being uninsured. Furthermore, African countries are, in general, not well insured against climate risks. Fewer than 10% of people have cover in most countries and penetration is generally less than 2% of GDP. The African insurance sector has thus played a very limited role in climate risk reduction or transfer to date.

Table 17. Priority interventions and suggested actions for to enhance safety mechanisms for loss and damage.

Intervention area	Suggested actions	
1. Promote a comprehensive and integrated risk management approach for loss and damage.	1a.	Extend cash plus programmes to support adaptation through the promotion of income-generating activities, livelihood diversification and financial inclusion, promoting opportunities and strategies to deal with future risks.
2. Strengthen social protection programmes across all regions.	2a.	Establish robust public works programmes with regular scheduling and maintenance and not as a temporary safety-net.
	2b.	Ensure community assets address key challenges to livelihoods, that they are relevant to local needs and support environmental rehabilitation and conservation in order to achieve longer-term impacts.
3. Promote asset creation.	3a.	Develop asset-creation programmes to improve food security and boost income among the poorest people.
4. Improve understanding of risk exposure among the insurance sector and clients.	4a.	Identify data and model requirements for underwriting needs and work to fill these gaps.
	4b.	Support the Task Force on Climate-related Financial Disclosures (TCFD) and Environmental, Social and Governance (ESG) strategy development among insurers to enable them to better understand and manage impacts of climate change on their business.
	4c.	Improve collaboration between stakeholders to improve data access, sharing and integration across use cases.
5. Develop innovative risk transfer and management solutions.	5a	Identify clients' key risks through conducting risk assessments.
	5b.	Build capacity and trust among clients by training them on acquisition and use of data to better understand and manage their exposure to climate change.
	5c.	Develop risk transfer products to meet the needs of key stakeholders, including support with prediction/ early warning and preparation activities.
6. Develop harmonised climate finance policies and regulation.	6a.	Develop climate insurance policies that support national and continent-wide climate policies.
	6b.	Identify priority regulatory constraints and address them to enable the provision of more innovative climate products.
	6c.	Stimulate the market for climate risk insurance by building underwriting capacity in local markets, enabling access to global reinsurance and promote alternative risk transfer structures (i.e., insurance pools).
	6d.	Promote innovation in product design and distribution through pilots, regulatory sandboxes, allowing development of index insurance products.
	6e.	Improve collaboration between public and private sector stakeholders and champion climate risk insurance.



4.3.3 Equitable Technology Transfer and Development

Implementing and reaching African NDC goals requires a sound and tailored development and technology transfer programme for key prioritised sectors. Alongside implementation of the Paris Agreement technology framework (Article 10, Paragraph 1), adopted during COP24, African national technology systems still encounter a range of constraints including political will, siloed approaches (weak multisectoral and multi-actor collaboration) and low promotion and support of in-country technology development processes.

Despite the numerous efforts undertaken by the Africa Group of Negotiators and Least Developed Countries, African technology concerns and needs are not adequately addressed in climate negotiation processes. Furthermore, under the Poznan Strategic Programme (Decision 4/CP.13), many African countries have updated their Technology Needs Assessments (TNAs), but are waiting for financial support to implement their Technology Action Plans and Project Ideas.

There is great development potential for endogenous technologies that are relevant and appropriate to the local environment.

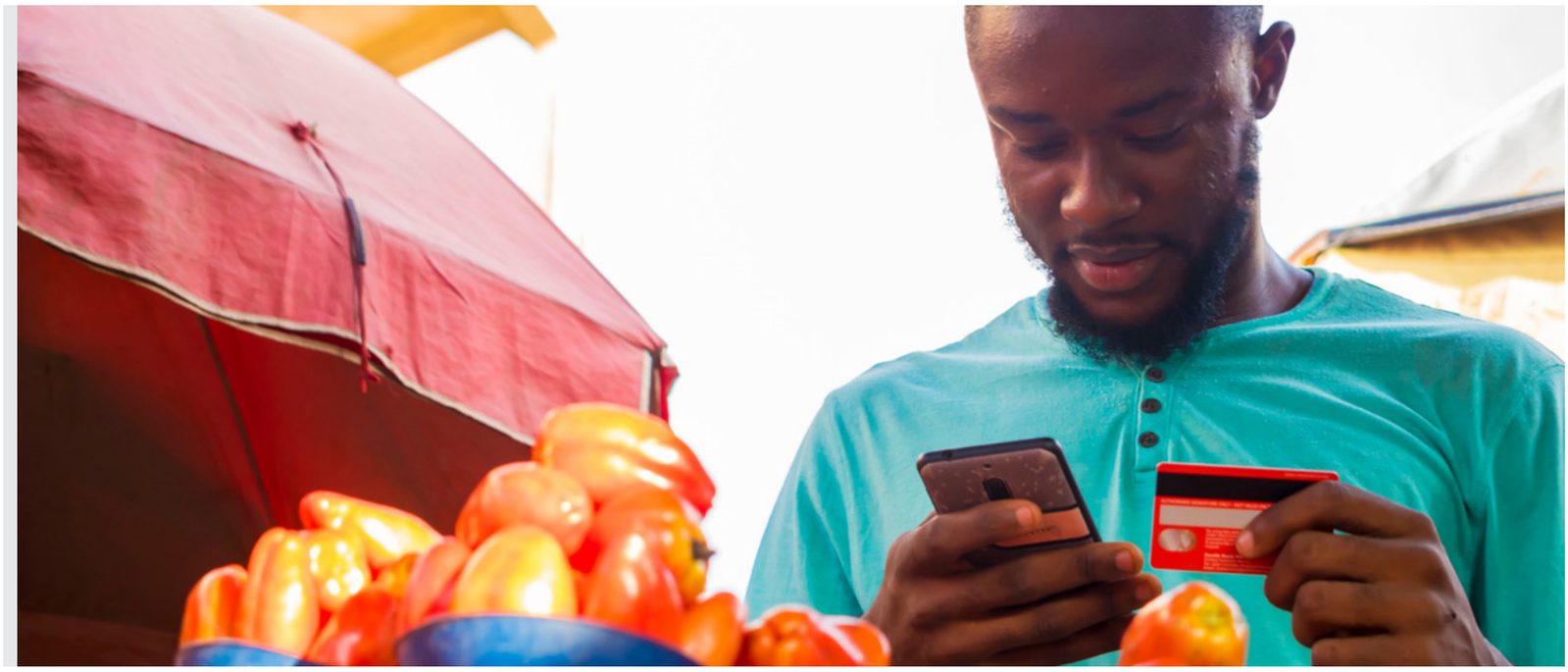


Table 18. Priority interventions and suggested actions for equitable technology transfer.

Intervention area	Suggested actions	
1. Support the development of a sustained national and regional technology innovation system.	1a.	Update a technology gap and needs assessment at relevant levels (territorial, national and regional).
	1b.	Support the design of an institutionalized national innovation system (NIS) including climate endogenous technologies. Technologies need to be at a higher level of use and understanding.
	1c.	Develop and support the implementation of resource mobilization (national and international level) to implement the NIS.
	1d.	Support the piloting and implementation of TNAs where needed and specifically in countries where the assessments have been successful.
	1e.	Support private actors' (especially young entrepreneurs) access to climate finance to foster the deployment of mature technologies.
2. Promote regional south-south technology development and transfer/local dissemination.	2a.	Design and implement a regional platform for climate technology knowledge management.
	2b.	Identify, review and enhance the functioning of existing regional technology development and transfer centres.
	2c.	Support in- and cross-country peer-to-peer learning and technical assistance.
3. Enhance the participation of African negotiators in technology-related agendas.	3a.	Co-develop and implement a permanent and tailored capacity building programme for junior technology development negotiators that addresses negotiations, transfers and related agenda items.
	3b.	Support technology negotiators (before, during and after climate negotiation events).

4.3.4 Inclusive Participation, Especially of Gender and Youth

The impacts of inequality and the socio-economic disadvantages of vulnerable people are not adequately addressed in climate change policy design and implementation, which ultimately undermines the continent's efforts towards inclusive resilience building. Despite their vulnerability to climate change, the mobilization of vulnerable communities in climate politics remains a challenge. Although a plethora of climate change impact studies exist, there is a need to capture the responses of men, women, children and the disabled to a series of climatic stressors and shocks over time and to carefully consider these needs in policy frameworks.

In addition, Agenda 2063 is designed around a people-centred approach, and intentionally developed to be driven by Africa's citizens. Likewise, a key determinant of the Strategy's success is the capacity of government and non-government stakeholders, including citizens, to play a role in the domestication of this Strategy. In this regard, assessments and interventions are required to support the capacity needs of all continental players to adequately perform a role in the Strategy's roll-out and implementation. Also, a communications plan for this Strategy needs to be developed so that its intentions are effectively disseminated and can guide stakeholders in their desired roles. Delays in the implementation of inclusive climate processes will negatively affect the future of Africans and their livelihoods.

Gender

Integrating gender issues in climate action will require coherence among the institutions responsible for climate change and gender policies in Africa. There is also a need to build the capacity of relevant institutions for mainstreaming gender into climate change policy formulation, planning, monitoring and evaluation. Climate change policy needs to equally address the interests of men and women and use disaggregated data to support policy initiatives. An understanding of gender inequalities is important to identify gender gaps and devise strategies to bridge them through policy.

The 16th session of the African Ministerial Conference on Environment focused on the development and strengthening of gender-responsive policies to empower women and men, as well as the enabling conditions and national policies needed to empower African youth. The Strategy acknowledges the existence of societal challenges, including gender inequality, and the need for partnerships that embrace inclusive and sustainable approaches for socio-economic empowerment. Barriers to such an approach include inadequate platforms for meaningful engagement, restricted inclusion of women and youth in decision making, a lack of awareness of gender and youth dimensions of climate change, inadequate finance and missing inter-generational knowledge transfer. These challenges suggest the need for climate adaptation responses to be contextually embedded and to include resilience-building activities targeted at gender and youth.

Means for overcoming the identified barriers include establishing an enabling environment that institutionalizes gender participation in decision-making processes, dedicated climate change education and special funds for financing youth climate change action. Climate change vulnerability is multidimensional, the needs of the youth and women differ according to the geographic, cultural and social context.

Youth

Despite their vulnerability to climate change, the mobilization of youth in climate politics remains a challenge. Many attempts to involve young people often do so in a tokenistic way and do not provide youth with an opportunity to properly prepare content, understand procedures and substantively contribute. When discussing youth and climate change, there is often a framing that situates young people as only being impacted in the future, while failing to recognise the current impacts experienced by youth and how these impacts may differ from older generations. The same can be said for the for a growing area of climate-related work around creating a just transition in Africa. A new opportunity around the just transition serves as important way to engage youth to ensure that the benefits of a transition to a green, low-emission economy are shared widely, while also supporting those who stand to lose economically. This includes not only creating decent work and quality jobs, but also dismantling systems of inequality that allow for the intersectionality of issues to be better understood. Youth are clearly central to this but are often only positioned as future participants or beneficiaries and not as current actors.

The important role that youth are already playing as active change agents should be recognized and supported. Young people across the continent have increasingly taken action in their own communities and at a national and regional level to put forward their own youth submissions, actions, plans and contributions to the policy space. The Youth Strategy of the UNEP, for example, speaks of harnessing Africa's youth to contribute towards the realization of Agenda 2063 as well as the global Agenda 2030.

Table 19. Priority interventions and suggested actions for equitable inclusive participation.

Intervention area	Suggested actions	
1. Improve gender and youth participation in policy co-design, co-development processes, co-implementation and M&E.	1a.	Increase women's representation in major climate change policy making positions.
	1b.	Facilitate gender-sensitive dimensions in National Adaptation Planning processes and climate change development plans at all levels.
2. Empower and engage young people and women in climate adaptation planning and implementation through inclusive and participatory approaches.	2a.	Involve young people in planning and implementation of climate change adaptation strategies using interactive methods.
	2b.	Build the capacity of the youth, prioritizing their development in national budgets, to ensure their contribution in climate change adaptation efforts.
3. Enhance education and sensitization on gender and youth responsive approaches.	3a.	Conduct regular advocacy and awareness programmes on youth and gender equality and inclusivity in climate change policies, programmes and procedures.
	3b.	Increase information sharing for enhancing gender- and youth-sensitive climate change impacts.
4. Increase financial and technical support for youth and gender organisations	4a.	Financial support to be directed towards grassroots organisations.
	4b.	Include young people in the institutional mechanisms of the AU, as well as within regional negotiating bodies to the UNFCC COP.

4.3.5 Capacity Development

It is essential that all climate stakeholders have the relevant capacities needed to deliver climate adaptation and low-emission, climate-resilient development, together with the ability to apply skills, knowledge and tools and the willingness to deliver change. This includes:

- Institutional capacity for governance and coordination;
- Technical capacity to carry out modelling and evaluation, including sectoral expertise;
- Relational capacity to build partnerships and invest time in processes; and,
- Strategic capacity for systemic policy design and implementation.

Capacity-building is country-driven and involves learning by doing. It also requires the support from existing national institutions and civil society more broadly. Much capacity building work on climate action is taking place under the UNFCCC's Action for Climate Empowerment agenda, as well as in AGNES, which focuses on education, public awareness and access to data.

Table 20. Priority interventions and suggested actions for capacity development.

Intervention area	Suggested actions
1. **Develop African-focused training and capacity development courses** on climate change that promote the Strategy's overall objectives.	1a. Plan stakeholder workshops to provide updates on global changes in legislation, policies and tools to ensure negotiators, Member States, RECs, advocacy groups and non-governmental stakeholders are informed and up to date.
	1b. Develop training intervention for the communication and dissemination of the Strategy specifically.
2. **Develop capacity needs assessments** to analyse regional stakeholder capacity-building requirements to develop actionable interventions and strategies.	2a. This capacity assessment should form the basis of discussions and priority intervention areas with technical partners, providers, and funders.
	2b. Develop a capacity assessment to address the capacity needs of all continental players to adequately perform a role in the Strategy's roll-out and implementation.
3. **Support various stakeholders in effective decision-making processes.**	3a. Develop the skills and relationships needed to drive forward new strategies, policies and climate-change actions.
	3b. Plan stakeholder workshops to provide updates on global changes in legislation, policies and tools. For example, to ensure that government officials are kept abreast of the latest best practices, guidance and approaches.
	3c. Promote learning exchanges, shadowing or secondments to foster knowledge, and the exchange of skills. Also explore common challenges and questions on NDC implementation.

4.4 Strategic Intervention Axis 4: Leveraging Regional Flagship Initiatives

This section highlights African programmes and flagship initiatives that operate at a continent-wide level and that contribute to accelerating climate action across the continent. These initiatives are already contributing in meaningful ways to enhancing Africa's climate resilience through generating political buy-in for collective action, serving as the foundation for partnerships, facilitating information exchange, and mobilizing domestic and international resources. These initiatives address many of the themes outlined in the preceding axes, including food systems, climate information services and energy.

The multiplicity of initiatives and partnerships underscores the need for coordinated regional action and effective collaboration between AU structures, RECs, non-state actors, national governments and a variety of other stakeholders.

4.4.1 Infrastructure

The **Programme for Infrastructure Development in Africa (PIDA)** is an AUC initiative carried out in partnership with AUDA-NEPAD, the AfDB and other partners, which aims to accelerate infrastructure development across the continent. PIDA's main purpose is to strengthen the consensus and ownership of large cross-border infrastructure projects that integrate energy, transportation, and water development on a continental scale. The significant deficit in Africa's infrastructure is resulting in increased production and transaction costs, reduced competitiveness of businesses, negative impact on foreign direct investment flows to the continent; therefore affecting the rate of economic and social development on the continent. PIDA was designed to address these constraints by establishing a common vision and global partnership to put in place an adequate, cost effective and sustainable regional infrastructure base to promote Africa's socio-economic development and integration into the global economy.

4.4.2 Trade

In January 2012, the AU adopted a decision to establish the **African Continental Free Trade Area (AfCFTA)**. The AfCFTA brings together 54 African countries with a combined population of more than one billion people and a combined GDP of more than USD 3.4 trillion. The Objectives of the AfCFTA are to:

- Create a single continental market for goods and services, with free movement of business, persons and investments, and thus pave the way for accelerating the establishment of the Continental Customs Union and the African customs union.
- Expand intra African trade through better harmonization and coordination of trade liberalization and facilitation regimes and instruments across RECs and across Africa in general.
- Resolve the challenges of multiple and overlapping memberships and expedite the regional and continental integration processes.
- Enhance competitiveness at the industry and enterprise level through exploiting opportunities for scale production, continental market access and better reallocation of resources.

There is potential for the AfCFTA to enable Africa's response to climate change through targeted trade-related measures. For example: the exemption of environmental goods and technologies such as turbines and photovoltaic systems from sensitive and exclusion lists; prioritisation of the liberalisation of trade in environmentally related services since this sector is not among the five priority service sectors (i.e. business services, financial services, transport, communications and tourism) identified by AfCFTA negotiators for early liberalization; due attention given to the harmonisation and strengthening of environmental standards and regulation under the relevant provisions of the AfCFTA Protocol on Trade in Goods and Protocol on Trade in Services as well as within the framework of the African Quality Standards Agenda; and the mainstreaming of climate friendly considerations into the negotiations on investment, intellectual property rights, competition policy and e-commerce.

4.4.3 Climate Information Services for adaptation and resilience

Africa has fewer land-based observation networks than any other region. Moreover, the land-based observational network on the continent is only one-eighth of the minimum required density. Despite the progress made towards the development of observational networks on

the continent, observational infrastructure has not yet met the optimum standards for effective forecasts and early warning systems.

ClimDev-Africa is a programme working to enhance observational infrastructure in Africa. It is an initiative of the African Union Commission (AUC), the United Nations Economic Commission for Africa (UNECA) and the African Development Bank (AfDB) to increase finance for investments in climate and weather observation networks across Africa, to build partnerships for collective investments in weather observation systems and innovative risk financing mechanisms and to enhance Africa's capacity to access and utilise climate information for policy making purposes. Furthermore, AfDB and UNECA are committed to support Regional Climate Centres (RCCs) that are installing infrastructure for climate and severe weather observation, capturing satellite and remote sensed data to improve severe weather monitoring. While significant observation infrastructure already exists, the distribution and types of instruments still need to adequately cover the entire continent.

Efforts have been made to increase investments for modernising regional hydrology and meteorology infrastructure. For example, **the Hydromet Africa Programme** is a special purpose vehicle to engage the Green Climate Fund (GCF), the Global Environment Facility (GEF) and other development partners to mobilise finance to facilitate the delivery of national climate and weather services for development. Hydromet projects are meeting the gaps in hydro-meteorological observation networks, telecommunications, and climate data and weather systems.

To enhance development planning, existing programmes such as Weather and **Climate Information Services for Africa (WISER**) are in place to stimulate the uptake of climate information by policy makers. WISER comprises two components: the East Africa component whose implementation is led by the UK Met-Office and the Pan Africa component led by African Climate Policy Centre (ACPC), the Secretariat of ClimDev- Africa.

Global Monitoring for Environment and Security and Africa (GMES & Africa) is a joint initiative of the AUC and the European Union, geared towards addressing the growing needs of African countries to access and use Earth Observation data for the implementation of sustainable development policies on the continent. The programme builds on the infrastructure and capacities established by earlier projects such as PUMA (Preparation for the Use of Meteosat Second Generation in Africa), AMESD (African Monitoring of Environment and Sustainable Development), and MESA (Monitoring of the Environment and Security in Africa). The programme enhances the capacity of African policymakers and planners to design, implement, and monitor national, regional and continental policies, whilst promoting the sustainable management of natural resources through the use of EO data and derived information.

The **Integrated African Strategy on Meteorology** was developed collaboratively by the WMO and the African Ministerial Conference on Meteorology (AMCOMET) in consultation with the AUC, RECs, Member States, RCCs, and other relevant stakeholders. The overall purpose of the strategy is to correctly position weather and climate services as an essential component in national and regional development framework and sustainable development in Africa, particularly in poverty reduction efforts and climate change. Its objective is to enhance cooperation between African countries and to strengthen the capabilities of their National Meteorological Services. The Strategy further aims to serve as a framework for integrated and coordinated mechanisms, which provides strategic direction to Member States and other stakeholders in streamlining policies that address challenges and opportunities associated with the development of adequate weather and climate services at the national and regional levels.

4.4.4 Climate-resilient agriculture

The **Comprehensive Africa Agriculture Development Programme (CAADP)** is a policy framework that has inspired and energised stakeholders across Africa to achieve the Malabo Declaration on Accelerated Agricultural Growth and Transformation for Shared Prosperity and Improved Livelihoods in Africa. CAADP seeks to boost investment to stimulate growth in the agricultural sector. This means bringing together the public and private sectors and civil society at the continental, regional and national levels for collective action and to increase investment. Spearheaded by AUDA-NEPAD, 47 African countries have signed the CAADP Compact resulting in an increase of public agricultural expenditures by more than 7% per year.

The development of National Agricultural Investment Plans (NAIPs) is at the core of CAADP implementation. Yet, these plans do not sufficiently consider nor implement adaptation to climate change. The New Partnership for Africa's Development (NEPAD) Planning and Coordinating Agency (NPCA) and the Department of Rural Economy and Agriculture of the African Union Commission (AUC-ARBE) have established a framework for the CAADP agenda for adaptation to climate change. The project is building capacity at AUC and NPCA to support Member States in developing climate-friendly NAIPs and applying climate-smart agricultural methods.

CAADP currently works to raise climate change awareness amongst institutions and to disseminate knowledge and lessons learned across the continent. Together with the NPCA, CAADP supports Member States in developing financing and implementation strategies that contribute to achieving climate targets in agriculture. Subsequently, more than 15 African countries have included adaptation to climate change in their NAIPs and are implementing climate-smart measures. Furthermore, the continent-wide exchange platform Africa Climate Smart Agriculture Alliance promotes the regular exchange of lessons learned and knowledge on climate change and agriculture.

An existing African-led initiative that is transboundary in nature and applies a landscape approach is the Implementation of the **Great Green Wall for the Sahara and Sahel Initiative (GGWSSI)**. It is a collaborative effort involving more than 20 African countries through the AU. By 2030, the Wall aims to restore 100 million hectares of currently degraded land, sequester 250 million tonnes of carbon and create 10 million jobs in rural areas.

In addition, the **African Forest Landscape Restoration Initiative (AFR100)**, in alignment with the UN Decade on Ecosystem Restoration, aims to bring 100 million hectares of degraded land under restoration by 2030. AFR100 also contributes to the Bonn Challenge, the African Resilient Landscapes Initiative (ARLI), the African Union Agenda 2063, the SDGs and other targets. AFR100 applies best practices to ensure restoration efforts are successful.

The **African Resilient Landscapes Initiative (ARLI)** is implemented through forest and ecosystem restoration, biodiversity conservation, climate smart agriculture, and rangeland management. The World Bank Group and World Resources Institute support the mobilisation of financial and technical resources from multiple sources to design and implement country-specific strategies. The ARLI mobilises African countries and partners to leverage sectorial interventions and collectively ensure the integrity, resilience, restoration and sustainable management of landscapes across regions.

4.4.5 Enhancing access to renewable energy

Through active engagement with partners and mandated continental and regional organisations such as the AU, Member States could seize the opportunity to bypass fossil fuel technologies and pursue a climate-friendly, needs-oriented power strategy aligned with the Paris Agreement and low-carbon growth. Renewable energy is in most cases the least-cost option for new electricity generation capacity globally. Technology solutions are abundant and ready to be deployed to meet Africa's growing energy demand in an economically viable manner, while offering significant opportunities for job creation and industrial development.

The **Africa Renewable Energy Initiative (AREI)** is an inclusive, transformative, Africa-owned and Africa-led effort to accelerate and scale up the harnessing of the continent's renewable energy potential. Under the mandate of the AU and endorsed by the Committee of African Heads of State and Government on Climate Change (CAHOSCC), the initiative aims to achieve at least 300 GW by 2030. The AREI has two over-arching goals: (1) to help achieve sustainable development, enhanced well-being, and sound economic development by ensuring universal access to sufficient amounts of clean, appropriate and affordable energy; and (2) to help African countries move towards renewable energy systems that support their low-carbon development strategies while enhancing economic and energy security.

4.4.6 Climate change risk management

Climate risk insurance, risk transfer, and risk sharing and pooling mechanisms have an important and growing role to play, particularly in offsetting the economic impacts associated with extreme events to encourage adaptation programmes and policies that should minimise future loss and damage and contribute to sustainable development. In contrast to developed economies where there are various forms of insurance cover available, it is estimated that 99% of losses from disasters in Africa are uninsured. Under such conditions, the ability of governments to invest in increasingly needed adaptations, which are designed to lessen the consequences on social well-being, infrastructure, and economic activity, are restricted and thereby enhance vulnerability.

African countries, through the AU, have established the **African Risk Capacity (ARC)** to build the capacities of African governments to identify their climate risk, plan for climate disasters, and access capital at critical times. As an African-led and owned catastrophe risk pool created with risk capital from donor partners, the ARC has already disbursed US$ 36 million in four years of operations which have helped to support drought-affected countries. The ARC capacity building programme aims to prepare African governments for effective DRM through the introduction of tools and processes that enhance a multidisciplinary response by governments. Through this programme, experts from key government departments undergo training and have to complete milestones in risk

modelling, contingency planning and risk transfer which allows them to make informed decisions on insurance uptake.

Through the African strategy for Disaster Risk Reduction (DRR), the AUC established dedicated DRR structures at the continental level. RECs and Member States have made progress in developing respective regional and national strategies on DRR. Subsequently the Sendai Framework for Disaster Risk Reduction 2015-2030 was formulated, and the AUC developed the **Programme of Action** for its implementation in Africa. It is intended to provide guidance and direction for actions by all at the continental, regional, national and sub-national/ local levels in Africa to prevent and reduce the risk of disasters for resilience in line with the Sendai Framework. The Programme of Action comprises and integrates strategic DRR elements to be carried out over the 15-year period of the Sendai Framework.

To date, the provision of climate risk finance has been inadequate. The **Extreme Climate Facility (XCF)** is a new financial mechanism for securing climate finance for African governments. The XCF will use both public and private funds and facilitate direct access to climate adaptation finance for eligible African governments based on the demonstrated need for enhanced adaptation measures.

4.4.7 A climate-resilient African blue economy

The **Africa Blue Economy Strategy** was developed following the Sustainable Blue Economy Conference that took place in Nairobi, Kenya in 2018. The objective of the Strategy is to guide the development of an inclusive and sustainable blue economy that becomes a significant contributor to continental transformation and growth, through advancing knowledge on marine and aquatic biotechnology, environmental sustainability, the growth of an Africa-wide shipping industry, the development of sea, river and lake transport, the management of fishing activities on these aquatic spaces, and the exploitation and beneficiation of deep sea mineral and other resources. The implementation of the Africa Blue Economy Strategy addresses various themes related to climate change, including blue carbon, blue energy, climate-resilient coastal infrastructure and responses to improve the climate resilience of Africa's fisheries and aquaculture sectors.

4.4.8 Accelerating adaptation and building resilience in Africa

Historical emissions have caused a global average warming of at least 1°C highlighting the need to enhance adaptation action today. African countries are already undertaking actions to adapt to the impacts of climate change, but these efforts need to be intensified as the impacts of climate change increase.

The **Africa Adaptation Initiative (AAI)** was developed in response to a mandate from the African Heads of State and Government, the African Ministerial Conference on the Environment (AMCEN) together with the African Group of Negotiators (AGN). The AAI facilitates enhanced action on adaptation and addresses loss and damage in four key pillars of work: (1) enhancing CIS, (2) strengthening policies and institutions, (3) enhancing concrete action on the ground, and (4) facilitating access to and mobilising additional climate finance and investment for adaptation and addressing loss and damage.

4.4.9 Building on climate change capacity building programmes

There is a need build on capacity building programmes to improve the technical development and capacities of stakeholders to allow them to effectively engage in climate action. Capacity building is typically MS driven and involves learning by doing. Much capacity building work on climate action is taking place under the UNFCCC's Action for Climate Empowerment agenda, as well as in AGNES, which focuses on education, public awareness and access to data.

The AU has developed several youth development policies and programmes at the continental level to ensure Africa benefits from its demographic dividend. The policies include the **African Youth Charter, Youth Decade Plan of Action (2009-2018)**, and the **Malabo Decision on Youth Empowerment**, all of which are implemented through various AU Agenda 2063 programmes. The Plan of Action contains five key priority areas, two of which pertain to climate change and education and skills development. The Plan of Action focuses on youth empowerment defining it as building knowledge and education through awareness raising, capacity and skills building and enhancing the accessibility of youth to opportunities.

4.4.10 Capacity needs and gaps for climate research

It is essential that all climate stakeholders have the relevant capacities needed to deliver climate adaptation and low-carbon, climate-resilient development, together with the ability to apply skills, knowledge and tools and the willingness to deliver change. There are an increasing number of regional and continental initiatives that are aimed at addressing the major limitations and challenges related to climate research in Africa.

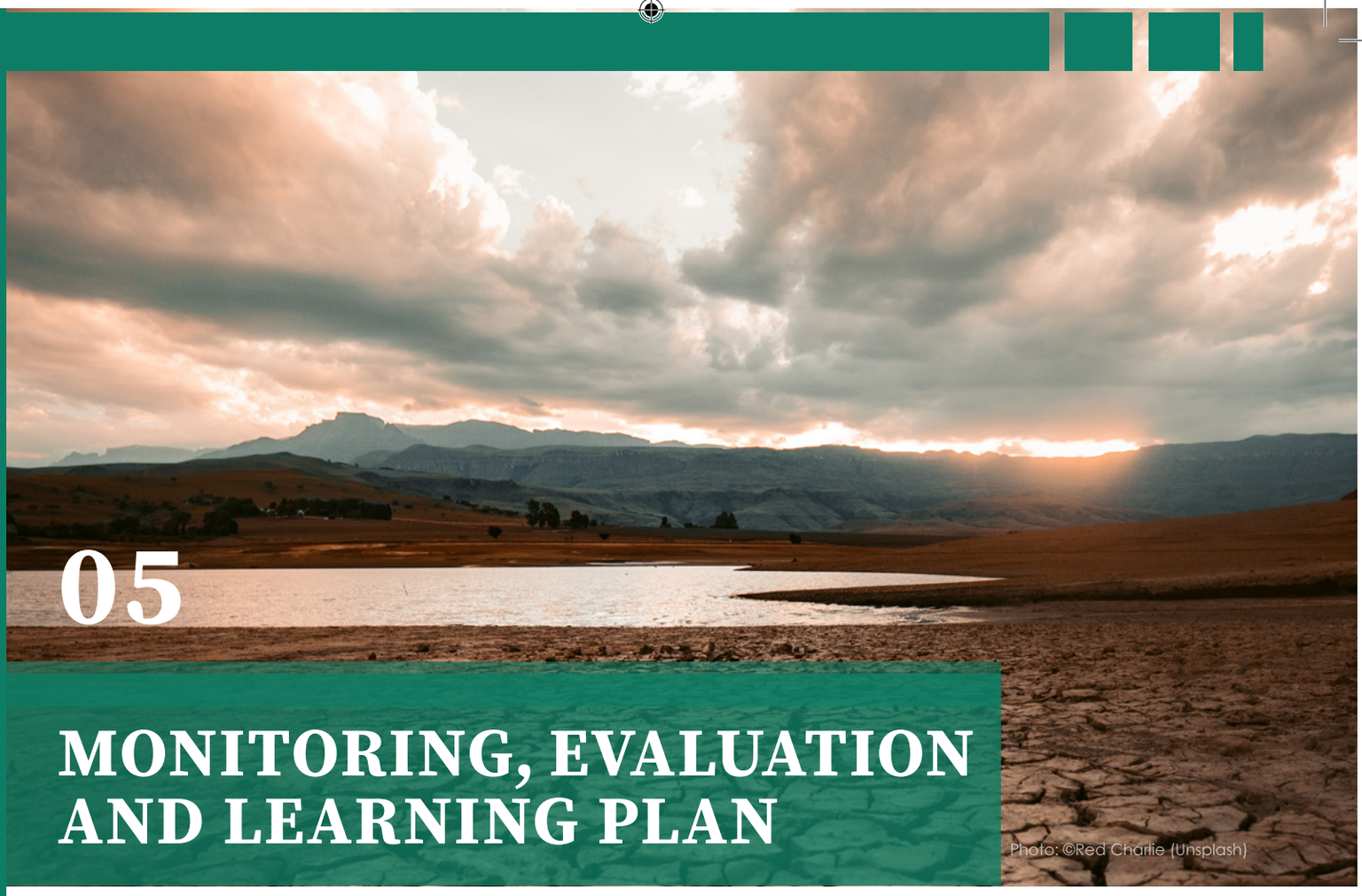
The Alliance for Accelerating Excellence in Science in Africa (AESA) was created in 2015 through a partnership of the African Academy of Sciences (AAS), AUDA-NEPAD, the founding and funding global partners, and through a resolution of the summit of AU Heads of Governments. AESA is to enhance African science for and by Africans through agenda setting, mobilising Research and Development (R&D) funding, and managing continent-wide Science, Technology and Innovation (STI) programmes that promote the brightest minds, strengthening the best possible science environments in Africa, fostering scientific excellence, inspiring and mentoring emerging research leaders, and accelerating and translating research and innovations into products, policies and practices that will improve and transform lives in Africa.

The Climate Research for Development (CR4D) for Africa is a regional initiative that was launched to strengthen links between climate science research and climate information needs in support to development planning in Africa. CR4D has the objective of supporting the Africa climate research community (scientists and institutions) in generating end-user climate information.

Future Climate for Africa (FCFA) aims at generating fundamentally new climate science focused on Africa, and to ensure that this science has an impact on human development across the continent.

Table 21. Priority interventions and suggested actions on Africa regional flagship initiatives.

Intervention area	Suggested actions	
1. **Further strengthen climate dimensions of key regional flagship initiatives** (e.g. PIDA, CAADP) and integrate these into the implementation of Africa's Climate Change and Resilient Development Strategy	1a.	Enhance climate dimensions of regional flagship programmes to support climate-resilient development.
	1b.	Ensure sufficient resource mobilization and budgetary allocations for climate-related actions within regional flagship initiatives.
	1c.	Strengthen information sharing and reporting and integrate this into the monitoring, evaluation and learning activities related to Africa's Climate Change and Resilient Development Strategy.
2. **Strengthen coordination for more effective implementation**	2a.	Support coordinated and aligned action between AU structures and key regional partners, as well as non-state actors and Member States to strengthen climate action



05

MONITORING, EVALUATION AND LEARNING PLAN

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The Strategy covers a period of 10 years, during which several actors at the local, national, and international levels will closely collaborate to attain the specified objectives. The implementation, under the overall supervision of the AU, will work alongside the Strategic Objectives, Overall and Specific Objectives, Expected Results, Key Strategic Interventions and Actions. The monitoring and evaluation (M&E) activity described in this section will ensure that all planned interventions, outputs, and outcomes are on track and will be verified periodically during the lifetime of the Strategy. A detailed M&E Plan will be developed before the start of the implementation of the Strategy, specifying actors, roles and responsibilities for various activities, and reviews. Their involvement will depend on their ability and capacity to deliver results and utilise knowledge in specific areas. The Plan will also include budgetary frameworks to support the implementation of the Strategy. The M&E Plan will be used to manage accountability and relationships.

Given the geographical extent, the diverse human resource involvement, and the range of factors that can influence the scope and pace of the work, the process will be one of Monitoring, Evaluation and Learning (MEL). To achieve this, the M&E Plan will be based on a Logical Framework of the Strategy, which will define the indicators needed to achieve the desired results. Provision will be made for flexibility in the face of unpredictable occurrences, such as health pandemics and economic disruptions. The active players who will drive the implementation and the M&E of activities will belong to the AU and its partner organizations, national governments, RECs, civil society and the public and private sectors.

The M&E Plan that will be used to monitor progress during the implementation phase will allow the AU and other partners to track the:

- Schedules and timelines
- Level of success of the climate change programme across the continent
- Key indicators monitored
- Data sources, collection, management, and quality assurance
- How data will be analysed
- Feedback mechanisms for improving interventions
- Questions related to the relevance, effectiveness, efficiency, impact and sustainability of the proposed interventions and
- Contribution of stakeholders to achievements.

The Strategy is focused on supporting institutions to provide the enabling environment for effective mitigation, resilience, adaptation; improving capacities; and information collection, use and dissemination. As a result, the successful implementation of this Strategy will depend on the ability of the M&E activity to provide accurate and useful responses for these areas, which include:

An enabling environment

- Institutions and mechanisms that are in place to enhance mitigation, resilience and adaptation on the continent;
- Policies adopted and/or implemented;
- The extent to which relevant and credible information is used in the conception and adoption of policies; and,
- The extent to which the participation and inclusion of all stakeholders are reflected in policies and mechanisms adopted.

Information Acquisition, Data Analysis and Dissemination

- The extent to which quality data has been available from various partners and sectors to assess the effectiveness of various actions carried out;
- The impact of the interventions in achieving the objectives of the strategy; and,
- The level of the dissemination of results and their effect in addressing mitigation, resilience and adaptation.

Supporting capacity building initiatives

- Avenues, approaches and finance identified for capacity development for policy engagement on all areas of climate policy;
- Development and strengthening of human resources and institutional capacity to achieve strategy objectives;
- Level of ownership of strategy and activities achieved by partners; and,
- Level of self-reliance as an index of effectiveness created among partners.

These M&E activities will be carried out by the AU Commission's competent experts that understand how to detect gaps in knowledge, as well as associated gaps in data, analytical tools and information and that have experience with working across multiple disciplines to interact with content experts in developing appropriate methodologies for collecting and analysing data. This collection of personnel will exist in various partner institutions so that a critical mass of M&E personnel in climate change assessment will exist. The main idea is to develop continent-wide capacity in this area, as well as to obtain reliable information on the progress of implemented activities.

The range of activities covered by M&E will include aspects such as:

- Assessing results (for example, the effects of activities, using indicators);
- Assessing the implementation process (organizational, financial, organizational and physical);
- Monitoring of objectives (assessment of impact);
- Monitoring of change and attitudes; and,
- The overall monitoring and evaluation (using baseline information, internal evaluations, mid-term and final evaluations, indicators, etc).

The AU will ensure that high-quality data is gathered at pre-determined intervals, depending on the nature of the activity being carried out. M&E personnel in partner institutions will support these goals by delivering information in specified formats to the AU for compilation and analysis, as required. This process of data-gathering will ideally be well served during review meetings aimed at collecting information, data-quality control and the assessment of any difficulties.

Data-quality control will enjoy a very high priority. All data producers will ensure that they use high quality, robust and objective data in their reports; that they have a strengthened intellectual authority in their fields of competence; and that their brand and image in quality data and report preparation is strong. The following criteria should be respected to achieve the above conditions:

Validity, which assesses:

- The robustness of the design of the data-collection tools
- The existence of any reasons to suggest that respondents can give misleading information
- An understanding of indicators and data-collection definitions of concepts and terms
- Profiles of the data collectors
- A level of training for data collectors and supervisors
- The transcription of data
- The existence of room for mistakes at any level

Reliability, which assesses:

- Variability in the data-collection process year-on-year and place-to-place
- Using the same data-collection tools
- A description of data-collection process
- What happens if a problem is found in the data, and how it is fixed
- Discussions on issues related to data quality

Timeliness, which assesses:

- The frequency of data collection, and how current they are;
- A timetable for data collection
- An identification of data collected

Accuracy, which assesses:

- The margin of error of indicators
- The sufficiency of current data and the cost and worth of collecting additional precise data

Data integrity, which assesses:

- The mechanisms in place to prevent data manipulation
- The extent to which there is objectivity and independence in the procedures for collecting, managing and evaluating the data
- A review by an independent authority

An implementation plan will be included with this Strategy to indicate the main areas of intervention and the associated actions needed to achieve the desired objectives. A more detailed plan will be developed with areas of responsibility, costs and timeframes. The Strategy will be subjected to a five-year evaluation and review to ensure that the Strategy is up to date, relevant and making progress.

Evaluations carried out will be based on the use of clearly defined indicators, baseline data, deliverables and periodic internal monitoring produced by all partners. These M&E activities will contribute to improving the performance of the management of the programme, as well as help to determine the extent to which the objectives of the programme are being met. In general, this will enhance the MEL process within the AU and its partners.

To aid the M&E process, a Results Framework and Logical Framework will be developed by the M&E team from the outset and before the activities start. The Results Framework that link the results to the activities and each of the specific objectives will show the causal linkages in the proposed interventions. The Logical Framework will help the AU to determine which indicators to follow to determine success. These frameworks should be useful in assisting the AU in the overall management of programmes related to this strategy.

Table 22. Priority interventions and suggested actions for Monitoring and Evaluation.

Intervention area	Suggested actions
1. Development of **inclusive Monitoring, Evaluation and Learning Plan** for the Strategy.	1a. Develop an inclusive plan that specifies different actors, their roles and responsibilities for various activities and reviews.
	1b. Develop a comprehensive results and logical framework which defines the indicators and baseline data needed to achieve the desired results.
	1c. Conduct a mid-term review of the Strategy.
2. Develop the capacity of the AUC and other partner organizations to carry out M&E services.	2a. Train AUC personnel to effectively carry out M&E reporting practices and collection of relevant data.
3. Development of a **resource mobilization Strategy.**	3a. Mobilise resources specifically to support the implementation and sensitization of the Strategy.
	3b. Develop strategies to explore new financing options, operationalise these financing strategies and expand partnerships for support.

06

IMPLEMENTATION MATRIX

Priority intervention area	Suggested actions	Respon-sibility	Time-frame	Cost
Strategic Intervention Axis 1: Strengthening Policy and Governance				
1. Enhanced climate policy, multi-sector governance and institutional coordination				
1. Continued **development, review and update of climate change policies and implementation plans** at a regional, national, sectoral and local level.	1a. Review and revise existing policies and plans to ensure alignment with revised NDCs and LTSs under the Paris Agreement. Update or develop related implementation plans, investment plans and M&E plans.			
	1b. Mainstream climate change considerations (including gender, youth and indigenous knowledge considerations) and updated NDC policy actions across sectoral policies, utilizing an open and transparent engagement process with stakeholders.			
	1c. Adopt a "whole-of-economy" approach to climate change, prioritizing the integration in long-term climate priorities in countries' macroeconomic frameworks, national budgets and expenditure frameworks, financial sector regulations and incentives; and in systems planning.			
	1d. Develop/implement sound monitoring, review and reporting processes and systems, including MRV of GHG emissions, sinks and removals, and M&E of adaptation, climate finance and technical support outcomes to obtain the relevant data and information for policy development.			
2. Strengthen institutional structures for policy implementation, through fostering good governance structures at the national and sub-national levels.	2a. Strengthen of mechanisms for co-ordination and collaboration between countries, sectoral line ministries and spheres of government, as well as communication with citizens and stakeholders.			
	2b. Identify line ministries and institutional bodies for the implementation of climate policy, development of legal mandates and delegations for these ministries/bodies, and capacitation of these bodies with qualified, well-equipped and motivated staff.			
	2c. Develop systems for the monitoring and reporting of policy implementation, as well as open data and information sharing platforms to foster accountability and transparency.			

Priority intervention area	Suggested actions	Respon-sibility	Time-frame	Cost
1. Enhanced climate policy, inclusive multi-sector governance and institutional coordination				
3. Cultivate **robust climate change legislative frameworks.**	3a. Review of the national legal barriers to successful climate change policy implementation through a legal landscape analysis, including existing provisions which hinder implementations as well as empowering provisions required for implementation, to determine the most appropriate legal instrument(s) to develop as well as their content.			
	3b. Develop national, district and local level climate relevant laws to facilitate and enable effective policy implementation that give effect to the legal landscape analysis.			
4. Improved multi-level governance arrangements, equitable partnerships and coordination platforms for dialogue and learning.	4a. Focus on the process, not just the output. Too often, the focus when developing strategies is on the "what" and not on the "how" or the "why", and yet the process followed to design activities is at least as valuable as the end product.			
	4b. Support the implementation of well-resourced decentralization reforms and local stewardship. Awareness raising and contextualising issues for citizens immediately improves local stewardship and participation in co-designing of solutions.			
	4c. Promote equitable partnerships, local buy in and shared visioning. Shared visioning of future pathways, open dialogue, and a close analysis of assumptions underpinning worldviews, identities, beliefs, and stigmas based on social circumstance can help break path dependence.			
	4d. Mainstream climate-resilient development objectives and targets across all areas of governance and into all local development plans (LDP).			
2. Coordinated regional climate action				
1. Strengthen coordination among the African Union and its structures, as well as key regional partners, in supporting Member States to achieve climate action.	1a. Mainstream low-emission, climate resilient development across all continental and regional level polices, frameworks and action plans			
	1b. Promote synergies between African Union institutions and structures in addressing climate change matters.			
	1c. Enhance coordination between the regional economic communities and Member States in addressing and managing transboundary and cascading climate risks.			
	1d. Support Member States to develop and implement ambitious NDCs, consistent with national priorities and global Paris Agreement goals.			
2. Strengthen coordination among the African Union and its structures, as well as key regional partners, in supporting Member States to achieve climate action.	2a. Encourage Member States to negotiate as a consolidated Africa bloc.			
	2b. Strengthen collaboration between the AGN, AMCEN and CAHOSCC.			
	2c. Pursue an integrated and cohesive engagement in global negotiations on collective action, including in relation to Article 6 of the Paris Agreement.			

Priority intervention area	Suggested actions	Respon-sibility	Time-frame	Cost
3. Anticipatory governance and proactive, long-term planning				
1. Increase the robustness of climate policy processes by strengthening their effectiveness in possible future conditions.	1a. Identify the assumptions the climate policies are based on and the shaping and hedging of actions to assure climate goals will be reached.			
	1b. Identify drivers of change in national, regional and global contexts, create scenarios to explore possible futures of Africa, and use these to test and enhance climate policies in a participatory manner, involving stakeholders from different groups, ages and backgrounds.			
2. Consider the assumptions that underpin climate change plans.	2a. Consider alternative options and back up plans.			
	2b. Use assumption-based planning methodologies.			
3. Move to a more collective process when developing NDCs and long-term policy planning and development.	3a. Include a broad range of stakeholders throughout the climate policy cycle – from development and design, participatory scenarios development, to implementation and monitoring.			
4. Increase uptake of climate information services				
1. Build and enhance weather and climate observational infrastructure and networks for medium and long-term planning.	1a. Harness financial resources for maintaining observation networks, data rescue, storage and sharing. This could include proposals for funding to international (as well as national) funding agencies.			
	1b. Motivate for central NMHS budgets from government.			
	1c. Investigate and formalise public-private partnerships. This could be facilitated under the WMO Open Consultative Platform for public-private engagement.			
2. Improve the uptake and effectiveness of CIS by increasing the coordinated delivery and sustainability of CIS interventions, including through User-Interface Platforms (UIPs).	2a. Enhance collaboration between the NMHS, sectoral experts, practitioners and policy makers to enable central delivery of decision-relevant CIS.			
	2b. Develop CIS capacity, based on regional need and developed within African institutions in response to that need. Reduce reliance on international sources of CIS where possible.			
	2c. Ensure regular and sustained monitoring and evaluation of CIS interventions.			
	2d. Identify and prioritise initiatives that enable CIS interventions to be sustained after funding ceases.			
3. Build capacity in the generation, uptake and effective use of CIS across various stakeholder groupings.	3a. Enhance user-informed co-production of CIS, based on good practice guidance.			
	3b. Develop capacity to understand and use CIS through training courses, experiential learning (placements, internships etc.) and inter-institutional partnerships.			
	3c. Enhance methodologies for combining trusted indigenous and scientific knowledge to generate CIS products.			
	3d. Develop regional institutional knowledge related to climate modelling and CIS to enhance policy making and increase effective monitoring.			

Priority intervention area	Suggested actions	Respon-sibility	Time-frame	Cost
5. Improved climate literacy and awareness				
1. Increase climate change literacy across all levels of formal and informal education curricula.	1a. Develop and include climate change literacy curricula for formal education (primary, secondary and tertiary levels), extending skills and knowledge for responses to climate change.			
	1b. School girls need to be the focus of gender-sensitive approaches to education, emphasising attendance and completion of their schooling.			
	1c. Develop regional climate change literacy programmes for informal education (e.g., civil society and other partnering actors), extending skills and knowledge for responses to climate change.			
2. Mainstream climate change literacy into targeted sectors most vulnerable to climate change in Africa (across food systems, health, cities, infrastructure, economies, water, heritage, with an emphasis on gender).	2a. Develop extension services that include climate change literacy in programmes for small holder farmers with concentration on skills and knowledge, particularly for adaptation to climate change.			
	2b. Promote climate information services co-production and communication in ways that enhance climate change literacy and improved access to useable climate information, particularly for adaptation to climate change.			
	2c. Address gendered vulnerability to climate change across all sectors, together with the implementation of equity-based approaches, including provision of skills and knowledge for adaptation to climate change for women.			
3. Mainstream climate change literacy across government policy and decision makers for greater climate action.	3a. Enhance training of and support to high-level government officials with regards to skills and knowledge for climate action (both mitigation and adaptation), for example for the Minister of Finance, and with regards to new and rapidly evolving approaches to climate response, including carbon dioxide removal.			
	3b. Advance climate change literacy across all implementing levels and departments of government extending skills and knowledge for responses to climate change.			
	3c. Advance climate change literacy for key environmental decision makers, e.g., the Judiciary (UNEP has recognised the importance of climate change literacy for decision making and governance with a new curriculum on environmental law for judiciaries across the continent).			
6. Governance solutions to address the climate-conflict nexus				
1. Strengthen the capacity of AUPSA and institutions to analyse climate-related peace and security risks and develop appropriate detection, mediation, and resolution strategies.	1a. Provide CISSA and regional early warning centres with training on integrating climate risks into existing analytical tools and conducting in-depth climate-sensitive conflict analysis and climate-sensitive peacebuilding strategies.			
	1b. Provide the AU Mediation Support Unit and RECs Mediation Support Units with training in climate-conflict dispute resolution.			
	1c. Call on RECs to develop regional climate-conflict prevention frameworks that identify context, institution performance, and the role of key actors, and recognises the multifaceted and multidimensional nature of climate risks.			
	1d. Advance post-conflict reconstruction and peacebuilding activities through climate development objectives and common activities.			

Priority intervention area	Suggested actions	Respon-sibility	Time-frame	Cost
2. **Strengthen the capacity of Member States to develop more integrated responses** to climate-related security risks.	2a. Support the development of national structures and processes that allow for integrated responses to climate-related security risks and coordination between policy areas and monitoring and evaluation systems.			
	2b. Establish training for government members across departments and agencies on climate risks, development and peacebuilding strategies.			
3. **Strengthen the capacity of vulnerable communities to** better engage in national climate policy process.	3a. Identify communities most vulnerable to climate-change human security risks, such as farmers, coastal fishing communities, internally displaced persons (IDPs) and provide them with training in national climate policy planning, agenda setting, monitoring and implementation.			
	3b. Develop national mechanisms that allow vulnerable communities to engage with parliament on national climate adaptation and green industrialization initiatives.			
Strategic Intervention Axis 2: Adopting Pathways Towards Transformative Climate-Resilient Development				
7. Food systems under a changing climate				
1. **Promote the equitable sharing of climate risk and reward** amongst all food system actors, especially small-scale, rural farmers.	1a. Establish a climate-risk insurance facility at a regional level to which every food systems player contributes, directly or indirectly.			
	1b. Enhance availability of and access to appropriate climate-related insurance products to farmers, as well as novel risk-sharing mechanisms like risk pooling and other innovative models.			
	1c. Develop regional mechanisms that ensure that the financial costs of climate disasters are not borne solely by farmers, but spread more equitably across the range of food systems actors, including consumers.			
2. **Enhance resilience** of food systems against climate effects, while emphasising nutrition outcomes and integrated planning.	2a. Enhance regional capacity development, communication and social movements around blended local and international food systems.			
	2b. Extend use of smart, innovative and climate-resilient technologies, renewable energy production, breed/variety development/ switching and technologies that preserve and enhance nutritional qualities in food.			
	2c. Implement appropriate valuation framework for the ecosystems management services provided by farmers to the general public and pay them fair value.			
3. **Emphasise production toward agro-ecological transition,** to reduce GHG intensity (including methane and other gases), and dependencies on external inputs.	3a. Support research, extension and implementation of public sector and market-based instruments toward agroecological, regenerative, nature-based and indigenous approaches for integrated farming and pastoral systems or resilient landscapes (practices to increase agrobiodiversity, conserve land and water, cycle nutrients, reduce waste and enhance productivity).			
	3b. Provide resources to enable/facilitate the transition to more nature positive production systems by farmers.			

Priority intervention area	Suggested actions	Respon-sibility	Time-frame	Cost
4. Strengthen food system governance interventions across Africa's regions.	4a. Conduct systematic review of existing policies, strategies and incentive mechanisms that support/inhibit transition to sustainable food systems.			
	4b. Modify policies, processes and strategies to become more inclusive and participatory (farmers, women and youth) and support sub-national scales of food systems governance (territorial/landscape) while linking them with resources and authority to national level.			
	4c. Enhance the role and influence of public procurement in food purchasing to support diverse and nutritious diets (for example, municipal support for local sourcing to public canteens, home-grown school feeding programmes).			
	4d. Develop synergies across sectoral planning and investments in infrastructure and related investments (for example, how energy and transport dependencies can better cohere with resilience goals for food systems, as well as how to improve infrastructure to reduce post-harvest losses).			
	4e. Align food system visions and targets with other national strategies and commitments (for example, NDCs, UNCCD net-zero land degradation targets, AFR100 and CBD biodiversity frameworks, SDGs and national development plans).			
5. Strengthen finance, investment and resource allocation interventions.	5a. Coordinate and augment investments by channelling flows toward sustainable food systems from philanthropy, private sector direct investment, and multi-lateral donors.			
	5b. De-risk investment toward transition by distribution roles across philanthropic, public and private finance by avoiding single source funds; ensure better coverage across short- and long-term investing; maintain balance of risk to investors across spectrum of scales; ensure that ESG and social impact investment reporting by private sector is well monitored and promoted.			
	5c. Analyse subsidy and investment programmes to ensure that direct payment schemes for food system actors are aimed toward sustainable food systems transformation.			
	5d. Assess how financial and non-monetary incentives are applied to shift behaviours into more resilient, collaborative and integrated approaches.			
	5e. Draw from cross-value chain initiative models that recognise and remunerate champions of transformation – highlighting successes (for examples, Beacons of Hope, Milan Urban Food Policy Pact and Rockefeller Food System Vision Prize).			
	5f. Support development of market-based mechanisms to reward social and environmental outcomes (Ecosystem outcome verification, bundling of ecosystem services with carbon markets for agriculture sector, etc.).			
	5g. Explore and establish innovative mechanisms that enhance availability and access to financial resources (both mitigation and adaptation) by farmers, such as soil carbon management carbon dioxide removal.			

Priority intervention area	Suggested actions	Respon-sibility	Time-frame	Cost
8. Protecting land-based ecosystems and carbon sinks				
1. **Develop bankable solutions** for ecosystem protection/ restoration, sustainable water resources management and regenerative agriculture.	1a. Study and implement a broad range of economic incentives for sustainable businesses that contribute to ecosystem protection/ restoration, sustainable water resources management and regenerative agriculture. This includes Article 6's carbon trading opportunities.			
	1b. Ensure incentives and bankable solutions align with continental, sub-regional, national and local policy directions and socio-political contexts.			
2. **Build technical capacity** for implementing and investing in regenerative and biodiversity positive agricultural systems across the region.	2a. Develop and support landscape scale multi-stakeholder partnerships for sustainable agricultural intensification and expansion.			
	2b. Design regional agricultural intensification and expansion plans in line with projected changes in climate change.			
	2c. Lobby for and develop intra-African agricultural trade, development and investment partnerships to aggregate performance and risk.			
3. **Finance sustainable land-based ecosystems and carbon sinks to enhance** climate adaptation and mitigation.	3a Develop continental financing mechanisms for ecosystem-based approaches and EbA that consider a wider range of costs and benefits in credit risk assessments.			
	3b. Develop regional financing facilities (including nationally nested facilities) for supporting the development of ecosystem-based approaches and EbA that have both social and environmental benefits.			
4. **Protect key carbon sinks** in all ecosystems found in Africa.	4a. Support the establishment and improve management of Protected Areas (PA) in irrecoverable carbon ecosystems through integrated land use planning for new PA siting, increased enforcement of PAs and capacity building for PA managers, and incentives for community monitoring of PAs.			
	4b. Increase designation of community managed ecosystem-rich areas, capacity building for community forest management, and empower Indigenous Peoples and local communities through clarifying land rights, providing training and strengthening governance.			
5. **Avoid** further degradation of and enhance sustainable management of all ecosystems.	5a. Encourage zero-deforestation commodity supply chains by leveraging climate-positive commitments/investments by private sector companies to support activities that strengthen landscape governance; facilitate alignment and action across stakeholders; support capacity building on land use planning; provide extension services and training; clarify land tenure, enhance governance and undertake policy revisions.			
	5b. Remove perverse incentives that lead to destructive activities (fossil fuel subsidies) and encourage nature-positive activities/ecosystem-based approaches (through tax incentives).			
	5c. Leverage climate finance opportunities to encourage REDD+ implementation at site-scale and jurisdictional level in alignment with national GHG accounting, including by creating the appropriate policy and technical processes and infrastructure, attracting private sector investment, clarifying carbon rights and benefit-sharing arrangements, and providing capacity-building.			

Priority intervention area	Suggested actions	Respon-sibility	Time-frame	Cost
6. Restore and sustainably manage agricultural systems (including crop and livestock systems) to reduce and remove GHG emissions, reduce human-wildlife conflict, enhance food security and water regulation benefits.	6a. Catalyse continent-wide actions on commitments (such as AFR100) to scale restoration, with a key focus on cost- effective and science-driven assisted natural regeneration through a mix of active planting and eliminating barriers and disturbances to native vegetation recovery.			
	6b. Promote agroforestry systems with local and climate-resilient species that provide diversified livelihoods.			
	6c. Prioritise novel, integrated livestock management approaches, such as the Herding 4 Health model, which is scalable and traditionally acceptable, enables wildlife-livestock coexistence, climate-change adaptation, carbon sequestration and water regulation.			
	6d. Develop policy to allow livestock development strategies that support rural development and contribute to a restoration economy, including the development of national policies and mechanisms to allow for carbon credit trading and benefit sharing for communities that implement rangeland restorative practices.			
7. Integrate biodiversity conservation and sustainable management in climate change actions.	7a. Promote and expand conservation of biodiverse areas, including sustainable use and community management.			
8. Ensure focus on food security, land-use rights and protection of biodiversity in projects for ecosystem-based approaches approaches to carbon removal.	8a Integrate full community impact assessments into projects for afforestation, soil enhancement, coastal wetland expansion, and others which are driven by goals of carbon dioxide removal for either credits or payment.			
	8b. Develop 'sustainable ecosystem-based approaches' frameworks to ensure that carbon dioxide removal is not done at expense of development needs and local rights.			
9. Enhancing climate-resilient and low-emission energy and infrastructural systems				
Energy generation				
1. Integrated water resource planning.	1a. Ensure that hydropower infrastructure is planned in coordination with other sectors that compete for the same water resources such as agriculture, industry and domestic households, because lack of integrated planning risks leading to inconsistent strategies and inefficient use of resources.			
2. Promote power system planning for a climate-resilient, low-emission electricity network.	2a. Set long-term targets for renewables to stimulate a pipeline of investible renewable projects.			
	2b. Hydropower development must include projections of potential future patterns of hydrological variability, not just historical data.			
3. Increase power capacity by harnessing the regional potential of river basins to strengthen resilience to droughts and get renewable electricity to markets.	3a To enable cross-basin trade, the transmission networks and market structures in the Southern Africa Power Pool (SAPP) and East Africa Power Pool (EAPP) should be interconnected, as is currently planned, not developed independently.			

Priority intervention area	Suggested actions	Respon-sibility	Time-frame	Cost
4. Strengthen power sector reforms to enable renewable energy.	4a. Allow broad-based participation in power supply to deliver financial needs and to harness the expertise of international renewable energy developers and investors, including independent power producers (IPPs).			
	4b. Enhance regional policy and regulatory frameworks to encourage power sector reforms.			
5. Expand renewable capacity through competitive auctions.	5a. Increase competitive tenders can simulate a pipeline of bankable projects, if held regularly, through transparent and predictable planning processes.			
6. Strengthen finance and risk mitigation for efficient and renewable energy.	6a. Governments and development finance institutions should crowd-in private investment by providing robust power purchase agreements, affordable loans and risk guarantee facilities to mitigate risks that the private sector is ill-equipped to handle.			
7. Enhance access to energy efficient solutions for all.	7a. Improve access to energy for more people by enhancing energy efficiency.			
	7b. Focus efficiency interventions on electricity use and fuel types used for cooking.			
	7c. Promote policies and organizational frameworks more conducive to enhanced energy efficiency and new market development.			
	7d. Increase access to modern cooking fuels and promote nation-wide energy efficiency, in collaboration with implementing partners, local governments and communes.			
8. Increase adoption of new low-cost, energy saving technologies.	8a. Identify appropriate energy efficiency solutions/technologies that could be scaled up for larger development impact.			
	8b. Promote improved cooking stoves, mini-grids and other innovative solutions.			
	8c. Exchange knowledge and technology between rural and urban households to support rural households in the adoption and use of improved stoves.			
	8d. Build knowledge on energy efficiency.			
9. Build climate resilience and a just transition with a focus on women, girls and young people.	9a. Ensure that sensitization and awareness-raising campaigns target women, as they are almost exclusively in charge of collecting fuel for cooking.			
	9b. Support households in reducing energy poverty and address the challenges of cooking with solid biomass.			
	9c. Encourage the adoption of improved stoves and modern cooking fuels. This reduces cooking time (alleviating women's time-poverty), greenhouse gas emissions, and health risks.			
	9d. Provide high quality training to those who play a key role in the dissemination and implementation of energy efficiency.			
10. Inclusive, low-emission and resource-efficient industrialization				
1. Institutional infrastructure that could effectively guide sustainable industrial development.	1a. Develop coherent and integrated industrial development policies and strategies for low-emission and resource-efficient industrialization.			
	1b. Promote effective university-industry linkages that generate qualified human resources equipped with the required skill sets for low-emission industrial development.			
2. Industrial infrastructure development that provides a sustainable basis for industrialization.	2a. Ensure that all industrial infrastructure is developed and managed in a climate-resilient resource-efficient approach.			

Priority intervention area	Suggested actions	Respon-sibility	Time-frame	Cost
2. Industrial infrastructure development that provides a sustainable basis for industrialization.	2b. Develop eco-industrial parks that are horizontally and vertically integrated with local, national and regional economies.			
3. Distributed renewable economy network development for decent job creation and wellbeing.	3a. Promote development of distributed renewable energy systems as drivers for sustainable local and regional value addition and job creation.			
	3b. Facilitate digital technology application to enhance the economic empowerment and inclusivity of communities, with particular focus on youth on women.			
4. Energy systems that promote efficient generation and utilization of industrial energy input.	4a. Develop and implement national industrial energy efficiency improvement programmes that are aimed at reducing both the material and energy intensity of economic activities.			
	4b. Provide incentives and institutional support that encourages industries to increase the share of renewable energy in the overall energy mix.			
5. Waste management system that emphasises waste to resource conversion.	5a. Promote national industrial waste management programmes, with a particular focus on prevention at the source and waste-to-resource conversion.			
	5b. Develop properly designed and managed waste management infrastructure that reduces emissions and the discharge of toxic and hazardous pollutants.			
11. Promoting low-emission, resilient mobility and transport systems				
1. Build climate-aware transport planning capacity to better shape resilient mobility systems and infrastructure.	1a. Train transport planners and engineers in climate policy, planning under deep uncertainty, access-based planning, incrementalism, hybridity, adaptive project implementation and dynamic monitoring.			
	1b. Collaborate in developing climate-aware, locally appropriate transport-planning masters and undergraduate courses at African universities.			
	1c. Invest in research around the 'just transition' to low-emission, resilient mobility in African cities through a continental knowledge platform.			
	1d. Invest in research on green and efficient fuel supply options.			
2. Change the project financing and evaluation requirements for development banks to prioritise resilience, modal split, access equity, and emission mitigation, alongside travel time savings.	2a. Guide the use of development, concession and blended financing arrangements to include the complex climate and social risks – including risks that stem from the projects themselves.			
	2b. De-prioritise the use of travel time savings as a metric for transport project benefit to acknowledge its effects on carbon intensity, as well as its weakening correlation with access, economic productivity, and social progress.			
3. Support the adaptation of road standards and transport planning guidelines to include resilient designs, as well as prioritise the needs of the most popular and lowest carbon transport modes – walking and cycling.	3a. Compile African design standards for public transport systems and roads, including the infrastructure for non-motorised transport, which adheres to African resilience and universal accessibility principles.			
	3b. Include the voices of vulnerable walking and cycling groups within local, national and regional planning processes.			

Priority intervention area	Suggested actions	Respon-sibility	Time-frame	Cost
12. Building low-carbon, resilient urban areas				
1. **Promote nature-based solutions and urban green infrastructure.**	1a. Promote opportunities to realise the multiple co-benefits of incorporating ecosystem-based approaches, including hybridised blue-green-grey infrastructure, to help regulate water flow, reduce the heat island effect, treat wastewater, reduce stormwater runoff, and improve water supplies.			
	1b. Adopt an integrated landscape approach as a basic framework to balance competing demands, manage multiple land uses, and understand connections in a specific area. Working with natural processes involves actions across spatial and temporal scales to manage risk in urban areas.			
	1c. Invest in long-term maintenance and security and surveillance measures in both individual nodes (e.g., parks) and connections (e.g., pedestrian walkways) to support nature-based solutions in urban centres.			
	1d. Scale monetary and non-monetary valuation of nature- based solutions, enhance appreciation of natural capital and complement this with cultural ecosystem assessments that consider production capacities, cultural practices, and access to markets.			
	1e. Employ new metrics such as Biodiversity Net Gain, where infrastructure development leaves biodiversity in a measurably better state than beforehand.			
	1f. Implement and enforce robust environmental impact assessments and strategic environmental impact assessments prior when expanding urban centres.			
	1g. Promote soil biodiversity and soil organic carbon management as vital elements to ensure the land's ability to produce food, store water, control soil erosion and dust, maintain soil stability during extreme rainfall events, reduce carbon losses, among other benefits to people and ecosystems living in harsh and increasing warm dryland environments.			
	1h. Plant indigenous trees for shade, reduction of heat stress, and buffering against storm surges (e.g., mangroves and sea grass), thereby preventing the loss of property and human lives.			
2. Invest in the **circular economy, smart mobility, decarbonization and net zero** carbon buildings.	2a. Focus on resource efficient, compact, and mixed-use urbanization as well as net-zero carbon building designs.			
	2b. Prioritise smart mobility, transit-oriented bicycle, and walking infrastructure in new or refurbished designs.			
	2c. Integrate water resource use efficiency in the design of infrastructure as well as building a circular economy for waste.			
	2d. Decarbonise and detoxify energy systems by considering renewable energy in new or existing infrastructure designs.			
	2e. Scale up district heating. In dense urban areas, district heating radically increases thermal efficiencies and decreases heat loss through heat recycling, combined heat and power systems, and economies of scale.			

Priority intervention area	Suggested actions	Respon-sibility	Time-frame	Cost
3. Build technical **capacity** in African cities to adapt to the impacts of climate change.	3a. Support cities access to climate finance by developing concept notes, investment cases and pre-feasibility studies for pilot projects to developers/funders.			
	3b. Train local government officials in climate finance processes, language and opportunities.			
	3c. Strengthen national education and outreach campaigns related to climate-resilient urban development.			
	3d. Promote knowledge exchanges around best practices. These are particularly valuable in data poor regions where information sharing is challenging, ecological and social observations are scarce, institutional mandates for monitoring are ill-defined, and data access is often cost prohibitive.			
4. Prioritise risk reduction and build adaptive capacity of residents living in informal, slum or peri urban settlements.	4a. Accelerate and simplify land tenure reforms to stimulate phased restoration of urban natural ecosystems to buffer against hydroclimatic risks and heat stress.			
	4b. Upgrade informal settlements and slum areas in cities to build urban climate resilience and therefore should be considered in policy making.			
	4c. Develop extended and inclusive planning processes that rely on assessments to help prioritise specific needs of a city and its communities. Co-producing relevant interventions is crucial to ensure social ownership of strategies.			
	4d. Change the perceptions around how decision-makers see areas of informality to foster better engagement between informal sector representatives and municipalities. These are ideal entry points to service these settlements with the potential to take implementation from the unplanned to the planned.			
13. Enhancing resilient water systems				
1. Increase water investment.	1a. Increase political commitment for gender equal and climate-resilient water investment.			
	1b. Mobilise financial and other resources for water investment.			
	1c. Strengthen capacities (institutional and individual) for developing, implementing, operating and managing water investment programmes/projects.			
2. Establish systems for developing and transferring technologies to support climate resilience building.	2a. Develop innovation to produce water-efficient and climate-sensitive technologies, including water harvesting.			
	2b. Develop innovation and practices to deal with cost-effective wastewater treatment.			
3. Integrate water resource management.	3a. Take actions to ensure that the natural resource base (water, land other natural resources) is maintained to support development in a changing climate.			
	3b. Protect water-related ecological systems and build their climate resilience. Also deal with demand management challenges.			
	3c. Establish systems for managing water resources, considering hydrological boundaries as units of management/ development.			

Priority intervention area	Suggested actions	Respon-sibility	Time-frame	Cost
4. Strengthen transboundary water management and cooperation.	4a. Develop cooperative mechanisms for managing shared water resources.			
	4b. Take actions for joint investment projects in shared water resources for benefit sharing.			
	4c. Develop and implement a basin-wide development and management plans/programmes considering climate change.			
5. Integrate water security issues into development plans/ programmes.	5a. Integrate water security into national and sectoral development plans/programmes.			
	5b. Integrate water security into climate response strategies such as NDCs and NAPs.			
6. Strengthen the characterisation of climate risk in water systems.	6a. Include a focus on past and recent variability and extremes and their impacts.			
	6b. Improve linkages between technical departments on weather/ climate and water, build capacity in climate-risk assessment.			
	6c. Agree on principles for risk-assessment approaches, share experiences on how future risks are assessed, and develop practical approaches suitable for operational implementation.			
	6d. Consider the range of impacts – including who is affected and why/ how risk assessments need to consider local perspectives about who is vulnerable, and which risk mitigation steps are appropriate.			
7. Strengthen the mandate to undertake climate risk assessment of major investment decisions aiming for system resilience.	7a. Lobby donors to adopt risk assessment into planning and financing decisions.			
	7b. Work through international adaptation mechanisms to support national government and relevant line ministries to design policy for climate risk assessment, consider policy to make it a requirement in some situations.			
	7c. Work with technical departments to facilitate design and adoption of these approaches.			
	7d. Raise awareness of decision-making under uncertainty approaches to planning and management. Where major decisions/investments are involved incorporate 'stress testing' of water resource systems under a range of climate (and other) conditions.			
8. Improve coordination between multiple sectors, particularly water-energy-food, but also environment and land.	8a. Address governance and institutional barriers to coordinated planning and management.			
	8b. Promote tools and decision-making approaches that incorporate multi-sector objectives and performance indicators.			
	8c. Build the evidence base to demonstrate the value of greater coordination in planning.			
14. Building a climate-resilient African blue economy				
1. Promote **climate-resilient coastal development.**	1a. Invest in ecosystems and natural assets as multi-benefit providers, thereby enhancing natural capital that supports livelihoods and climate resilience.			
	1b Strengthen grey and green (ecosystem-based/nature- based) adaptation in coastal zones.			
	1c. Enhance financing for adaptation in marine and coastal zones (blue carbon, 'blue finance', private sector partnerships, debt-for-nature swaps and other mechanisms).			
	1d. Integrate climate risk in coastal development planning.			
	1e. Strengthen disaster risk reduction and preparedness plans and strategies.			

Priority intervention area	Suggested actions	Respon-sibility	Time-frame	Cost
2. Support sectoral and integrative blue economy interventions.	2a. Strengthen co-governance and regional fisheries governance mechanisms for enhanced climate resilience.			
	2b Integrate climate in marine spatial planning, integrated coastal zone management and other planning frameworks.			
	2c. Support sector-specific interventions for key blue economy sectors, including tourism, shipping, fisheries and aquaculture.			
3. Strengthen research and policy.	3a. Strengthen the role of oceans and coasts in NDCs and other climate-related policies and strategies.			
	3b Support research to predict, monitor and respond to ocean-related climate impacts.			
	3c. Ensure ocean-related climate policy interventions consider equity and the unique position of vulnerable groups.			
15. Digital transformation				
1. Governments should coordinate their national digital climate data infrastructure.	1a. Ensure governments take the lead in coordinating their national climate data infrastructure and connect them across the continent for policy and decision-making.			
	1b Involve private sector investors in the development of necessary facilities/systems to support climate data for sustainability.			
2. Engage private sector digital innovators and service providers as business partners.	2a. Involve young digital entrepreneurs across the continent to support local data ownership models and safeguard the continent's climate data.			
	2b. Explore viable business models for scaling digital climate advisory services through big data and analytics.			
3. Strengthen community engagement and digital inclusion.	3a. Develop and implement digital transformation frameworks that glean common values from the African concepts like ubuntu (communal love), guiding interactions, research and capacity development in Africa.			
	3b. Involve dynamic and integrative approaches, focus on local agency, seek reciprocity and the pragmatic inclusion of different ways of knowing, conceptualization, and meaning- making.			
4. Promote workforce enhancement.	4a Recognise and expand African capacity for climate-conscious digital transformation.			
5. Develop and promote thought leadership.	5a. Develop communities of practice to contribute to conversations in international digital transformation.			
6. Strengthen system conciliation.	6a. Acknowledge that digital transformation is a social action that requires empathy and the incorporation of all views.			
	6b Recognise that system experiences and standards in affluent settings are not necessarily useful to guide systems elsewhere.			
	6c. Appreciate that solutions proposed by exogenous industries present technical, political, and climate challenges for African communities and governments.			
Strategic Intervention Axis 3: Enhancing the means of implementation Towards Climate-Resilient Development				
16. Enhanced finance flows and resource mobilization				
1. Establish mechanisms to mobilise climate finance at scale in Africa.	1a. Manage the decline in public climate finance and address the unfulfilled international finance-related obligations and commitments.			
	1b. Assess current climate financial flows to Africa and develop a roadmap for achieving Africa's adaptation financial needs (as set out in NDCs).			

Priority intervention area	Suggested actions	Respon-sibility	Time-frame	Cost
1. Establish mechanisms to mobilise climate finance at scale in Africa.	1c. Establish and maintain an MRV system for financial support for Africa. Also promote enhanced transparency framework for climate finance in Africa.			
	1d. Implement policy, institutional and legal reforms for enhanced resource mobilization and scaled-up, transformative climate finance.			
	1e. Integrate climate action in fiscal policy and public financial management systems.			
	1f. Strengthen climate and disaster risk financing mechanisms in Africa.			
2. Balance mitigation and adaptation finance	2a. Prioritize predictable and sustainable finance for adaptation at scale			
	2b. Ensure that adaptation finance is delivered on grant basis.			
	2c. Address the decline in grant finance and the climate-related increasing debt burden of many African countries.			
	2c. Mobilise finance for the just and equitable transition in Africa.			
3. Strengthen Africa's readiness and capacity to access international climate finance.	3a. Provide support for accreditation of African entities.			
	3b. Build a cadre of African climate finance experts and establish a climate finance portal for Africa.			
	3c. Strengthen Ministries of Finance/Planning leadership role in resource mobilization for climate action.			
4. Promote investment from non-state actors, including the private sector, in climate action.	4a. Build capacity for local, small and medium private sector engagement and win-win contracting.			
	4b. Identify barriers to private sector investment and promote use of policy and financial de-risking instruments.			
	4c. Develop capacity for formulation of investment ready project pipelines and enhance matchmaking platforms.			
5. Mobilise **new financial instruments and accountability structures** to support climate adaptation and mitigation.	5a. Mobilise financing from the private sector to reduce risk and enhance the quality and life of existing urban infrastructure.			
	5b. Promote the uptake of nature positive infrastructure to reduce business risks, fewer stranded assets and new market opportunities.			
	5c. Given the historical legacies across African cities (e.g., from colonialism and apartheid), investments should be targeted to address legacies of unequal development.			
	5d. Local governments should re-examine the impact of cost recovery policies on low-income communities (e.g., for water, storm water drainage, waste services) - considering the need to achieve distributional and procedural equity in service delivery.			
	5e. Increase public sector funding for adaptation in cities to mitigate and adapt climate change impacts and address infrastructure development needs.			
	5f. Align local plans and policies with NDCs and NAPs to ensure climate finance flows to a local level and national targets and actions are achieved.			
6. Strengthen climate finance effectiveness.	6a. Encourage cross-sectoral approaches to adaptation planning that emphasize reducing risk across interconnected sectors affected by climate change, such as the water- energy-food nexus and the biodiversity-health nexus.			
	6b. Strengthen gender equality and the empowerment of women and girls in climate finance projects.			

Priority intervention area	Suggested actions	Respon-sibility	Time-frame	Cost
17. Safety mechanisms to reduce loss and damage				
1. Promote a comprehensive and integrated risk management approach for loss and damage.	1a. Extend cash plus programmes to support adaptation through the promotion of income-generating activities, livelihood diversification and financial inclusion, promoting opportunities and strategies to deal with future risks.			
2. Strengthen social protection programmes across all regions.	2a. Establish robust public works programmes with regular scheduling and maintenance and not as a temporary safety-net.			
	2b. Ensure community assets address key challenges to livelihoods, that they are relevant to local needs and support environmental rehabilitation and conservation in order to achieve longer-term impacts.			
3. Promote asset creation.	3a. Develop asset-creation programmes to improve food security and boost income among the poorest people.			
4. Improve understanding of risk exposure among the insurance sector and clients.	4a. Identify data and model requirements for underwriting needs and work to fill these gaps.			
	4b. Support the Task Force on Climate-related Financial Disclosures (TCFD) and Environmental, Social and Governance (ESG) strategy development among insurers to enable them to better understand and manage impacts of climate change on their business.			
	4c. Improve collaboration between stakeholders to improve data access, sharing and integration across use cases.			
5. Develop innovative risk transfer and management solutions.	5a. Identify clients' key risks through conducting risk assessments.			
	5b. Build capacity and trust among clients by training them on acquisition and use of data to better understand and manage their exposure to climate change.			
	5c. Develop risk transfer products to meet the needs of key stakeholders, including support with prediction/ early warning and preparation activities.			
6. Develop harmonised climate finance policies and regulation.	6a. Develop climate insurance policies that support national and continent-wide climate policies.			
	6b. Identify priority regulatory constraints and address them to enable the provision of more innovative climate products.			
	6c. Stimulate the market for climate risk insurance by building underwriting capacity in local markets, enabling access to global reinsurance and promote alternative risk transfer structures (i.e., insurance pools).			
	6d. Promote innovation in product design and distribution through pilots, regulatory sandboxes, allowing development of index insurance products.			
	6e. Improve collaboration between public and private sector stakeholders and champion climate risk insurance.			
18. Equitable technology transfer and development				
1. Support the development of a sustained national technology innovation system.	1a. Update a technology gap and needs assessment at relevant levels (territorial, national and regional).			
	1b. Support the design of an institutionalized national innovation system (NIS) including climate endogenous technologies. Technologies need to be at a higher level of use and understanding.			
	1c. Develop and support the implementation of resource mobilization (national and international level) to implement the NIS.			

Priority intervention area	Suggested actions	Respon-sibility	Time-frame	Cost
18. Equitable technology transfer				
1. Support the development of a sustained national technology innovation system.	1d. Support the piloting and implementation of TNAs where needed and specifically in countries where the assessments have been successful.			
	1e. Support private actors' (especially young entrepreneurs) access to climate finance to foster the deployment of mature technologies.			
2. Promote regional south-south technology development and transfer/local dissemination	2a. Design and implement a regional platform for climate technology knowledge management.			
	2b. Identify, review and enhance the functioning of existing regional technology development and transfer centres.			
	2c. Support in- and cross-country peer-to-peer learning and technical assistance.			
3. Enhance the participation of African negotiators in technology-related agendas.	3a. Co-develop and implement a permanent and tailored capacity building programme for junior technology development negotiators that addresses negotiations, transfers and related agenda items.			
	3b. Support technology negotiators (before, during and after climate negotiation events).			
19. Inclusive participation, especially of gender and youth				
1. Improve gender and youth participation in policy co-design, co-development processes, co-implementation and M&E.	1a. Increase women's representation in major climate change policy making positions.			
	1b. Facilitate gender-sensitive dimensions in National Adaptation Planning processes and climate change development plans at all levels.			
2. Empower and engage young people in climate adaptation planning and implementation through inclusive and participatory approaches.	2a. Involve young people in planning and implementation of climate change adaptation strategies using interactive methods.			
	2b. Build the capacity of the youth, prioritizing their development in national budgets, to ensure their contribution in climate change adaptation efforts.			
3. Enhance education and sensitization on gender and youth responsive approaches.	3a. Conduct regular advocacy and awareness programmes on youth and gender equality and inclusivity in climate change policies, programmes and procedures.			
	3b. Increase information sharing for enhancing gender- and youth-sensitive climate change impacts.			
4. Increase financial and technical support for youth and gender organisations.	4a. Financial support to be directed towards grassroots organisations.			
	4b. Include young people in the institutional mechanisms of the AU, as well as within regional negotiating bodies to the UNFCC COP.			
20. Capacity development				
1. Develop African-focused training courses on climate change that promote the Strategy's overall objectives.	1a. Plan stakeholder workshops to provide updates on global changes in legislation, policies and tools to ensure negotiators, Member States, RECs, advocacy groups and non-governmental stakeholders are informed and up to date.			
	1b. Develop training intervention for the communication and dissemination of the Strategy specifically.			

Priority intervention area	Suggested actions	Respon-sibility	Time-frame	Cost
2. Develop capacity needs assessments to analyse country and stakeholder capacity-building requirements to develop actionable interventions and strategies.	2a. This capacity assessment should form the basis of discussions and priority intervention areas with technical partners, providers, and funders.			
	2b. Develop a capacity assessment to address the capacity needs of all continental players to adequately perform a role in the Strategy's roll-out and implementation.			
3. Support various stakeholders in effective decision-making processes.	3a. Develop the skills and relationships needed to drive forward new strategies, policies and climate-change actions.			
	3b. Plan stakeholder workshops to provide updates on global changes in legislation, policies and tools.			
	3c. Promote learning exchanges, shadowing or secondments to foster knowledge, and the exchange of skills. Also explore common challenges and questions on NDC implementation.			
Strategic Intervention Axis 4: African Regional Flagship Initiatives				
1. Further strengthen climate dimensions of key regional flagship initiatives (e.g. PIDA, CAADP) and integrate these into the implementation of Africa's Climate Change and Resilient Development Strategy	1a. Enhance climate dimensions of regional flagship programmes to support climate-resilient development.			
	1b. Ensure sufficient resource mobilization and budgetary allocations for climate-related actions within regional flagship initiatives.			
	1c. Strengthen information sharing and reporting and integrate this into the monitoring, evaluation and learning activities related to Africa's Climate Change and Resilient Development Strategy			
2. Strengthen coordination for more effective implementation	2a. Support coordinated and aligned action between AU structures and key regional partners, as well as non-state actors and Member States to strengthen climate action.			
21. Monitoring, Evaluation and Learning				
1. Develop an inclusive Monitoring, Learning and Evaluation Plan for the Strategy.	1a. Develop an inclusive plan that specifies different actors, their roles and responsibilities for various activities and reviews.			
	1b. Develop a comprehensive results and logical framework which defines the indicators and baseline data needed to achieve the desired results.			
	1c. Conduct a mid-term review of the Strategy.			
2. Develop the capacity of the AUC and other partner organizations to carry out M&E services.	2a. Train AUC personnel to effectively carry out M&E reporting practices and collection of relevant data.			
3. Development of a resource mobilization Strategy.	3a. Mobilise resources specifically to support the implementation and sensitization of the Strategy.			
	3b. Develop strategies to explore new financing options, operationalise these financing strategies and expand partnerships for support.			

07

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APPENDICES

AU institutional overview and structures

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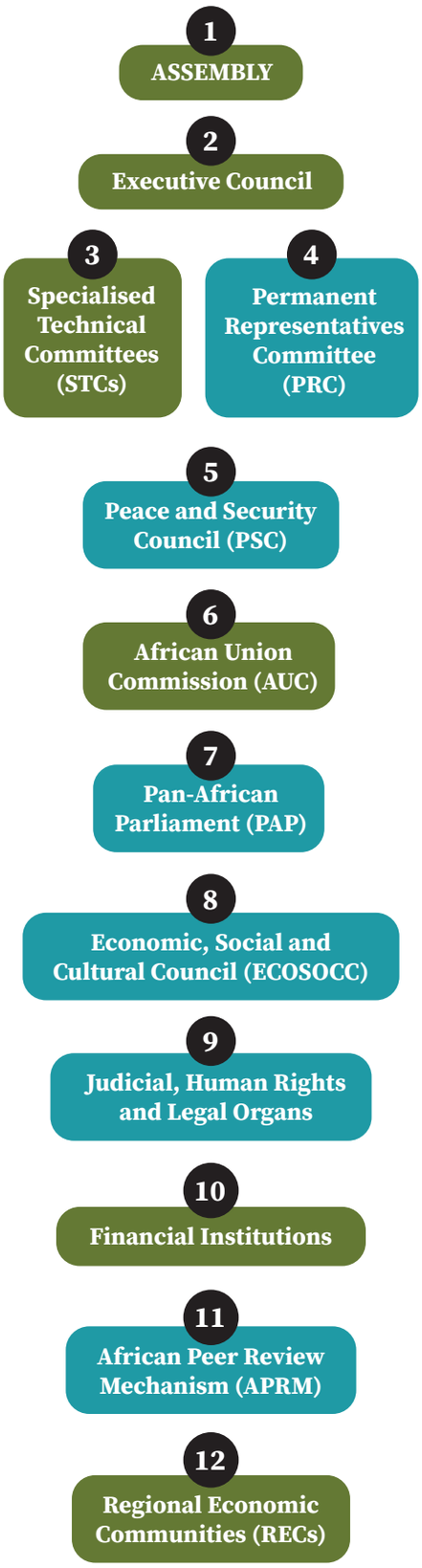
08

APPENDICES

Photo: ©Annie Spratt (Unsplash)

Appendix 1: AU institutional overview and structures

The structure of the African Union highlighting key organs with climate change policy and implementation roles



1. The Assembly of Heads of State and Government is the AU's supreme policy and decision-making organ. It comprises all Member State Heads of State and Government. The Assembly determines the AU's policies, establishes its priorities, adopts its annual programme and monitors the implementation of its policies and decisions. The AU Troika is a political body established at the level of Heads of State it comprises the outgoing, current and incoming AU Chairpersons.

2. The Executive Council coordinates and takes decisions on policies in areas of common interest to Member States. It is answerable to the Assembly. It monitors the implementation of policies formulated by the Assembly. It is composed of ministers designated by the governments of Member States.

3. The purpose of the STCs is to work with AUC departments to ensure the harmonisation of all AU projects and programmes as well as coordination with the RECs. Each STC is composed of Member States' ministers and senior officials responsible for sectors falling within their respective areas of competence. A key STC for addressing climate change is the Agriculture, Rural Development, Water and Environment. Its role is to boost the agenda for food security, reducing poverty, conserving Africa's fauna and flora, and enhancing resilience to climate change, related shocks and disasters, amongst others.

4. PRC comprises Permanent Representatives to the Union and other delegates of Member States. The PRC conducts the day-to-day business of the AU on behalf of the Assembly and Executive Council.

5. PSC is the decision-making organ of the AU for the prevention, management and resolution of conflicts. It is a collective security and early warning arrangement intended to facilitate timely and efficient responses to conflict and crisis situations in Africa.

6. The AUC is entrusted with executive functions, it plays a central role in the day-to-day management of the African Union. The Commission is composed of a chairperson, deputy chairperson and six commissioners, plus staff.

7. PAP was set up to ensure the full participation of African peoples in the economic development and integration of the continent. The PAP is intended as a platform for people from all African states to be involved in discussions and decision making.

8. ECOSOCC was established as an advisory organ composed of different social and professional groups of AU Member States. It is to provide an opportunity for African Civil Society Organisations (CSOs) to play an active role in contributing to the AU's principles, policies and programmes.

9. The AU has several organs mandated to oversee legal matters on behalf of the Union, its Member States and African Citizens.

10. The establishment of African Financial Institutions is a flagship programme of Agenda 2063, the institutions are seen as key in accelerating the continent's regional integration and socio-economic development as they will play a focal role in the mobilisation of resources and management of the financial sector. There are 3 key financial institutions namely, the African Central Bank (ACB), the African Monetary Fund (AMF) and the African Investment Bank (AIB).

11. APRM was established in 2003 by the New Partnership for Africa's Development (NEPAD) Heads of State and Government Implementation Committee (HSGIC) as an instrument for AU Member States to voluntarily self-monitor their governance performance.

12. The RECs are regional groupings of African states and are the pillars of the AU. All were formed prior to the launch of the AU and have developed individually and have differing roles and structures. The purpose of the RECs is to facilitate regional economic integration between members of the individual regions and through the wider African Economic Community (AEC). The AU recognises eight RECs namely:

    - Arab Maghreb Union (UMA)
    - Common Market for Eastern and Southern Africa (COMESA)
    - Community of Sahel–Saharan States (CEN–SAD)
    - East African Community (EAC)
    - Economic Community of Central African States (ECCAS)
    - Economic Community of West African States (ECOWAS)
    - Intergovernmental Authority on Development (IGAD)
    - Southern African Development Community (SADC)

The three-tiered African climate change negotiation structure

Committee of African Heads of State and Government on Climate Change (CAHOSCC)

Established in 2009 by the **AU Assembly**, CAHOSCC is the highest political tier in the African climate change negotiation structure. It is **mandated to spearhead the African Common Position on Climate Change** and its key messages and ensure that Africa speaks with one voice in global climate change negotiations.

The coordination and chairmanship of CAHOSCC rotates every two years.

African Ministerial Conference on the Environment (AMCEN)

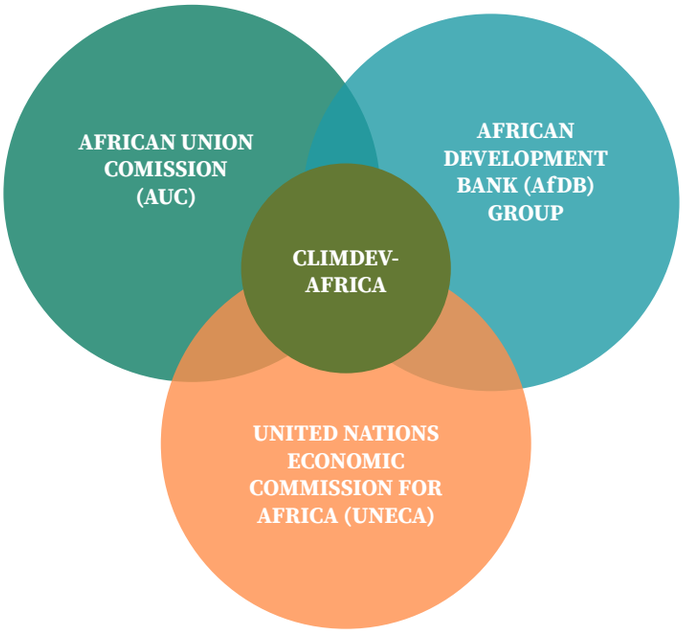
Established in 1985 following a conference of African ministers of environment, AMCEN is mandated to provide advocacy for environmental protection in Africa, to ensure that basic human needs are met adequately and in a sustainable manner, to ensure that social and economic development is realised at all levels, and to ensure that agricultural activities and practices meet the food security needs of the region.

African Group of Negotiators (AGN)

The AGN was established at COP1 in 1995, it is an alliance of African Member States that **represents the interests of the region in international climate change negotiations**, with a common and unified voice. It is the technical body that engages in negotiations during the COP and intersessional negotiations. The AGN prepares and drafts text and common positions, **guided by decisions and key messages from CAHOSCC and AMCEN**, and prepares text for adoption by Ministers during the COPs.

Climate for Development in Africa Programme

ClimDev-Africa is an initiative of the African Union Commission (AUC), the United Nations Economic Commission for Africa (UNECA) and the African Development Bank (AfDB). It is mandated at the highest level by the AU Summit of Heads of State and Government. The Programme was established **to create a solid foundation for Africa's response to climate change**. Beyond the AUC-UNECA-AfDB partnership, the Programme works closely with other African and non-African institutions and partners specialised in climate and development. **Its purpose is to explore actions required in overcoming climate information gaps, for analyses leading to adequate policies and decision-making at all levels**.



African Climate Policy Centre (ACPC)

ACPC is an integral part of ClimDev-Africa, it is a hub for demand-led knowledge generation on climate change in Africa. The ACPC serves RECs, governments and communities across Africa. ACPC works with stakeholders and partners to address the need for improved climate information for Africa and strengthen the use of such information for decision making, by improving analytical capacity, knowledge management and dissemination activities.

African Union Development Agency (AUDA-NEPAD)

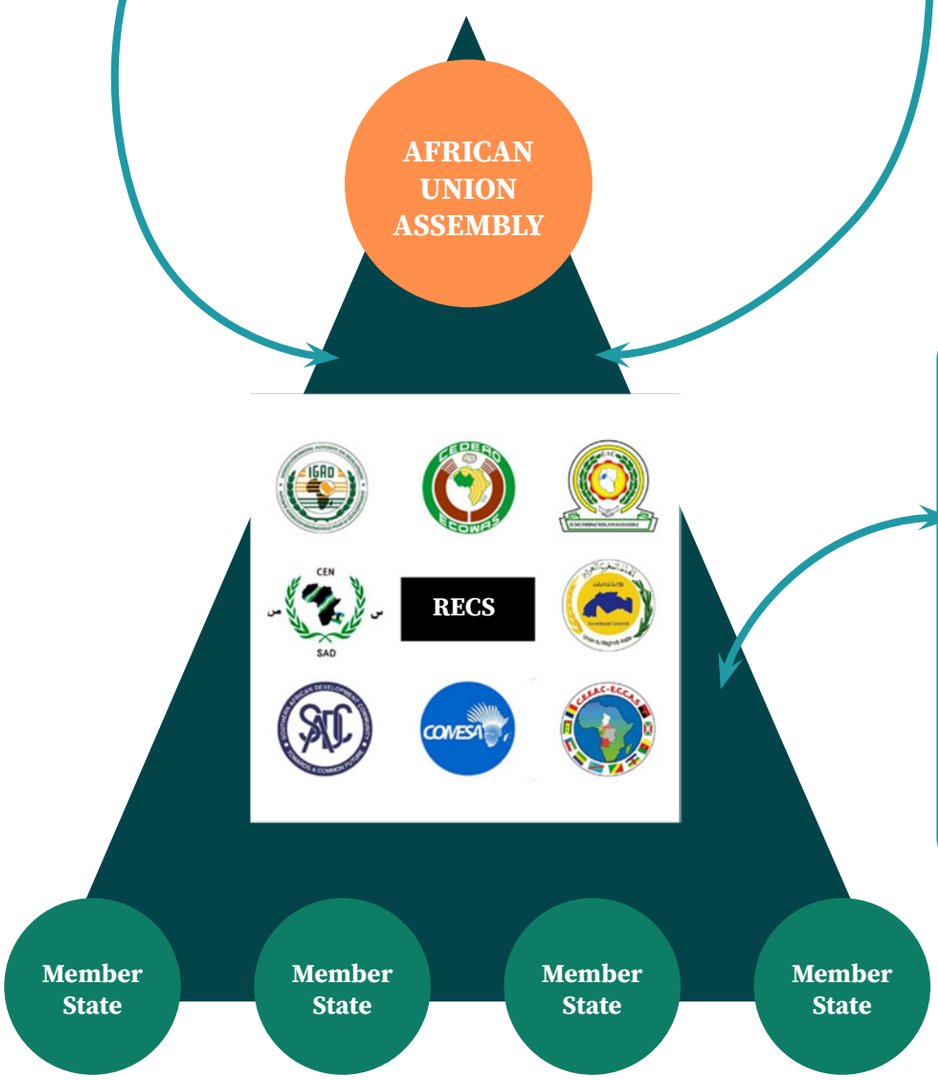
The mandate of AUDA-NEPAD is primarily to coordinate and execute priority regional and continental projects to promote regional integration towards realisation of Agenda 2063 goals. The governance structures include:

- AUDA-NEPAD Heads of State and Government Orientation Committee (HSGOC) (a sub-committee of the AU Assembly) - provides political leadership and strategic guidance on Agenda 2063 priority issues and reports its recommendations to the full Assembly for endorsement.
- AUDA-NEPAD Steering Committee- oversees the activities of AUDA-NEPAD. The Committee is composed of the personal representatives of the Heads of State and Government of the HSGOC. In addition, representatives from the eight AU-recognised RECs, AUC, AfDB, UN Development Programme (UNDP), UN Office of the Special Adviser on Africa (UNOSAA) and the UNECA participate in AUDA-NEPAD Steering Committee meetings as observers.

African Development Bank (AfDB) Group

The AfDB Group is a multilateral development finance institution. Its overall objective is to support African countries' economic development and social progress by promoting investment of public and private capital in projects and programmes designed to reduce poverty and improve living conditions.

The Bank is required to give special attention to national and multinational projects and programmes that promote regional integration. It also plays a leading role in the NEPAD initiative and is one of the key actors supporting negotiations for the establishment of the African Continental Free Trade Area (AfCFTA).



UN Economic Commission for Africa (UNECA)

UNECA is the regional arm of the UN in Africa. UNECA's mandate is to support the economic and social development of its Member States, foster regional integration and promote international cooperation for Africa's development. It works with the AU through substantive divisions, the Regional Coordination Mechanism Africa, and through and the Joint Secretariat Support Office (JSSO) of UNECA, the AUC and the AfDB.

Regional Climate Centres (RCCs)

RCCs offer opportunities for networking and pooling the capacities of National Meteorological and Hydrological Services (NMHSs) in the region to enable each NMHSs to provide the full suite of climate services to meet national needs. RCCs are fundamental components to support the achievement of several important climate initiatives designed to improve the provision and use of appropriate climate information to promote planning for sustainable development in Africa.

African Ministerial Conference on Meteorology (AMCOMET)

AMCOMET was established in 2010 as a high-level policy mechanism and the intergovernmental authority for the development of meteorology and its applications in Africa and is a body endorsed by the AU Summit of Heads of State and Government. **Its mission is to provide policy direction and advocacy in the provision of weather, water and climate information and services that meet societal and sector specific needs, including agriculture, health, water resource management and disaster risk reduction**, amongst others.

African Centre of Meteorological Applications for Development (ACMAD) – Continental level

ACMAD was established in 1987 by the Conference of Ministers of the United Nations Economic Commission for Africa on behalf of the Member States of the UNECA and the World Meteorological Organisation (WMO). ACMAD as an institution i**s mandated to provide weather and climate information for the promotion of sustainable development in Africa**.

IGAD Climate Prediction and Applications Centre (ICPAC)

ICPAC is a specialised institution of Inter-Governmental Authority on Development (IGAD) whose objectives are **to improve the technical capacity of producers and users of climatic information; to develop an improved, proactive, timely, broad-based system of information and product dissemination and feedback and to expand the knowledge base within the sub-region to facilitate informed decision making, through a clearer understanding of climatic and climate-related processes**. IGAD Member States are Djibouti, Ethiopia, Eritrea, Kenya, Somalia, the Sudan, South Sudan and Uganda.

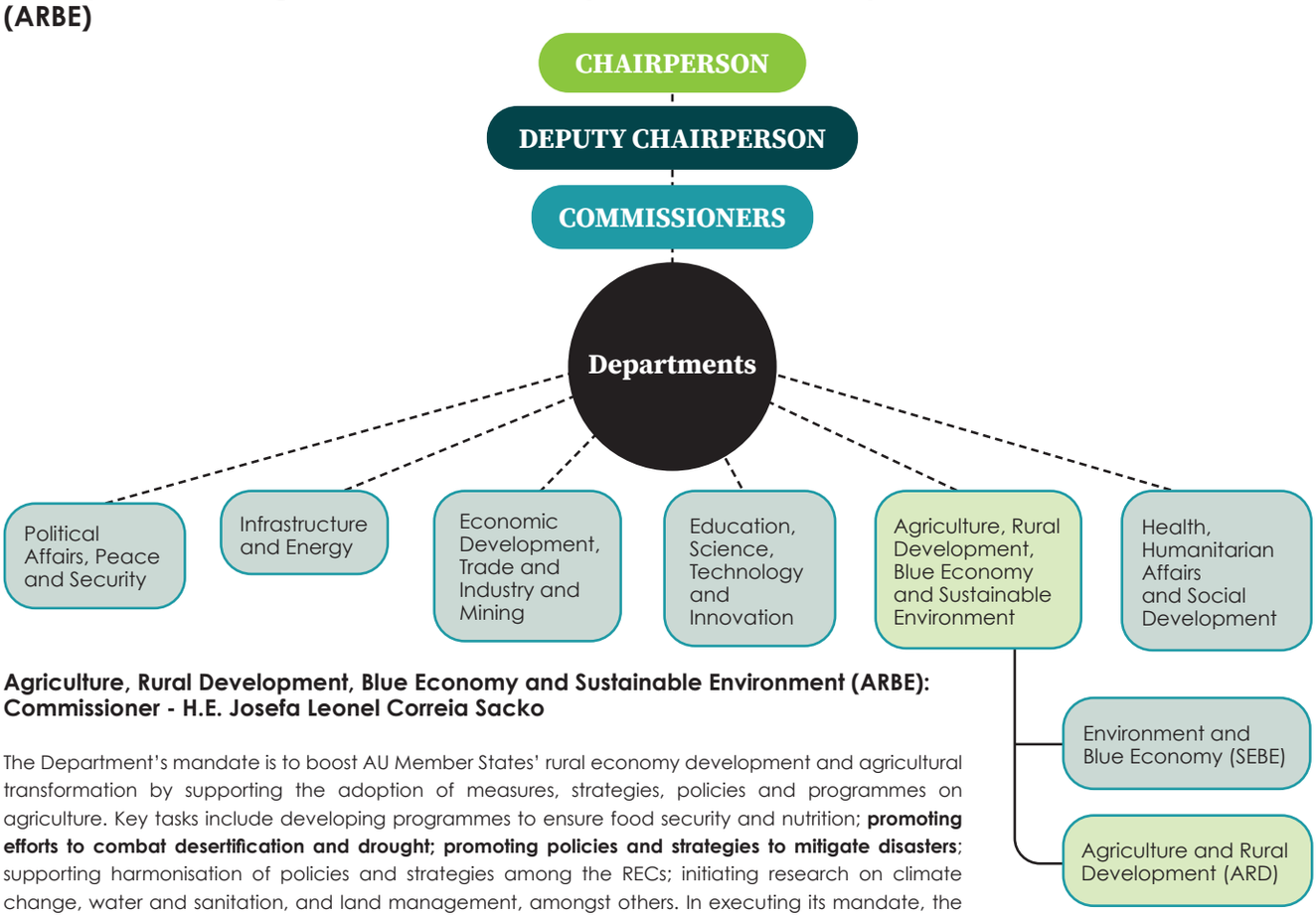
AGRHYMET (AGriculture, HYdrology and METeorology)

AGRHYMET is a specialised institution of Permanent Inter-States Committee for Drought Control in the Sahel (CILSS) whose Members States are Benin, Burkina Faso, Cape Verde, Chad, Côte d'Ivoire, Gambia, Guinea, Guinea Bissau, Mali, Mauritania, Niger, Senegal and Togo. **AGRHYMET is mandated to train and inform on Sahelian food security, desertification and water control and management.**

SADC Climate Services Centre (SADC-CSC)

SADC-CSC provides operational, regional climate services for monitoring and predicting all facets of seasonal climate conditions including extreme variations for the countries in Southern Africa.

AU Department of Agriculture, Rural Development, Blue Economy and Sustainable Environment (ARBE)



Agriculture, Rural Development, Blue Economy and Sustainable Environment (ARBE): Commissioner - H.E. Josefa Leonel Correia Sacko

The Department's mandate is to boost AU Member States' rural economy development and agricultural transformation by supporting the adoption of measures, strategies, policies and programmes on agriculture. Key tasks include developing programmes to ensure food security and nutrition; **promoting efforts to combat desertification and drought; promoting policies and strategies to mitigate disasters**; supporting harmonisation of policies and strategies among the RECs; initiating research on climate change, water and sanitation, and land management, amongst others. In executing its mandate, the Department works closely with the AU Development Agency (AUDA-NEPAD), RECs, non-state actors, and technical and financial partners.

ARBE has two Directorates, namely the Directorate of Agriculture and Rural Development (ARD) and the Directorate of Sustainable Environment and Blue Economy (SEBE) Climate Change falls under the SEBE Directorate.

The Department's flagship programmes include the Comprehensive Africa Agriculture Development Programme (CAADP), Great Green Wall for the Sahara and Sahel Initiative (GGWSSI), Multilateral Environment Agreements (MEAs), Land Policy Initiative (LPI), Global Framework for Climate Services (GFCS), Disaster Risk Reduction (DRR), Global Climate Change Alliance Plus (GCCA+), the AU Green Recovery Action Plan, and Africa's Blue Economy Strategy, amongst others.

Appendix 2: Continental and regional level policies, frameworks and action plans responsive to climate change (non-exhaustive)

Policies/Frameworks/Action Plans	Timeframe	Description
AU continental vision policies		
Agenda 2063: Africa We Want	**2013-2063**	Agenda 2063 is the continent's 50-year strategic framework that aims to deliver on its goal for inclusive and sustainable development and is a concrete manifestation of the Pan-African drive for unity, self-determination, freedom, progress and collective prosperity pursued under Pan-Africanism and African Renaissance.
Africa Water Vision (AWV) 2025	**2000-2025**	The AWV is a vision intended to move Africa from where it is today to where it needs to be to ensure that water available in the future is sustainable and adequate in quantity and quality to meet competing demands in the long term.
AU sector policies, strategies and frameworks		
Malabo Declaration on Accelerated Agricultural Growth and Transfor-mation for Shared Pros-perity and Improved Live-lihoods	**2015-2025**	The Malabo Declaration provides the direction for Africa's agricultural transformation within the framework of the Comprehensive Africa Agriculture Development Programme (CAADP), as a vehicle to contribute to the achievement of the objectives of the First Ten-year Implementation Plan of Africa's Agenda 2063.
Comprehensive African Agricultural Development Programme (CAADP)	**2003**	CAADP is Africa's policy framework for agricultural transformation, wealth creation, food security and nutrition, economic growth and prosperity for all.

Climate for Development in Africa Programme (ClimDev Africa)	**2008**	The Programme was established to create a solid foundation for Africa's response to climate change. Its purpose is to explore actions required in overcoming climate information gaps, for analyses leading to adequate policies and decision-making at all levels.
African Climate Resilient Agricultural Development Programme	**2015**	The Programme is to enhance adaptation to climate change and build the resilience of farmers to climate related and economic shocks including scaling up climate smart agriculture to enhance food security and agricultural livelihoods.
African Union Sustainable Forest Management Framework	**2020-2030**	The Framework serves to guide MS and other African stakeholders in the forestry sector in their efforts to eliminate deforestation and forest degradation by 2063. It provides a scope and priority areas for investments and partnerships in the forest sector.
Africa Blue Economy Strategy (ABES)	**2021-2025**	ABES guides the development of an inclusive and sustainable blue economy to become a significant contributor to continental transformation and growth.
Integrated African Strategy on Meteorology (weather and climate services)	**2021-2030**	The Strategy positions weather and climate services as essential com-ponents in national and regional development frameworks. Its objective is to enhance cooperation between MS and to strengthen the capabilities of their National Meteorological Services.
Strategic Framework for Drought Risk Management and Enhancing resilience in Africa (DRAPA)	**2018**	The outcome of the strategic framework will be to sharpen the focus on drought and its impacts and to enhance resilience across all segments of society.
Programme of Action (PoA) for the Implementation of the Sendai Framework on Disaster Risk Reduction in Africa	**2015-2030**	The PoA is the strategic plan for the implementation of the Sendai Framework in Africa. It is intended to provide guidance and direction for actions by all at the continental, regional, national and sub-national/local levels in Africa to prevent and reduce the risk of disasters for resilience in line with the Sendai Framework.
Programme for Infrastructural Development in Africa (PIDA)	**2012–2040**	PIDA provides a common framework for African stakeholders to build the infrastructure necessary for more integrated transport, energy, ICT and transboundary water networks to boost trade, spark growth and create jobs.
Action Plan for the Accelerated Industrial Development of Africa (AIDA)	**2008**	AIDA provides a continental framework for addressing the root causes of Africa's low industrial development. It aims to mobilise both financial and non-financial resources and increase Africa's competitiveness with the rest of the world.
Science, Technology, Innovation Strategy for Africa	**2014-2024**	The Strategy is to accelerate the transition of African countries to innovation-led and knowledge-based economies. This will be achieved by improving science, technology and innovation readiness in Africa and implementing specific policies and programmes which address societal needs in a holistic and sustainable way.
AU initiatives and action plans		
Great Green Wall Initiative	**2007**	This is an African-led movement with the ambition to grow an 8,000 km natural wonder of the world across the width of Africa. It aims to restore Africa's degraded landscapes and transform millions of lives.
African Forest Landscape Restoration Initiative (AFR100)	**2015**	AFR100 is a country-led effort to bring 100 million hectares of land in Africa into restoration by 2030. It aims to accelerate restoration to enhance food security, increase climate change resilience and mitigation, and combat rural poverty.
Initiative for the Adaptation of African Agriculture to Climate Change	**2016**	The Initiative aims to contribute to food security in Africa, to improve the living conditions of vulnerable farmers and to increase employment in rural areas by promoting adaptation practices to climate change, building the capacity of actors and channelling financial flows to vulnerable farmers.
Africa Adaptation Initiative (AAI)	**2015**	The AAI aims to enhance action on adaptation, addressing the adaptation financing gap, and implementing measures to address disaster risk reduction and resilience needs in Africa. The AAI takes a strategic view of adaptation across Africa, identifying the gaps and connecting regional partners to find solutions.
Africa Renewable Energy Initiative (AREI)	**2015-2030**	AREI is a transformative, Africa-owned and Africa-led inclusive effort to accelerate and scale up the harnessing of the continent's renewable energy potential. The initiative is set to generate at least 300 GW by 2030.
AU Green Recovery Action Plan (AU GRAP)	**2021-2027**	The Plan will strengthen collaboration on the shared priorities in support of the AU's objectives for the Continent's sustainable and green recovery from COVID-19 by focusing on critical areas of joint priority, including climate finance, renewable energy, resilient agriculture, resilient cities, land use and biodiversity.
Pan-African Action Agenda on Ecosystem Restoration for Increased Resilience	**2018**	The Agenda proposes policy measures, strategic actions, cooperation mechanisms and on-the-ground actions to advance land and ecosystem restoration in Africa.
Just Rural Transition (JRT) Initiative	**2019**	The JRT supports and amplifies innovative and ambitious policies, investments, and multi-stakeholder solutions that deliver positive outcomes for people, planet, and economies. It aims to transform food and land use systems by building an action-oriented evidence base, mobilising stakeholders and catalysing partnerships, and strengthening collective purpose.
NDC Partnership	**2016**	The NDC Partnership works directly with national governments, international institutions, civil society, researchers, and the private sector to fast-track climate and development action.

Regional climate change policies, strategies and frameworks		
SADC Climate Change Strategy and Action Plan (CCSAP)	**2020-2030**	Regional climate change strategy and action plan for the SADC region. The Strategy is intended to build resilience, and climate proof all SADC protocols, policies and strategies.
SADC Regional Indicative Strategic Development Plan (RISDP)	**2020-2030**	The RISDP provides strategic direction for achieving SADC's long-term social and economic goals. Climate change is included as one of the overarching principals of the RISDP.
ECOWAS Strategic Programme on Reducing Vulnerability and Adapting to Climate Change	**2020-2030**	A Strategy to reduce vulnerability to climate change and to build the resilience of affected communities.
COMESA Strategy on Climate Change	**2020-2030**	The Strategy defines the main parameters for an effective climate change response in the COMESA region that builds resilient adaptive capacities and unlocks the benefits of the mitigation potential of the region.
EAC Climate Change Policy	**2011**	The aim of the Policy is to address the adverse impacts of climate change in the region in response to the growing concern about the increasing threats of the negative impacts of climate change to national and regional development targets and goals.
ECCAS Action Plan For Implementation of the Central Africa Gender Responsive Regional Strategy for Risk Prevention, Disaster Management and Climate Change Adaptation	**2020-2030**	The Plan is aligned with the priorities of the Sendai Framework namely, understanding disaster risk, strengthening disaster risk gov-rnance to manage disaster risk, investing in DRR for resilience, enhancing disaster preparedness for effective response and to "Build Back Better" in recovery, rehabilitation and reconstruction.
Central Africa Regional Integration Strategy Paper (RISP-CA)	**2019-2025**	The RISP-CA seeks to stimulate economic diversification and structural transformation by increasing intra-regional trade in Central Africa. This is to be achieved by reinforcing regional infrastructure and supporting reforms that develop intra-regional trade and build regional economic communities' institutional capacity.

Appendix 3: AU Strategy stakeholder engagement events

Stakeholder engagement event	Virtual or in-person	Region	Date and place	Description
AU/UNECA Draft Africa Climate Change Strategy Consultation Webinar	Virtual	All regions	2-3 December 2020	Consultation on the Draft AU Africa Climate Change Strategy
AU/UNECA Climate Change Strategy Consultation for Southern and Eastern African regions	In-person	Southern and Eastern African regions	28-30h July 2021, Nairobi, Kenya	Consultation on the AU Africa Climate Change Strategy
	Virtual	All regions		
AU/UNECA Second Consultative Workshop for the Northern, Central and Western African regions	In-person	Northern, Central and Western African regions	25-27 August 2021, Dakar, Senegal	Consultation on the AU Africa Climate Change Strategy
	Virtual			
AU/ UNECA Climate Change Strategy Validation meeting	In-person and virtual	All regions	2-3 December 2021, Gaborone, Botswana	Consultation and validation of the AU Africa Climate Change Strategy
Stakeholder engagement event: Specialised Technical Committee on Agriculture, Rural Development, Water and Environment.	Virtual	All regions	13-17 December 2021	Consideration of documents and reports for agriculture, rural development, water and environment.

Appendix 4: **Contributors**

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