

# THE IGAD CLIMATE ADAPTATION STRATEGY (2023-2030)

Intergovernmental Authority on Development  
*Centre of Excellence for Climate Adaptation and Environmental Protection*  
(IGAD CAEP)

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PEACE, PROSPERITY AND REGIONAL INTEGRATION



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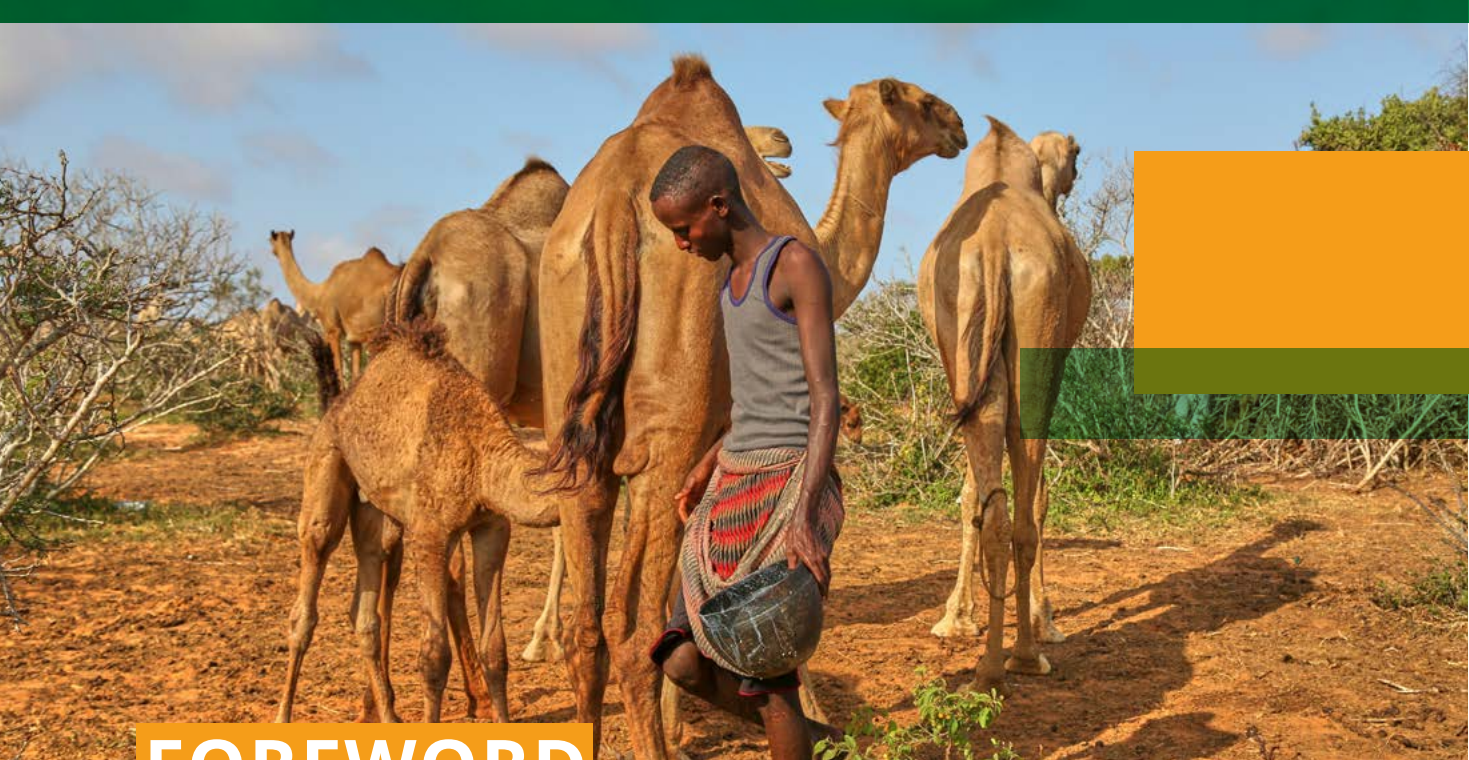
## **MEMBER STATES**

Djibouti, Eritrea, Ethiopia, Kenya, Somalia, South Sudan, Sudan and Uganda.



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# FOREWORD



The Intergovernmental Authority on Development (IGAD) region is responsible for less than 1% of historical global greenhouse gas emissions, and yet remains disproportionately impacted by climate change. Many of the economies in the region are largely dependent on rain-fed agriculture and are considered water scarce. Climate change-related shocks continue to undermine the region's national development agenda and efforts towards achieving its sustainable development goals. Climate change is projected to exacerbate current and future vulnerabilities, stretching the meagre resources of IGAD countries meant for development.

We note with concern the lack of ambitious global climate action and the dire warning

of the recent IPCC Sixth Assessment Report that the world is not on track to keeping within reach the 1.5°C limit in line with Paris Agreement and that global emissions must be cut by 43% in this decade.

As members of the global community, we are doing our part to address runaway greenhouse gas emissions. This is evidenced in our NDCs submissions to UNFCCC, in line with what is requested under the Paris Agreement. However, due to our current and future vulnerabilities, climate adaptation is not an option but a necessity for our region. As reiterated in the African Leaders Nairobi Declaration on Climate Change and Call to Action, we need to prioritize and mainstream climate adaptation into our development plans.

We recognize that the IGAD region has enormous agriculture potential to not only feed itself but also export the surplus to the rest of the continent and the world. We can achieve this by embracing locally led adaptation and leveraging climate-smart agriculture technologies and practices. We need to work



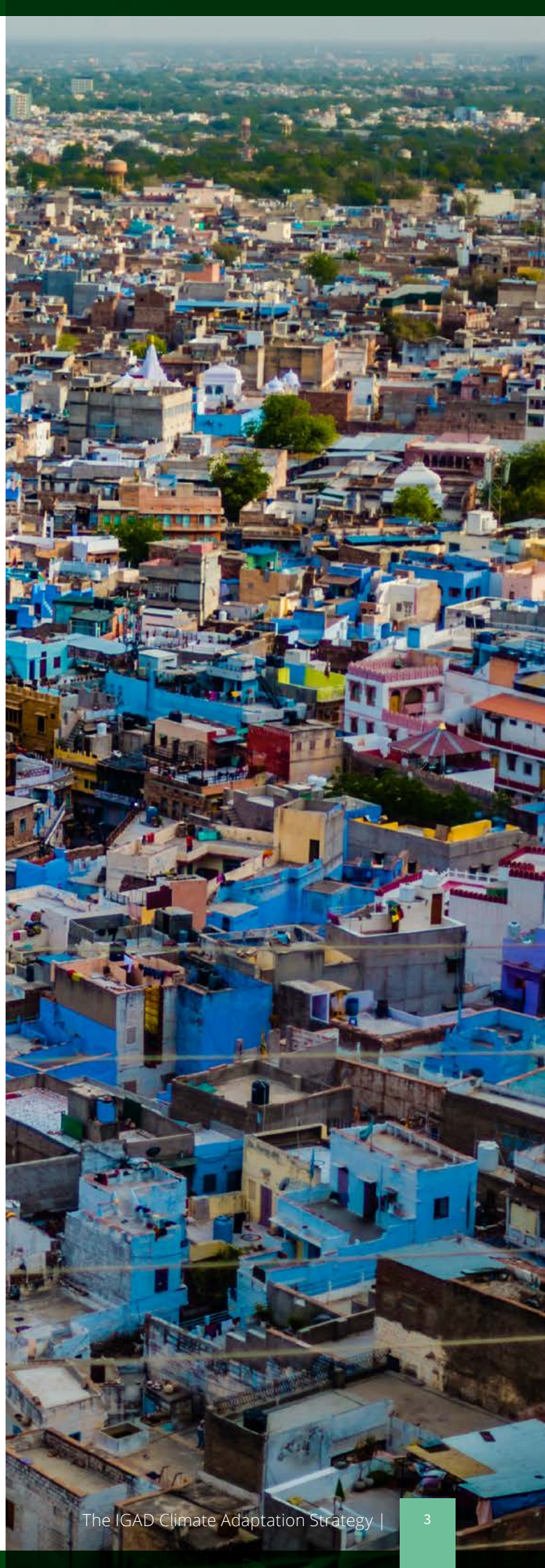
together to address transboundary climate change risks, which are compounded by the climate crisis. This effort will not be successful without making our youths the front and the centre of the solutions; as we know, the IGAD region has a predominantly youth population, with 60% of those under 25 years old.

There is a need to strengthen further our collaborative effort between ourselves and the international community to ensure the IGAD region has the necessary financial, technical and capacity support to adapt to climate change. In line with this, we reiterate the position of the African Ministerial Conference on Environment (AMCEN) that called for the operationalization of the Global Goal on Adaptation and developed countries to double climate adaptation finance by 2025.

The IGAD Climate Adaptation Strategy (2023-2030) is a comprehensive blueprint that provides a framework for coordinated actions to address climate risks and enhance the resilience and adaptive capacities of IGAD Member States. The Strategy provides a whole-of-society approach to resilience that sets near--medium- and long-term targets that are achievable.

As the first regional climate adaptation-only Strategy, there is renewed commitment to not only relay that adaptation is a key priority for us but also present an opportunity to chart a climate-resilient future for our region.

**Dr Workneh Gebeyehu**  
**IGAD Executive Secretary**







# PREFACE



Climate change presents an unprecedented challenge to the development agenda of the IGAD region. From nearly six failed rainfall seasons to the risks of El Nino, we stand at the crossroads of climate impacts and conflict-induced turmoil. Climate change and climate variability continue to undermine our collective efforts towards promoting regional integration and cross-border collaboration as identified in the objectives of the IGAD Regional Strategy (2021-2025), as well as the broader development aspirations of the African Union's Agenda 2063.

Despite the challenges and narrative of adversity, there are growing seeds of opportunity. The region is endowed with substantial natural resources, human capital and vibrant economies that can be harnessed to catapult us into the future we desire. This requires we pull together as a

region and join hands with the international community to be part of the solution. In line with this, all Member States have developed the necessary climate change-related policies at the national and sub-national levels to varying degrees, indicating our commitment to the Paris Agreement and the need to cushion our communities and ecosystems from the vagaries of the climate crisis.

We cannot afford to accept business-as-usual, nor fail to adapt due to our level of vulnerability. The agriculture and water sectors that are the backbones of our region are also the sectors most impacted and at risk from future climate change. This has exacerbated the cycle of conflicts and displacements, risking the cohesion and stability of our region.

In line with Member States' climate adaptation agendas, the Global Goal on Adaptation and the Paris Agreement, the IGAD *Centre of Excellence* for Climate Adaptation and Environmental Protection (IGAD CAEP) has spearheaded the development of an IGAD Climate Adaptation Strategy (2023-2030). The Strategy is guided by the principles of people-centredness,

Africa-led and Africa-owned, sustainability, gender-responsive and an equitable just transition. The Strategy is the culmination of extensive engagement with Member States' climate change adaptation stakeholders and lays out a shared vision for the IGAD region to effectively adapt to climate change and mitigate risk. It outlines the affected sectors describing current contexts, challenges and opportunities. It succinctly discusses key adaptation-relevant themes and emerging issues, including loss and damage, climate security and leveraging artificial intelligence, while also outlining priority areas in the short-medium and long-term in relation to climate adaptation in the IGAD region.

Despite the existing economic challenges, the Member States are committed to the implementation of the IGAD Climate Adaptation Strategy (2023-2030). However, we need a significant scale-up of adaptation finance, and both capacity and technical support from the international community, which has unfortunately been underwhelming and insufficient, particularly on support for adaptation. This Strategy presents a unique opportunity to collaborate on enhancing not only finances but also technical support so that climate change does not reverse the development gains made by our Member States. For the first time, we have a regional adaptation-only living document to guide local, national and regional climate change adaptation and resilience agenda chart together a prosperous, peaceful and sustainable future.

**Ambassador Gamal Hassan**  
**Director of IGAD Centre of Excellence**  
**for Climate Adaptation and**  
**Environmental Protection (IGAD CAEP)**





# ACRONYMS AND ABBREVIATIONS

<b>ACLED</b>	Armed Conflict Location and Event Data	<b>JJAS</b>	June - July - August - September
<b>ACMI</b>	Africa Climate Mobility Initiative	<b>LDCs</b>	Least Developed Countries
<b>ASALs</b>	Arid and Semi-Arid Lands	<b>MAM</b>	March – April - May
<b>CAF</b>	Central Africa	<b>MDG</b>	Madagascar
<b>CMIP6</b>	Coupled Model Inter-comparison project	<b>MENA</b>	Middle East and North Africa
<b>EbA</b>	Ecosystem Based Adaptation	<b>NAPAs</b>	National Adaptation Plan Actions
<b>ENSO</b>	El Nino Southern Oscillation	<b>NAPs</b>	Arid and Semi-Arid Lands
<b>ESAF</b>	Eastern South Africa	<b>NbS</b>	Nature based solutions
<b>GBV</b>	Gender-Based Violence	<b>NCA</b>	Natural Capital Accounting
<b>GCMs</b>	Global Climate Models	<b>NDCs</b>	Nationally Determined Contributions
<b>GDP</b>	Gross Domestic Product	<b>NEAF</b>	North East Africa
<b>GHG</b>	Greenhouse gases	<b>NOAA</b>	National Oceanic and Atmospheric Administration
<b>GRFC</b>	Global Report on Food Crises	<b>OHC</b>	Ocean Heat Content
<b>ICPAC</b>	IGAD Climate Prediction and Application Centre	<b>OND</b>	October - November - December
<b>ICPALD</b>	IGAD Centre for Pastoral Area and Livestock Development	<b>RCC</b>	Regional climate centre
<b>IDMC</b>	Internal Displacement Monitoring Centre	<b>RCP</b>	Representative Concentration Pathways
<b>IGAD CAEP</b>	IGAD <i>Centre of Excellence</i> for Climate Adaptation and Environmental Protection	<b>REC</b>	Regional Economic Community
<b>IGAD CEWARN</b>	IGAD Early Warning and Response Mechanism	<b>SAH</b>	Sahara
<b>IGAD</b>	Intergovernmental Authority on Development	<b>SDGs</b>	Sustainable Development Goals
<b>IOD</b>	Indian Ocean Dipole	<b>SEAF</b>	South East Africa
<b>IPCC</b>	Intergovernmental Panel on Climate Change	<b>UN</b>	United Nations
<b>IPCC AR6</b>	IPCC Sixth Assessment Report	<b>UNFCCC</b>	United Nations Framework Convention of Climate Change
<b>IRAPP</b>	IGAD Regional Aids Programme	<b>UNHCR</b>	United Nations High Commissioner for Refugees
<b>IRCCS</b>	IGAD Regional Climate Change Strategy and Action Plan	<b>VCS</b>	Voluntary Carbon Projects
<b>ISSP</b>	IGAD Security Sector Programme	<b>VCUs</b>	Verified Carbon Units
<b>JJA</b>	June - July - August	<b>WAF</b>	West Africa
		<b>WHO</b>	World Health Organisation
		<b>WMO</b>	World Meteorological Organisation
		<b>WSAF</b>	West South Africa



# EXECUTIVE SUMMARY

The IGAD region is currently facing enormous adaptation challenges and stands to bear the brunt of the most severe near-term climate change impacts. Informed by the findings and recommendations of the latest Intergovernmental Panel on Climate Change 6th Assessment Report, this Strategy highlighted the projected climate impacts to the region, which include increasing climate-induced shocks and stresses such as droughts, floods, sea level rise, desert locust infestation, storms and desertification, among other events. The effects of these hazards continuously result in the loss of lives and livelihoods, challenges health and wellbeing, impacts water and food systems, causes displacements and the destruction of ecosystems, properties, cultural assets and critical infrastructure and can and be a catalyst for social, economic, and political tensions, displacement and insecurity in the region. Women and girls, youth, indigenous peoples, people with disabilities, stateless persons and displaced people, amongst other marginalised populations, are disproportionately impacted.

In response to these challenges, the IGAD Climate Adaptation Strategy (2023-2030) provides a framework for coordinated action to address climate risks and enhance the resilience and adaptive capacities of IGAD Member States. The Strategy provides a whole-of-society approach to resilience that sets near-, medium- and long-term targets that are realistic and achievable. This first-ever regional-wide adaptation Strategy displays the renewed commitment of IGAD to climate adaptation as a key development priority. It also presents an opportunity to chart a climate-resilient, participatory future for the IGAD region and envisions a future for the region that is climate-resilient, peaceful, prosperous and integrated, and where all people enjoy a high quality of life.

In particular, this Strategy provides concrete steps to strengthen the adaptive capacity of vulnerable populations and manage climate change-related risks, strengthen climate adaptation knowledge management systems and the capacity development of relevant institutions to allow the replication and scale-up of locally led adaptation solutions and best practices, and promote the harmonisation of adaptation policies, cooperation, peaceful co-existence and sustainable development.

This Strategy complements the existing climate efforts of the African Union's Agenda 2063; the Paris Agreement of the United Nations Framework Convention on Climate Change (UNFCCC); the Sendai Framework for Disaster Risk Reduction; as well as the United Nations Sustainable Development Agenda 2030, which emphasises the commitment to 'leave no one behind'. This Strategy aligns with the overall [IGAD Regional Climate Change Strategy and Action Plan \(2023-2030\)](#), as well as the IGAD Regional Strategy for Disaster Risk Management (2019-2030) and aims to reinforce the adaptation concerns and priorities of IGAD Member States set out in their respective national climate, development, environmental and disaster reduction policies, frameworks and strategies.

The development of this Strategy has been informed by research and analyses of observed and projected climate change impacts and the key risks to the region. Temperature change and increasing variability in precipitation characterise the state of the climate in IGAD, continuously impacting community livelihoods and increasing food and water insecurity. Crop and livestock performance, which are predominately rainfed, are highly sensitive to temperature and precipitation variations. This results in a negative impact on countries' economies and livelihoods

as agriculture contributes to a significant portion of the gross domestic product (GDP) of the IGAD Member States and provides a major source of employment. This Climate Adaptation Strategy identifies these and other climate risks that face the IGAD region, along with appropriate adaptation strategies to strengthen the collective response to resilience building of countries in the region, and their economic, social, and environmental systems and ensure the most vulnerable communities are not left behind.

The Strategy recognizes the challenges facing key sectors and identifies opportunities that can catalyse the goal of enhanced resilience and adaptive capacity. These challenges include thinning and degradation of farmland soils, and the adverse effects of climate change on agricultural yields; water insecurity; increasing suitability of conditions for climate-sensitive diseases; limited climate proofing of urban infrastructure; displacement and unsafe and irregular human mobility and increasing protection concerns of already displaced communities; the higher feedback loop between exposure to climate hazards and interlinkages between conflict and human security; increased likelihood of higher disaster risk due to low coping capacity, vulnerability and exposure to hazards in the region; and insufficient and unsustainable levels of adaptation finance.

There are, nonetheless, opportunities identified with respect to key sectoral and transboundary challenges and cooperation that, if seized and implemented, ensuring inclusion of the most vulnerable populations, will enhance adaptive capacity and resilience to climate impacts, with important co-benefits for mitigation and for social cohesion, peacebuilding and stability in the region.

The Strategy identifies eleven priority action areas, each with specified adaptation

interventions to ensure responsiveness to challenges and opportunities with respect to each key sector. These priority areas include enhanced risk assessments for anticipatory action; innovative financing mechanisms; the promotion of cross-sectoral and transboundary actions; climate information and services; strengthening coordination and collaboration between members states and communities; nature-based solutions and ecosystem-based adaptation; climate resilient infrastructure; the strengthening of adaptation capacity; research, data sharing and dissemination; and adaptation governance. This is in addition to monitoring, evaluation and learning which will be critical to the successful implementation of this Strategy.

This Strategy recognizes that success in implementing the identified adaptation interventions requires coordinated, participatory action at the regional level is taken to ensure that climate risks, and vulnerability are clearly identified and understood. Further, it is imperative that the regional coordination, in a coherent manner, underlines the implementation of this Strategy.

## THE OVERALL FRAMING OF THE STRATEGY

The Strategy sets out the **rationale, vision, goal, strategic objectives and principles** of the Strategy. It also describes the **stakeholders** it includes and the **methodology** it took to develop the Strategy.

**It includes the observed and projected climate change impacts** for the IGAD region which demonstrate changes in temperature, precipitation, cyclones, marine warming, and other compound climate events that will increasingly lead to mounting losses and damages

in the IGAD region, with substantial challenges to adaptation.

The Strategy also describes the current status, challenges and opportunities in **ten key sectors**, as well as **seven cross-cutting issues** and the adaptation challenges and opportunities of each. Sectors that are conventionally exposed to climate change, including water, health, human settlements, economies and livelihoods, and ecosystems are included in this Strategy. In addition, there is particular focus awarded to themes that are fundamentally grounded in the adaptation realities of the IGAD region and particularly important for adaptation effectiveness, including migration and displacement, security and peacebuilding, the blue economy and climate literacy. Cross-cutting themes include a focus on loss and damage, community-led, participatory action, gender and youth, disaster risk management, adaptation finance, transboundary risks and artificial intelligence.

In addition, **11 priority areas** have been identified in this Strategy for investment in people-positive adaptation. This include, among others, strengthening risk assessments to better understand exposure, vulnerability and adaptation feasibility; increasing financing and the introduction of new innovative adaptation finance; scaling of cross-sectoral, transboundary and long-term planning; strengthening climate information and services; improving coordination and collaboration between Member States; building scalable nature-based solutions and ecosystem-based adaptation; enhancing climate-resilient infrastructure; strengthening adaptation capacity; strengthening research, data sharing and dissemination; addressing climate change adaptation law and governance; and monitoring, evaluation and learning.

Besides these key priority areas and suggested actions, the Strategy includes a **Theory of Change** that adopts a coordinated and participatory action approach that frames clear and responsible adaptation actions with an implementation plan that is aligned with priority areas, includes suggested actions, responsibilities and timeframes.

It also includes a **National Adaptation Planning** section to ensure coherence and the integration of specific climate risk areas related to climate risk and adaptation.

In addition, the **implementation plan** elaborates how the eleven priority areas can be operationalised, defining institutional responsibilities and timeframes for execution. Across the priority areas cost estimates are needed to ensure adequate support for adaptation. This highlights the substantial need for adaptation finance for the IGAD region and justifies substantial investment in bottom-up costing for adaptation, as well as the need for an adaptation feasibility assessment for the implementation of actions associated with the priority areas listed.

In addition, the **Monitoring and Evaluation Plan** illustrates how the document will be reviewed and assessed to ensure its effective and timely implementation.

Throughout the Strategy there is attention brought to numerous **adaptation best practices from inside and outside the IGAD region. These offer valuable** experiences which IGAD and its Member States can adopt and learn from.

Finally, the Strategy includes a comprehensive **implementation matrix** that contains priority areas and suggested actions. It also includes timeframes and suggested responsibilities.







# BACKGROUND

IGAD was established in 1986 to mitigate the effects of recurrent droughts, famine, and ecological degradation and contribute to sustainable environmental and natural resource management in the Horn of Africa. With the emerging political, socio-economic and security challenges, the Assembly of Heads of States and Government resolved to revitalize IGAD and expand areas of cooperation among Member States, which included Djibouti, Ethiopia, Kenya, Somalia, Eritrea, Uganda, Sudan and South Sudan. The resolution to strengthen regional cooperation in key priority areas—food security and environmental protection, economic cooperation, regional integration, and social development, peace, and security—was adopted by the Summit. IGAD aims to contribute to and enhance transformational efforts towards sustainable development, resilience, and stability in the region.

IGAD operates with several specialised institutions, which include IGAD Conflict Early Warning and Response Mechanism (CEWARN), the IGAD Security Sector Programme (ISSP), the IGAD Centre for Pastoral Area and Livestock Development (ICPALD) and IGAD Climate Prediction and Applications Centre (ICPAC), and the IGAD Regional Aids Programme (IRAPP) and IGAD *Centre of Excellence* for Climate Adaptation and Environmental Protection (IGAD CAEP).

IGAD CAEP, based in Mogadishu Somalia and established in December 2021, has led the development of this Strategy. CAEP is an IGAD-specialised institution mandated to coordinate climate change adaptation and environmental protection efforts in the eight IGAD countries.

The IGAD Secretariat recognised that climate change and environmental degradation are among the most severe developmental challenges for the IGAD region. This is despite the inconsequential greenhouse gas (GHG) emissions of the region. The region continues to experience climate-induced shocks, including droughts, floods, sea level rise, desert locust infestation, and storms, among others. For example, the recent locust outbreaks in 2019 in the IGAD region, have been linked to climate conditions caused in part by ocean warming<sup>1</sup>. Also, from 2020 to 2023, the Horn of Africa experienced nearly six failed rainfall seasons followed with *Elnino* floods from October 2023. The effects of these shocks continuously result in the loss of lives and livelihoods and the destruction of properties and critical infrastructure. Key regional environmental challenges include land degradation, water shortages, loss of biodiversity, deforestation, and pollution, among others. The Centre's goal is to support the region in preparing for and adapting to the impacts of climate-related shocks and serve as the regional focal institution for knowledge management and capacity development to study, replicate and scale up sustainable environmental management practices and appropriate adaptive solutions to climate change in the region.

The vision of IGAD is to be the premier Regional Economic Community (REC) for achieving peace and sustainable development in the region. Its mission is to promote regional cooperation and integration to add value to Member States' efforts in achieving peace, security, and prosperity. IGAD has multiple objectives, which include initiating

and promoting programmes and projects to achieve regional food security and sustainable development of natural resources and environmental protection and encouraging and assisting efforts of Member States to collectively combat drought and other natural hazard-induced and man-made disasters and their consequences. IGAD's overall rationale, vision and objectives are aligned to this Climate Adaptation Strategy.

As members of the global community, IGAD takes its role on climate action seriously and is addressing its greenhouse gas emissions. Despite IGAD has multiple objectives, which include initiating and promoting programmes

and projects to achieve regional food security and sustainable development of natural resources that, climate adaptation remains the most urgent priority due to current and future climate-related vulnerabilities. This has been operationalised through key climate change adaptation policies, including National Adaptation Programmes of Actions (NAPAs), National Adaptation Plans (NAPs) and updated Nationally Determined Contributions (NDCs) priority adaptation actions. However, recent climate shocks further aggravate the crisis and illustrate the magnitude of the challenge faced by the region. Failure of nearly six rainfall seasons, followed by intermittent floods, have created a humanitarian catastrophe.

## STRATEGIC FRAMING OF THE IGAD CLIMATE ADAPTATION STRATEGY

### RATIONALE

The people, communities, and countries in the IGAD region are on the frontlines of the climate crisis in one of the most vulnerable regions to climate change in the world. In addition, these communities are among the least resourced to prepare for and to cope with the mounting impacts of climate-related shocks and stresses. About 70% of the IGAD region falls under Arid and Semi-Arid Lands (ASALs) and remain water scarce. Rain-fed agriculture and livestock production systems are the backbone of the economies of IGAD Member States, making them extremely susceptible to climate change.

The regions extreme vulnerability therefore requires a collaborative and concerted adaptation approach to scale its resilience

building efforts. In line with this, IGAD recognises the need for a focused regional climate adaptation Strategy that complements existing national and regional strategies and action plans, as well as international adaptation processes under the Paris Agreement. In particular, this adaptation-focused Strategy aligns with the broader IGAD Climate Strategy and Action Plan (2023-2030). This Strategy further recognises that inclusive climate adaptation and resilience building can offer significant opportunities for regional sustainable development and peace. This Strategy provides a strategic and integrated framework for regional cooperation as it pertains to climate adaptation and resilience building.

## VISION

A climate-resilient, peaceful, prosperous and integrated region where all people enjoy a high quality of life.

## GOAL

To provide a framework for the coordinated implementation of actions, informed by the latest data and evidence, that will enhance IGAD Member States resilience and adaptive capacities, while addressing the causes of vulnerability to climate risks and the impacts of climate change in the IGAD region. The Strategy will enhance the technical and institutional capacities of Member States, mobilise additional financial resources, and improve data and knowledge management, with a particular focus on meaningful engagement, participation and the co-implementation with local communities and vulnerable groupings.

## STRATEGIC OBJECTIVES

Aligned with the IGAD overall Strategy, the following strategic objectives will guide this Strategy:

1. To support the development, revision and implementation of Member States climate adaptation policies, strategies, and plans at the regional, national, and sub-national levels.

2. To strengthen the adaptive capacity and resilience of vulnerable populations and to manage climate change-related risks.
3. To strengthen climate adaptation knowledge management and capacity development of relevant institutions to allow replication and scale-up of locally led adaptation solutions and best practices.
4. To promote the harmonisation of adaptation policies, cooperation, peaceful co-existence and inclusive sustainable development.

## GUIDING PRINCIPLES

- Aligning plans and priorities;
- People-centred approach;
- Gender-responsive;
- Africa-led and Africa owned;
- Science, Knowledge, and Practice;
- Sustainability;
- Long-term vision, complemented with immediate impact;
- Common but differentiated responsibilities; and,
- Leave no one behind / a just transition



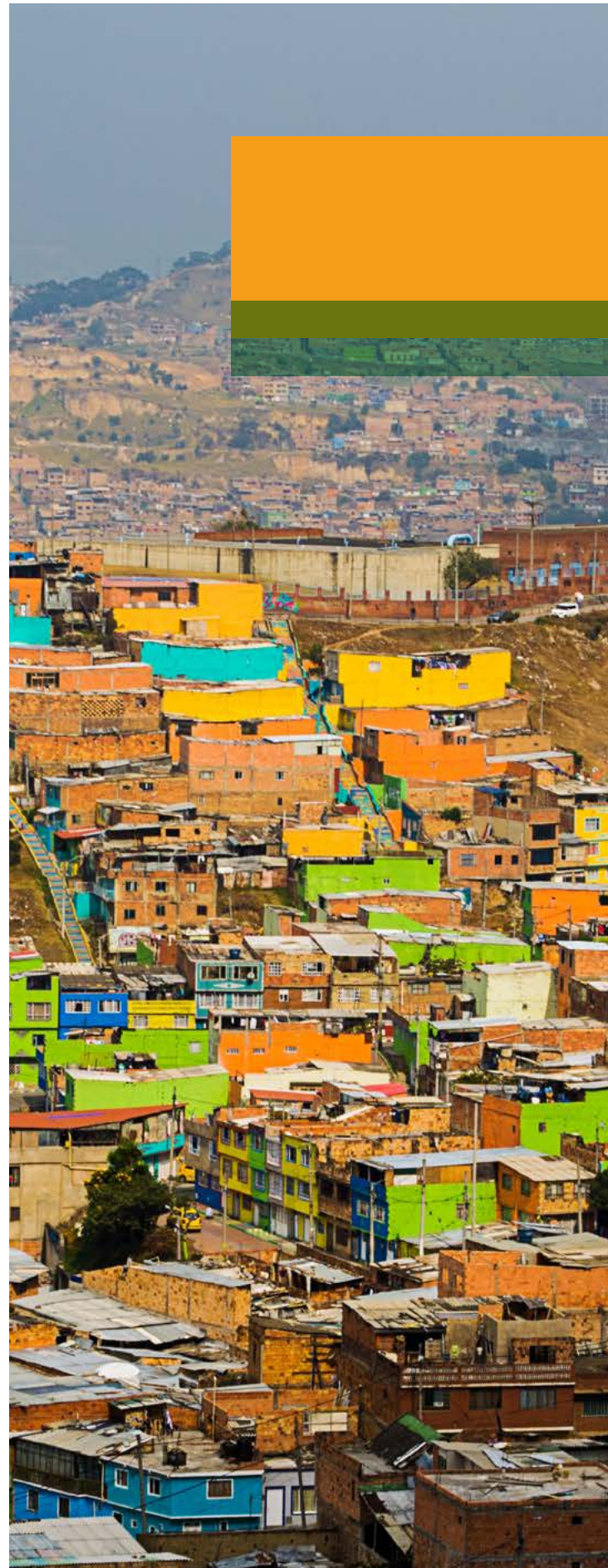
## Stakeholders

The development of the IGAD Climate Adaptation Strategy (2023-2030) involved engaging all IGAD Member States' climate adaptation relevant institutions, development and humanitarian partners, civil society organisations, academia, local communities, indigenous groups, women and youth to inform the holistic approach of developing a people-centred, gender-responsive climate adaptation Strategy for the region.



## Methodology

The IGAD Climate Adaptation Strategy was developed through an inclusive and consultative multi-stakeholder dialogue process. The entry point involved undertaking a review and scoping assessment of all relevant international, regional and national adaptation literature. The review was also informed by the Sixth Assessment Report of the IPCC which highlights climate impacts, vulnerability and adaptation aspects of the region. Synthesis of peer-reviewed and grey literature identified clear themes and informed the emphasis apportioned to key sectors and cross-cutting issues. This was followed by virtual consultations with international and regional climate adaptation experts and relevant stakeholders to gather key insights, best practices and emerging issues and trends. A hybrid of physical and virtual Member State consultative workshops were held to identify the diverse and common national adaptation priorities, trends, best practices, challenges and opportunities to inform the development of the Strategy.





## KEY SECTORS



### Food systems

There is growing evidence that climate change is beginning to outpace adaptation in agricultural systems in the IGAD region. The challenges include thinning and degradation of farmland soils, reduced genetic diversity in crops, and the adverse effects of climate change on agricultural yields. Nature-based solutions (NbS) and ecosystem-based adaptation (EbA) practices are some of the intervention opportunities proposed that will improve food production and ensure sustainable livelihoods for millions of people in the IGAD region.



### Water

Water insecurity, associated with drought, flood and cyclone events, is widespread across the IGAD region. This has resulted in reduced crop production, migration and displacement, food insecurity and extensive livestock deaths, electricity outages, increased incidence of cholera, dengue fever, and other water borne diseases, and increased groundwater abstraction amplifying the risk of saline intrusion from sea level rise. Yet, with the right adaptation investments the IGAD region could leap-frog conventional development phases to achieve a water-sensitive cities, reaping benefits such as improved liveability, reduced flooding impacts, safe water and overall lower net energy requirements and avoid making the mistakes developed countries' cities have made.



### Health

The IGAD region is predicted to suffer disproportionately from higher temperature-related mortality, compared to temperate northern hemisphere countries. Changing temperature and precipitation patterns are also increasing the suitability of conditions for the transmission of mosquito-borne, tick-borne, and rodent-borne diseases in many regions. Adaptation actions in the health sector range from building resilient health systems to preparing responses to health impacts of extreme weather events to reducing effects of increasing temperatures in residential and occupational settings.



### Human settlements and infrastructure

There is rapid urbanisation taking place across the IGAD region. Heavy rains, flooding, erosion, landslides, droughts, water scarcity, and poor water quality directly affect cities. Higher temperatures, urban heat islands, and heat waves worsen air quality and exacerbate climate impacts. NbS and EbA are crucial for building climate resilience in cities and peri-urban areas, where more than half of the human population resides. These are often more cost-effective and provide innovative financing opportunities for risk management.



## Human mobility and displacement

Displacement and migration is a complex and multifaceted issue of high importance for people-centred adaptation within countries and in relation to transboundary cooperation in the IGAD region. Extreme weather events, along with the slow onset impacts of climate change, are combining with other drivers of crisis that result in forced displacement, such as conflict, poverty and weak governance, and amplifying displacement trends related to both disasters and conflict. In 2022 alone, weather-related hazards resulted in 3.1 million new internal displacements of people. Under the inequitable, low growth and high GHG emissions scenario, about 41 million people, and potentially up to about 55 million, could move in response to climate impacts within countries in the IGAD region by 2050. At the same time, climate impacts are contributing to the drivers of cross-border movements, including through disaster displacement and refugee movements, as seen in the border areas between severely drought-affected countries and communities between 2021-2023. Inclusive development choices and investments in adaptation measures that strengthen the resilience of vulnerable communities could significantly reduce the number of people displaced from their homes and support safe and dignified mobility. The potential for safe, voluntary and regular migration to be an adaptive measure in itself must be harnessed and supported. For communities settled in areas becoming unliveable under increasing climate impacts, planned relocation may be a necessary measure of last resort, while respecting the human rights of communities

concerned. Investing in the preparedness of authorities and communities at high risk of becoming displaced, as well as authorities and communities in potential hosting areas, should be part of adaptive measures. This includes access to early warning and readiness for emergency evacuation as a life-saving measure, ensuring human rights are respected and specific needs among the population are addressed, such as for women, children and people with disabilities or restricted mobility. IGAD's Free Movement Protocol facilitates entry and lawful stay for those who have been displaced, enables disaster-affected people to remain in another country as long as return to their country of origin 'is not possible or reasonable', and also allows those at risk of displacement to move pre-emptively as a way of avoiding, or mitigating, the impacts of a disaster. At the same time, many displaced people, including refugees and people internally displaced are living in situations where their exposure and vulnerability to climate hazards is disproportionately high – and their host communities are often in similar situations. They often lack access to resources and support at the speed and scale required to avoid serious harm and to adapt, prepare for and recover from loss and damage due to adverse climate impacts. Furthermore, their own capacities and contributions are not adequately recognised and enabled. To be fully inclusive, such development and climate adaptation should adequately address climate-related exposure, vulnerability and response capabilities of displaced populations and their hosts and ensure meaningful engagement, participation, and co-implementation.



## Security and peacebuilding

Climate change and conflict have a compounding impact in the Horn of Africa. Climate change impacts exacerbate the risk of violence, conflict, and insecurity, while the occurrence of conflict and violence disrupts social systems, hampers sustainable resource management, and undermines the resilience of communities and individuals, reducing their capacity to adapt and augmenting their vulnerability. There is great opportunity to prevent future conflict by nurturing community cohesion or through encouraging regional climate change adaptation as an integral part of peacebuilding strategies in the IGAD region. Climate action interventions that foster peacebuilding should be decoupled from nation-state. Rising incomes may reduce conflict–climate relationships and building household-level resilience to economic shocks has been shown to lower support for violence after drought and local-level institutions can support non-violence under adverse climate conditions. Ameliorating ethnic tensions, improving political institutions and investing in economic diversification and household resilience could mitigate future impacts of climate change on conflict and contribute towards durable solutions for peacebuilding.



## Economy, poverty and livelihoods

Over 80 per cent of the region's population live in rural areas and derive their livelihoods primarily from semi-subsistence, rainfed, agriculture, pastoral, and agro-pastoral

activities which are highly exposed to climate change and climate variability. Poor households may reduce risk or aid recovery by cooperating with other households in their community to adapt collectively to climate change, for example, through informal insurance networks. Prioritising poor households for interventions including social protection, EbA, universal healthcare, climate-smart buildings and agriculture, flexible work hours under extreme heat and early warning systems will increase adaptation to climate shocks. Through protecting and restoring mangrove ecosystems, such projects are providing direct benefits to communities, enhancing biodiversity and strengthening climate resilience, particularly for the Blue Economy. The development of climate-resilient cities and coastal infrastructure creates opportunities for investment, job creation and the revitalisation of coastal zones.



## Environment, ecosystems and biodiversity

State fragility is closely interlinked with vulnerability to climate and environmental impacts, as these affect the availability and quality of natural resources, undermining livelihoods. As populations in fragile contexts often lack alternative income sources and government support, they often turn to maladaptation practices. Entry points to address the impacts of environmental degradation include supporting livelihood diversification, implementing rapid post-disaster support for establishing climate, environment and peace-positive alternative livelihoods, and actively engaging local and



indigenous populations in a consultative role prior to programme implementation. Maintaining existing indigenous forest and indigenous forest restoration is a win-win, maximising benefits to biodiversity, adaptation and mitigation.



## Education

The IGAD region has particularly low levels of climate literacy meaning its populations are responding to the impacts of climate change without an informed understanding of climate risk to their livelihoods. There is opportunity to mainstream comprehensive climate literacy for policymakers, critical climate-reliant industries, and particularly vulnerable groups in society like women and the youth to boost public understanding of climate risk that includes education on effective adaptation options.

## CROSS-CUTTING ISSUES



### Loss and Damage

Climate change related losses and damages are already being experienced in the IGAD region and will likely escalate with increased global warming. Some of the projected economic and non-economic losses and damages include risks to food security, risk of malnutrition, displacement and loss of livelihoods due to reduced food production from crops, livestock and fisheries. There is an opportunity for climate finance to addressing loss and damage in the IGAD region. For this to be a success, there is a need for a broader consultative approach where the relevant stakeholders including the project developers, governments, local communities, indigenous people, displaced people and migrants, financial institutions, relevant carbon bodies, buyers, among others discuss freely and share suggestions on how to tackle loss and damage.





## Gender and Youth

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 climate change response strategies must be owned and driven by the inclusion of stakeholders and partners, particularly women and youth.



## Community-based, participatory climate action

Improving the flow of information between governments and local communities is paramount to achieving effective climate change adaptation and disaster risk reduction. There are numerous actions that can be taken to deepen participation and improve community-based climate action, this includes participation in decision-making processes, participatory budgeting and planning, environmental civic service, and education and curriculum development. These pathways contribute to improving governance by incorporating community views and priorities, while simultaneously giving communities the tools and knowledge needed to become active contributors to climate change adaptation implementation.



## Disaster risk management

The high levels of vulnerability compound to undermine the coping and adaptive capacity of communities and households in the region. This situation calls for the strengthening of disaster risk management strategies by enhancing knowledge, improving the understanding of disaster risks in a changing climate, strengthening hazard monitoring and early warning systems capabilities and increased investment for resilience.



## Adaptation Finance

IGAD countries face a significant gap between the estimated needs for international adaptation finance and the actual flows received, which are 5-10 times lower than required. This gap is further exacerbated for contexts that are fragile and conflict-affected in the region. Estimates for adaptation costs across all IGAD member indicated in NDCs show implementation of planned adaptation is expected to cost over US\$195.8 billion by 2030. The implementation of adaptation actions is not keeping up with the pace of climate impacts, resulting in a widening adaptation implementation gap. There is possibility to utilize revenue from carbon markets to finance curative and preventive aspects of the loss and damage experienced by IGAD Member States. The discussion on utility of debt-for-nature and debt-for-climate swaps is also advancing, and IGAD should play a key role to ensure final outcomes are favourable for its Member States. These states also face significant sovereign debt stress and therefore a fair and equitable debt-swaps framework can deliver relief from debt stress, while availing much needed climate finance.



## Cross-sectoral approaches to climate risk management

Placing cross-sectoral approaches at the core of adaptation provides significant opportunities to deliver large benefits and/or avoided damages across multiple sectors, including water, health, ecosystems and economies. They can also prevent adaptation or mitigation action in one sector exacerbating risks in other sectors and resulting in maladaptation, for example, from large-scale dam construction or large-scale afforestation (e.g., water– energy–food nexus and large-scale tree planting efforts).



## Leveraging Artificial Intelligence

Artificial Intelligence (AI) can aid weather forecasters monitor weather changes, heavy rainfall, and tropical cyclones with an increased accuracy. AI can analyse satellite imagery far faster than humans, and this expanded processing power can quickly provide important conclusions, like the rate of deforestation. With greater access to information, governments can more easily monitor environmental protection efforts and consumers can better understand how their investments contribute to climate change.

Together these themes covered in this IGAD Climate Adaptation Strategy provide a comprehensive view on adaptation for the region and will guide adaptation



planning and investments to target sectors and themes that are most urgent, and which would lead to the greatest improvements in adaptation effectiveness. Adaptation feasibility is highlighted in cases where highly contextual challenges demand hyper-local understandings of how vulnerability or fragility affect adaptation.

The Strategy also recognises the differential burden of climate change for certain groups of people. It highlights that reducing vulnerability in IGAD requires recognition of factors that affect differential and intersectional dimensions of vulnerability such as low-income communities, women and children, migrants, internally displaced persons, refugees, elderly people, indigenous communities, the informal sector, infrastructure and housing, borderlands, smallholder farmers, pastoralists, fishers, fragility and insecurity.



## PRIORITY AREAS

### Priority areas identified for investment in people-centred adaptation:

- **Action 1:** Increase risk assessments to determine exposure, vulnerability and adaptation feasibility
- **Action 2:** Enhance new and innovative financing mechanisms
- **Action 3:** Adopt an integrated, cross-sectoral, transboundary and long-term planning approach
- **Action 4:** Improve climate information services to enhance climate literacy, early warning and preparedness
- **Action 5:** Strengthen coordination and collaboration between Member States
- **Action 6:** Implement nature-based solutions and ecosystem-based adaptation
- **Action 7:** Scale climate-resilient infrastructure
- **Action 8:** Strengthen adaptation capacity
- **Action 9:** Promote research, data sharing and dissemination
- **Action 10:** Enhance climate change adaptation law and governance
- **Action 11:** Increase monitoring, evaluation and learning





## OBSERVED AND PROJECTED CLIMATE CHANGE

This section describes the climate of the IGAD region and the observed and projected changes in temperature, rainfall, cyclones and marine heatwaves. It then shows how these changes are creating compound climate risks to the region and highlights projections of escalating risk with increased global warming.

## REGIONAL CLIMATE

Change and variability in temperature and rainfall have continuously impacted the livelihoods of communities in the IGAD region, with food and water systems being particularly vulnerable to these changes. Crop and livestock performance, which are predominately rainfed, are also highly sensitive to temperature and precipitation variations. This results in negative impacts on countries' economies and livelihoods as agriculture contributes to a significant portion of the gross domestic product (GDP) of the IGAD Member States and provides a major source of employment. For example, economic impacts from climate-related invasive species were estimated at US\$1 billion per year for smallholder maize farmers in East Africa, including countries in the Horn of Africa, in 2017 alone<sup>1</sup>.

## TEMPERATURE

The spatial temperature pattern over the IGAD region is variable, ranging from low to high. The humid areas of central to western Ethiopia, southern Uganda, and central to western Kenya experience temperature less than 24°C. This is especially so during the March-April-May season. Temperatures above 30°C are observed over Eritrea, Djibouti, and north-eastern Ethiopia and Northern Sudan during the June to August season.

During the October-November-December season the average

Increases in temperature and changes in rainfall patterns also significantly affect population health and productivity in outdoor work areas across the IGAD region. The 2022 IPCC Sixth Assessment Report has highlighted that mortality and morbidity from both vector-borne diseases and risk of heat-related deaths will escalate in the region with further global warming, placing additional strain on health and economic systems<sup>1</sup>. Above 1.5°C risk of heat-related deaths rises sharply. In some areas, the combination of warmer temperatures and higher rainfall increase habitat suitability for biting insects and the transmission of vector-borne diseases such as dengue fever, malaria, and yellow fever<sup>1</sup>.

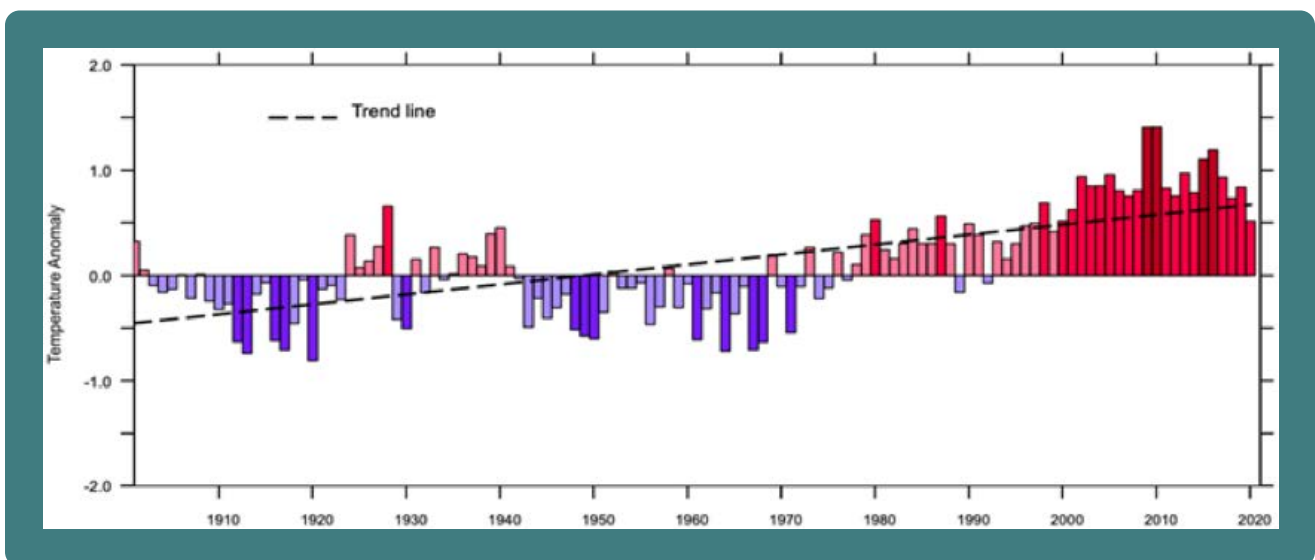
temperature varies from 24-30°C over north and eastern Kenya, southern and central Somalia, much of South Sudan and Sudan, and north-eastern Ethiopia. Annually, the central parts of Ethiopia and Central Kenya are characterised by the lowest temperatures.

Over the past century, global warming related temperature increased over the IGAD region (Figure 1), which have resulted to increased frequency of heat waves during the season of June-September over Djibouti, Sudan

and north-eastern Ethiopia. Consequently, increased prevalence of diseases such as malaria has been recorded over the region.

The global mean surface temperature in 2019 of  $1.1 \pm 0.1^\circ\text{C}$  was above the pre-industrial average, which was likely the second highest on record. The past five years (2015 to 2019) were each warmer than any year prior to 2014, and the average for the past decade (2010–2019)

was the warmest decade average on record. Since the 1980s, each successive decade has been warmer than all preceding decades back to at least 1850. Global land areas experienced the second or third (depending on the data set used) warmest temperatures on record at  $1.78 \pm 0.24^\circ\text{C}$  above pre-industrial levels, and the land, on average, has warmed faster than the Earth as a whole<sup>2</sup>.



**Figure 1:** Average Temperature Distribution Over Eastern Africa, including countries within IGA<sup>3</sup>

According to the IPCC Sixth Assessment Report (AR6), with further global warming, the IGAD region is projected to increasingly experience multiple changes in climatic hazards that can lead to compound and cascading impacts<sup>1</sup>. There is high confidence of projected increases in heat and decreases in cold, including for temperature extremes<sup>1</sup>. Heat stress is most prevalent in Eritrea, Djibouti, and Sudan under baseline conditions. These areas all increase in

severity in the future, with the largest increase in heat stress occurring in Sudan, South Sudan, Eritrea, Djibouti, Somalia and Kenya. The most severe increases in heat stress will occur in Sudan, South Sudan, Eritrea, Djibouti, Somalia, and Kenya. This indicates an increase in several more days per year surpassing a critical threshold of  $41^\circ\text{C}$ <sup>1,4,5</sup>.



# PRECIPITATION

The IGAD region's GDP is heavily dependent on rainfed agriculture. The region is characterised by three major rainy seasons:

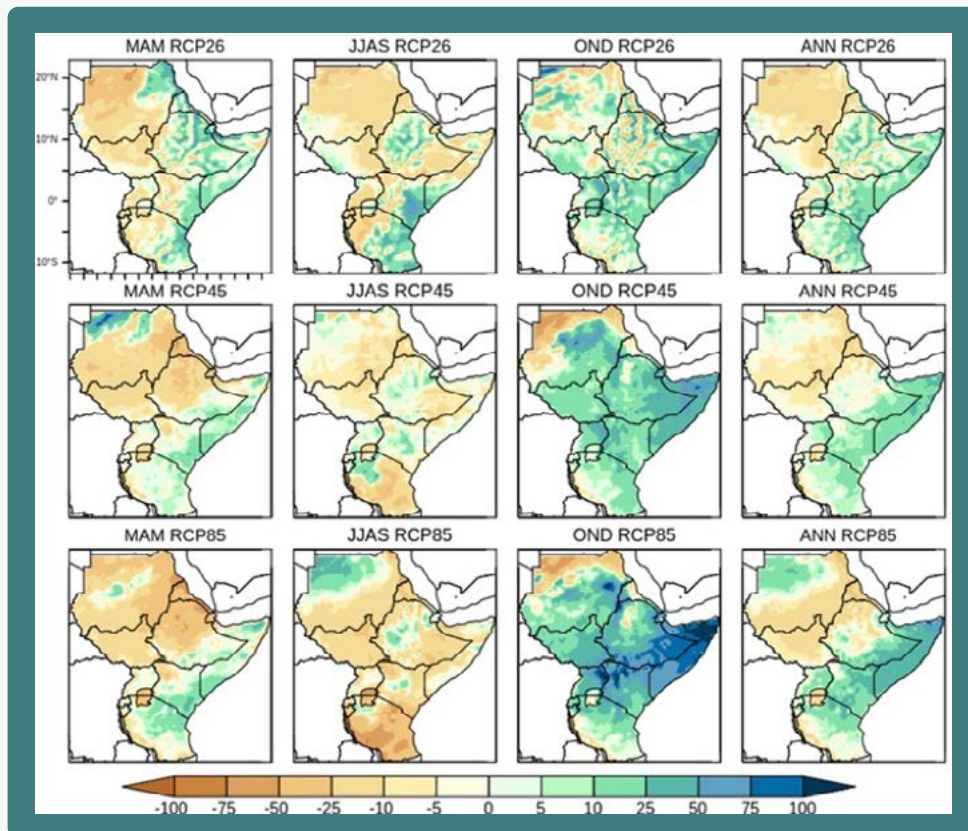
March–May (MAM) and October–December (OND) over the equatorial sector and the June–July–August–September (JJAS) season over the northern part of the region. Extreme weather events such as heavy rainfall and severe droughts have been experienced frequently in the region. These occurrences, in addition to other socio-economic factors, have negatively impacted the communities within the region justifying the call for climate adaptation planning. Recent studies show the value of intra-seasonal rainfall metrics such as the onset, cessation, extended wet and dry periods and length of rainy season in the planning of agricultural activities<sup>6</sup>. Adequate, reliable, and timely spatial and temporal information on variability and change in onset and cessation dates and length of rainy season patterns, is therefore necessary in the region.

El Niño Southern Oscillation (ENSO) is one of the key drivers of annual variability in weather patterns, and particularly rainfall in the IGAD region. It is linked to hazards such as heavy rains, floods, and drought. La Niña has the opposite effect as it is manifested by below-average sea-surface temperatures in the central and eastern Tropical Pacific and a strengthening of the trade winds. La Niña is associated with drier-than-normal conditions in Horn of Africa. Kenya, Ethiopia, and Somalia

have experienced consecutive below-average rainfall seasons in late 2020, early 2021 and late 2021, leading to drought conditions in the region. A negative Indian Ocean Dipole (IOD) developed during July 2021 and returned to neutral, although on the negative side, by the end of the year. The negative IOD, in combination with La Niña, contributed to the extremely dry conditions in IGAD region<sup>7,8</sup>.

The IOD is another driver of rainfall in the IGAD region. The positive phase of the IOD is characterised by below-average sea-surface temperatures in the Eastern Indian Ocean and above-average sea-surface temperatures in the west. The negative phase has the opposite pattern. The resulting change in the gradient of sea-surface temperature across the ocean basin affects the weather of the surrounding continents, primarily in the southern hemisphere. Positive IOD events are often associated with El Niño and negative events with La Niña<sup>7,8</sup>.

The IGAD region is projected to increasingly experience warming. This development will result in intensified and more frequent heavy precipitation and flooding events<sup>3,9</sup>. Annually the total rainfall is projected to increase over the Eastern parts of the region and reduce over parts of South Sudan and Sudan<sup>3</sup>. The total rainfall over the IGAD region during the Short Rains season is projected to increase over most parts (Figure 2).



**Figure 2:** Projected scenarios of seasonal changes in precipitation under low emission scenario (Representative Concentration Pathway (RCP) 2.6, intermediate scenario RCP4.5 and high emission scenario RCP8.5)<sup>3</sup>

In response to global warming, heavy precipitation events are expected to become more intense in many parts of the world due to the increased water vapour holding capacity of a warmer atmosphere. At the same time, the number of days with heavy precipitation events is expected to increase. This tendency is reflected in climate projections for IGAD region, with an overall increase in the number of days with heavy precipitation despite uncertainties specifically under the low emission scenario. However, there are regional differences in the direction and magnitude of change with Uganda and southern South Sudan projected to experience much higher increases than other parts of the region<sup>9</sup>.

Drought frequency has doubled since 2005, currently occurring once every 3 years and also showing a higher severity, predominantly affecting arid and semi-arid parts of the region<sup>1</sup>. Extreme drought events are currently most prevalent in the

north of Sudan, Somalia, Eritrea and in northern Kenya around lake Turkana. Current projections show that drought frequency, duration and intensity will increase in Sudan, South Sudan and Somalia but decrease or not change over Kenya, Uganda and the Ethiopian Highlands. Currently, the greatest severity of flooding is concentrated in areas such as Oromia in Ethiopia and Southern Uganda. October and November of 2023 have also seen the devastating impacts of *El Niño* rains in parts of Kenya and Somalia. In future, floods are expected to rise marginally across all regions, with the most drastic increases occurring in areas that are already prone to high flood exposure.

These climate impacts are posing various challenges to the region, including increasing urbanization, higher disease occurrence and intensity, negative impacts on the crops, fisheries, and livestock as well as biodiversity loss<sup>1</sup>.

## CYCLONES

The main tropical cyclone region affecting Africa is the south-western Indian Ocean region (west of 90°E), which encompasses the east coast of mainland Africa, Madagascar, and the other islands of the south-western Indian Ocean.

Tropical cyclones in the North Indian Ocean occasionally affect the Greater Horn of Africa, especially Somalia. Cyclones have resulted in increased mortality and destruction over

the past 30 years. For example, Cyclone Gati landed in the Bari region of Puntland in November 2020, affecting 120,000 people, displacing and killing many people. Cyclones also caused livelihood damage, livestock deaths, building and infrastructure damage, and farm and fishing gear damage<sup>1</sup>. Tropical cyclones making landfall in East Africa, including the Horn of Africa are projected to bring more intense rainfall and higher wind speeds at increasing global warming<sup>1</sup>.

## MARINE HEATWAVE

As the oceans warm, they expand, resulting in both global and regional sea-level rise. Multiple human settlements and infrastructure are exposed to sea level rise in the Indian Ocean coastline of the IGAD region<sup>1</sup>. The rise of the sea level associated with climate change erodes and inundates coastal ecosystems and eliminates wetlands, threatening the livelihoods of coastal communities and destroying rich ecosystems. For example, climate change is resulting in coastal flooding and disruption of Somalia's coastal and marine ecosystems<sup>10</sup>. Somalia is also projected to have 2.2 million people (the 6th highest in Africa) in the low-elevation coastal zone projected to be exposed to mean sea level rise for 2030<sup>1</sup>. This highlights the need for urgent and pre-emptive adaptation planning for Somalia's coastal inhabitants to avoid climate-related mobility out of these areas due to the impacts of sea

level rise. A vulnerability assessment identified Somalia as being at particular risk of rising sea levels, largely due to the combined effects of low-lying coastal areas, vegetation loss and low institutional and socio-economic capacity to adapt<sup>9</sup>. Kenya faces similar challenges, albeit to a lesser degree<sup>9</sup>.

The IGAD region's coastal and marine ecosystems are highly vulnerable to climate change, with east African, including the Horn of African coral reefs projected to be destroyed by bleaching if global warming continues. This will have significant implications for the region's fisheries and fishing dependent-livelihoods, and will significantly diminish the key role that corals play in providing ecological infrastructure as a barrier to coastal climate impacts.

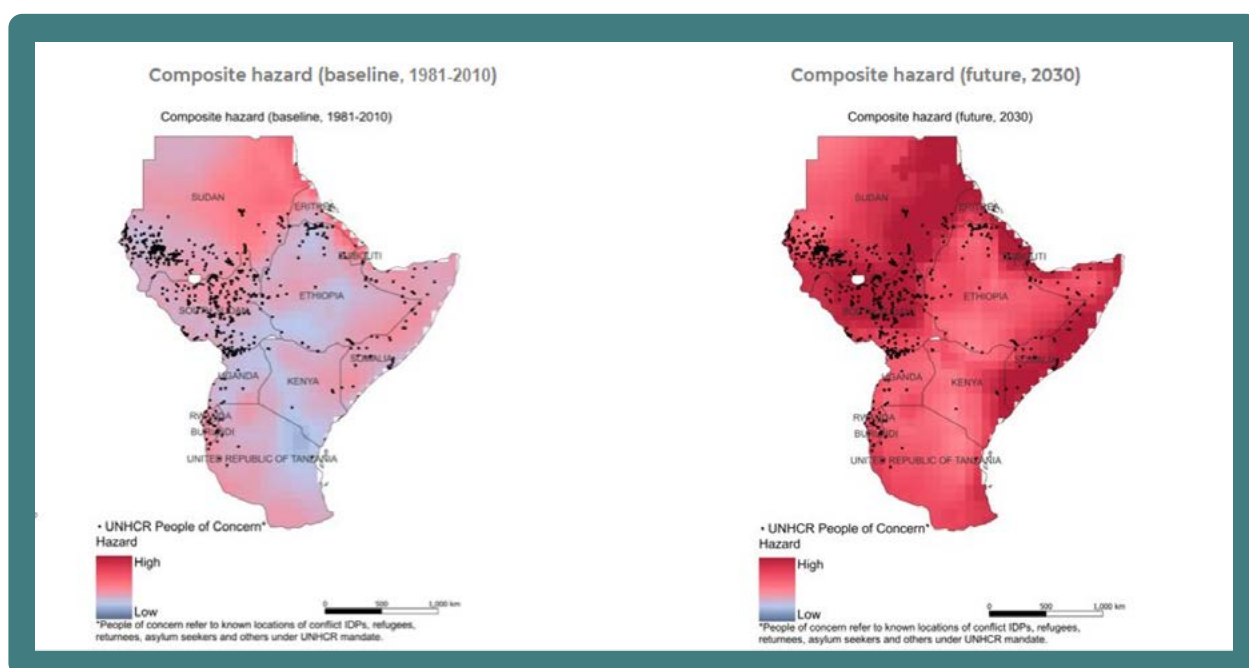


## COMPOUND CLIMATE RISKS

Risks from climate change differ through space and time and cascade across and within IGAD regions and systems. There is growing concern that inappropriate responses are increasing vulnerability and leading to maladaptation. This problem is only amplified in the IGAD region by impacts from compound climate events, the outcomes of the combination of multiple drivers and/or hazards that contribute to societal or environmental risk<sup>11</sup>. Human-induced climate change is already affecting weather and climate extremes, such as heat waves, heavy precipitation, droughts, and tropical cyclones<sup>1,11</sup>. There is also increased severity of risk associated with

these events due to amplifications in their magnitude, spatial extent, or frequency. For example, the effects of sea level rise combined with increases in storm surge frequency or magnitude amplify the likelihood of extreme impacts, or a storm surge in combination with extreme rainfall<sup>1,11</sup>.

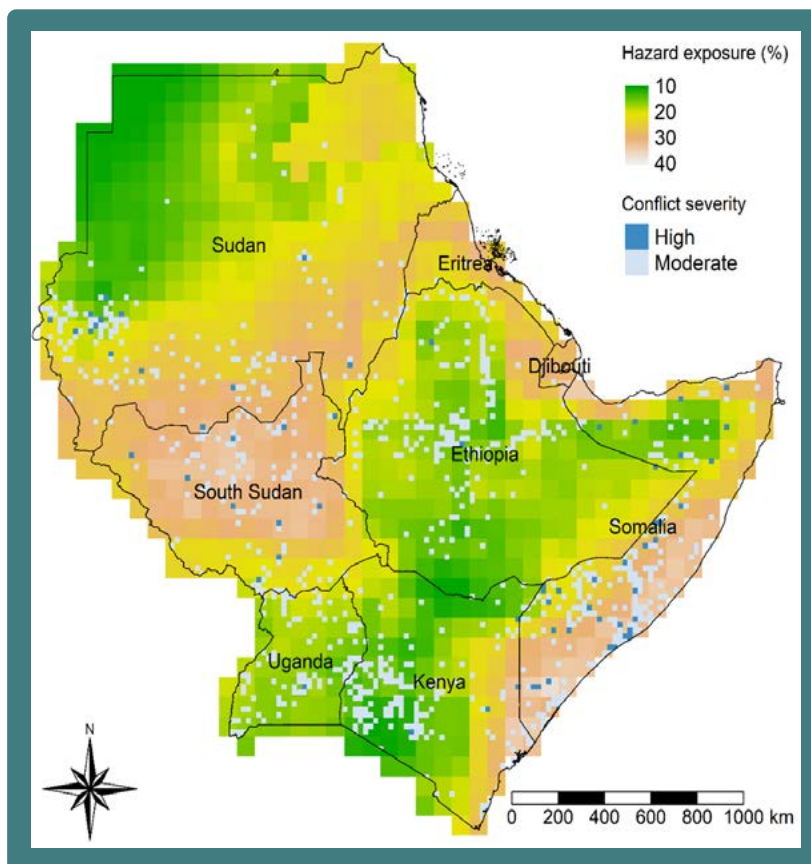
The IGAD region is projected to face compounding risks from reduced food production across crops, livestock and fisheries, increased heat-related mortality, heat-related loss of labour productivity and flooding from sea level rise.



**Figure 3:** Composite maps indicating hazard exposure based on the compound effect of heat, drought and flood in the East and Horn of Africa Region. The left map is the baseline, the right map shows a projection for 2030<sup>12</sup>. The black dots represent known locations of refugees, IDPs, asylum seekers, stateless persons or returnees.

All IGAD countries currently exhibit high exposure to compound climate hazards with clear hot spot areas visible in every country. Compound hazards increase most severely in South Sudan, Djibouti and Somalia with heat and drought stress accounting for the

most severe increases in hazards. By 2030, all hazards will increase substantially, while areas of low exposure will disappear. Areas known to be hosting displaced communities will be particularly affected by the increase in climate related hazards.



**Figure 4:** Percentage positive change in hazard (human heat stress, drought index based on Standardised Precipitation-Evapotranspiration Index and flood) exposure in the IGAD region overlaid with high and moderate conflict events from ACLED (limited conflicts events data)<sup>12</sup>

As visible in figure 4<sup>i</sup>, hazard exposure will reach an all-time high in South Sudan and Somalia. Moreover, areas with high conflict severity, across the whole region show a high projected climate hazard exposure in the near future suggesting a co-occurrence of extreme

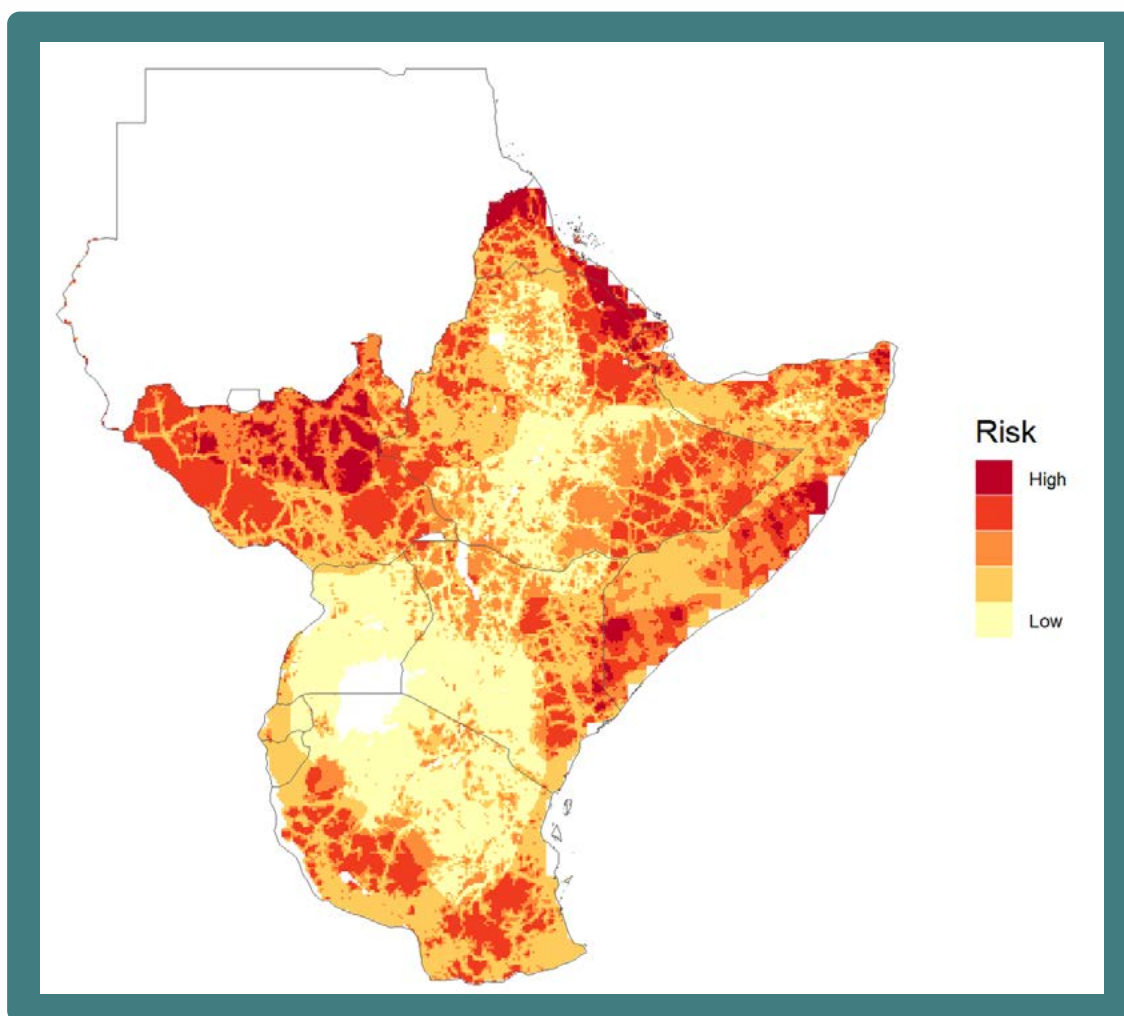
climate events and conflict in many areas in the IGAD region.

While all countries currently exhibit high exposure to climate hazards, heat stress, drought, and flood events are expected to

i. Climate data are sourced from the 6th Coupled Model Intercomparison Project (CMIP6). This known as “2030” period.  
 ii. Figure 4 depicts the percentage increase in hazards in the IGAD region as per 2030 climate projections from the 6th Coupled Model Intercomparison Project (CMIP6) combined with a measure of conflict severity estimated using the Armed Conflict Location and Event Data Project (ACLED) data. The hazard exposure index is composed of heat stress, drought, and flood hazard indicators. Hazards exposure change was computed by subtracting derived climate hazards for a standard baseline period between 1981-2010, normally adopted to represent current conditions, and near term-term future based on 2020-2040 climate projections.

increase most prominently in Sudan, South Sudan, and Somalia by 2030. Increases in heat stress will pose a major hazard, not only to crops and livestock but also to human thermal tolerance. These hazards can occur alone or in combination in the same geographic area, either at different times or simultaneously, thereby forming compound events. These hazards are further exacerbated by the pressing socio-economic challenges and the

low adaptive capacity of the region. Healthcare access is a critical element for communities to reduce vulnerability, particularly in fragile and conflict-affected settings. The map in Figure 5 highlights the specific risk the population will face when high exposure to compound events occurs in combination with high vulnerability. Areas of low risk are characterised by low climate hazard exposure and higher adaptive capacity.



**Figure 5:** Compound hazards (heat, drought and flood) including vulnerability and adaptive capacity of forcibly displaced persons and host communities. Adaptive capacity and vulnerability are represented by motorized drive time to the nearest health facility (vulnerability data is unavailable for Sudan and South Sudan)<sup>12</sup>





The impact of climate change on ecosystems and livelihoods is increasingly leading to destabilizing effects on societies and communities across East Africa, including the Horn of Africa, posing significant challenges to peace and security<sup>3,13</sup>. There are different pathways through which climate impacts may contribute to conflict and insecurity, by exacerbating environmental, socioeconomic, and political vulnerabilities. For instance, worsening livelihood conditions aggravated by climate change can increase the likelihood of individuals and groups joining armed groups and/or engaging in violent resource competition<sup>13</sup>. Additionally, climate variability and extreme weather events undermine the availability of natural resources, exacerbating local conflicts over their access and use<sup>13</sup>. Moreover, changing weather patterns and climate variability can influence the tactical

considerations of armed groups, contributing to escalated fighting during certain seasons<sup>13</sup>. Elite exploitation of local grievances and resource conflicts further increases the risk and intensity of violent conflict<sup>13</sup>.

It is important to recognize that climate change impacts differ spatially across geographies and vary within communities due to different coping capacities. This can enable or curtail people's capacity to use migration as an adaptation strategy with the risk of some highly vulnerable community members being trapped and unable to move<sup>14</sup>. Climate-induced changes in mobility, including changes in pastoral routes, can heighten tensions between migrants and host communities over the availability and access to resources and social services, in some cases leading to violent conflict<sup>13</sup>.





## CURRENT STATUS, CHALLENGES AND OPPORTUNITIES IN KEY SECTORS

The following sections outline the current realities, key challenges and opportunities for investments in adaptation across key sectors and cross-cutting issues for the IGAD region. Across the sectors and cross-cutting issues the impacts of climate change are highlighted while the opportunities described draw on where the adaptation literature has highlighted effective and feasible interventions can build resilience of IGAD region communities and reduce their vulnerability to climate change.

## FOOD SYSTEMS

Climate change is reducing crop yields and productivity in the IGAD region. But it is important to recognise that production will not be the only aspect of food security that is impacted by climate change. Processing, storage, distribution and consumption will also be affected. Access to healthy and adequate food in the face of climate change requires resilience across all components of the food system<sup>1</sup>. For Africa as a whole, agricultural productivity growth has been reduced by 34% since 1961 due to climate change, more than any other region. Farmers and pastoralists perceive the climate to have changed and over two-thirds of Africans perceive climate conditions for agricultural production have worsened over the past 10 years. Woody plant encroachment has reduced fodder availability<sup>1</sup>. Extreme climate events have been key drivers in rising acute food insecurity and malnutrition of millions of people requiring humanitarian assistance in IGAD. Between 2015 and 2019, an estimated 45.1 million people in the IGAD region and 62 million people

in eastern and southern Africa required humanitarian assistance due to climate-related food emergencies. According to the United Nations Population Fund, due to the extended drought, over 43 million people needed humanitarian assistance across Ethiopia, Kenya and Somalia in May 2023, with nearly the majority facing high levels of acute food insecurity.

Between October and November 2023, flooding has killed more than 100 people and continues to impact millions across Kenya, Ethiopia, Sudan, Somalia and Uganda according to the United Nations Office for the Coordination of Humanitarian Affairs. Children and pregnant women experience disproportionately greater adverse health and nutrition impacts<sup>1</sup>. Transformative change is needed to ensure food security and reverse ecosystem degradation. The IGAD region needs sustainable, climate-smart farming practices that utilize biodiversity and ecosystem services to adapt to climate change.



## CHALLENGES

There is growing evidence that climate change is likely beginning to outpace adaptation in agricultural systems in the IGAD region<sup>1</sup>. The challenges include thinning and degradation of farmland soils, reduced genetic diversity in crops, and the adverse effects of climate change on agricultural yields. One estimate projects that despite the use of adjusted sowing dates and existing heat-tolerant varieties, Sudan's domestic production share of wheat

may decrease from 16.0% to 4.5–12.2% by 2050 under business as usual climate scenario<sup>1</sup>. Further, in Kenya, compared to 2000, optimal habitat for tea production is projected to decrease in area by 27% with yields declining 10% for global warming of 1.8–1.9°C, although yield declines may be reduced at higher levels of warming<sup>15,16</sup>. Suitable area for tea production may reduce by half in Uganda<sup>17</sup>. In east Africa, including the Horn of Africa, the coffee-



growing area is projected to shift up in elevation with suitability decreasing 10–30% between 1.5–2°C of global warming<sup>18-20</sup>. Other global crises like the Covid-19 pandemic and conflicts (some worsened by climate impacts) further strain food systems by affecting exports and increasing food prices. Social fragility and poverty exacerbate the impacts of climate change further, including in the IGAD region.



## OPPORTUNITIES

Sustainable agricultural development combined with enabling institutional conditions, such as supportive governance systems and policy, can provide farmers with greater yield stability in uncertain climate conditions. It is also widely acknowledged that an integrated approach for adaptation planning for food systems that combines:

- a. Climate information services;
- b. Capacity building;
- c. Indigenous and local knowledge systems; and
- d. Strategic financial investment can serve as a flexible and cost-effective solution for addressing African food security challenges<sup>1</sup>.

There are a range of practical actions for addressing the environmental, economic, and social impacts of climate change in agriculture. Ecosystem-based adaptation (EbA) practices for instance offer opportunities to restore ecosystems, improve food production, and ensure sustainable livelihoods for millions of people.

As both livelihood activities and natural resources traverse national borders in the IGAD focal countries, international collaboration

is needed to address and mitigate risks. While governments in the Horn of Africa are implementing regional and national strategies to address the transboundary impacts of climate change and the challenges associated with cross-border pastoralist movement and agriculture, investments should also focus on adaptation at the household level by diversifying livelihood activities<sup>21</sup>. Importantly, there is no “one size fits all” solution, as pastoral and agriculture systems vary substantially due to cultures, identities, and politics, therefore so too should solutions aimed at building resilience<sup>22</sup>.

The impact of climate change on livestock and crop production has pushed people in the region to explore new sources of income, including fisheries, honey production, basket making, small-scale mining, tourism, poultry keeping, and trade. Some of these efforts have been supported by local government and civil society organisations, however, the success of the mechanism is largely dependent on effective natural resource management. There is also a need for improved water governance at country and regional levels as well as adoption of efficient irrigation systems, and rainwater harvesting<sup>23,24</sup>. This should be supported by the provision of digital agriculture as well as effective early warning systems, weather services and climate information services. Climate finance also has the potential to bring in other innovative finance sources, and it can be used to connect investments to relevant, local financial instruments. This can help ensure that funding reaches the communities that are most impacted by climate change and are used to support local climate risk management, natural resource enhancement, livelihood diversification, and livestock and agricultural value chain development<sup>25</sup>.

## ADAPTATION BEST PRACTICE FOR THE SECTOR

### Protecting pastoralist against climate risks through Index Based Livestock Insurance

Takaful Insurance of Africa (TIA), through the partnership with the International Livestock Research Institute (ILRI), developed the first insurance policy that combines a financial risk mitigation instrument with innovative use of satellite imagery to compensate pastoralists before drought-induced losses occur, providing pastoralists with the needed reserves to cover supplemental feed to mitigate livestock losses. Takaful Insurance enhances adaptive capacity of pastoralist since pastoralists receive indemnity payments when forage falls below a set threshold, to help them keep their livestock alive during droughts, they would be in a position to buy feeds, water and other requirements shortly before droughts. Takaful is also currently rolling out an “IBLT Plus” product, which is a combination of personal accident cover and a savings component. This product is specifically targeted for women since livestock owners are predominantly male. Women deliberately save to ensure they purchase “family units” insurance covers for not only livestock but also takes care of their needs as breadwinners in case of accident.

Takaful is operational in the entire ASAL region of Kenya. IBLT plus is rolled out in 5 in Samburu, Isiolo, Turkana, Marsabit and Garissa County. Other counties include Tana River, Moyale, Wajir and Mandera.

With the increase in natural disasters linked to climate change, it has been consistently seen that the rural population practicing pastoralism and who double as the low-

income households greatly suffer as a result of these disasters and are less likely to recover. TIA efforts aimed towards risk reduction by offering financial support before droughts sets in to better equip pastoralists, reducing the potential loss of livestock. It also safeguarded the primary livelihoods, allowing pastoralist to maintain their way of life thus preserving their cultural and economic ties to livestock rearing. With insurance in place, pastoralist can engage in more proactive and sustainable land and water management practice thus enhancing their resilience for the longer term and reduce their reliance on emergency aid as well as enabling them to bounce back more effectively from droughts. In the latest research carried out by CGIAR in collaboration with UC Davis, there is 50% increase on the number contracts sold as well as the amount spent on insurance.

Previously 60% of population who took up IBLT covers were men while women were 40%. However, we deliberately targeted IBLT plus cover for women and attained 30% turnout. Takaful aims to create a more robust and inclusive livestock insurance system that effectively supports pastoralists in northern Kenya, particularly in the ASAL regions prone to drought by focusing on increasing relative benefit of insurance and enhancing gender inclusion.

For further information please visit TakafulAfrica <https://takafulafrica.co.ke/>

## WATER

The IGAD region has exceptionally high interannual water variability with limited water storage per capita. The increase of precipitation in the wet season indicates a higher possibility of flash floods, while decreased runoffs in dry season further intensify the existing shortage of irrigation water demand<sup>1</sup>. Some countries, for example, between 2018 and 2020, experienced extremely high levels of precipitation, resulting in floods and landslides and creating ideal circumstances for crop diseases that ravaged food production, reduced income, undermined food security and disrupted livelihoods<sup>26</sup>. At the same time, below-average rainfall and temperature anomalies contributed to droughts in Djibouti, Eritrea, and Somalia during the same period. Djibouti and Eritrea have the highest variability in Africa, closely followed by Somalia, with no or low water storage<sup>26</sup>.



## CHALLENGES

Hydrological fluctuations are associated with drought, flood and cyclone events which have had multi-sector impacts across IGAD region, including: reduced crop production, migration and displacement<sup>27,28</sup>, food insecurity and extensive livestock deaths, electricity outages, increased incidence of cholera and increased groundwater abstraction amplifying the risk of saline intrusion from sea level rise<sup>29-33</sup>.

The IGAD region is water-insecure facing critical levels of water insecurity. Some of these countries include: Eritrea, Sudan, Ethiopia, Djibouti, Somalia, and South Sudan. Water security challenges include: low levels of access to safely managed drinking water and sanitation services; high WASH-attributed mortality; poor water quality; low water value; inadequate water governance; water resource instability with high inter-annual variability and low storage capacity.







## OPPORTUNITIES

Some parts of the IGAD region are projected to receive increased rainfall while others will see declining water availability<sup>2</sup>. This calls for strategies to harness the water for climate adaptation actions in agriculture and other sectors affected by climate impacts on water including energy, food, education, health and ecosystems. This is critical as there is anticipated increase in water demand driven by population expansion and increased socio-economic activities. Importantly, such strategies should guide investments in interventions to resolve water insecurity through enhanced protection of catchments, groundwater management and increasing water harvesting and storage capacity and other water saving measures and technologies across the region<sup>1,24</sup>.

Increasingly, the provision of urban water security is dependent on the functioning of complex bulk water infrastructure systems consisting of dams, inter-basin transfers, pipelines, pump stations, water treatment plants and distribution networks. When climate risk is taken into account in integrated bulk water infrastructure supply system, the overall impact of climate change on the average availability of water to meet current and future demands is significantly reduced<sup>34</sup>. Further, stemming leakages and enhancing efficiency through technology and management improvements are important in building climate-resilient water conveyance systems. IGAD region cities could leap-frog conventional development phases to achieve a water sensitive cities, reaping benefits such as improved liveability, reduced flooding impacts, safe water and overall lower net energy requirements and avoid making the mistakes developed countries' cities have made<sup>35</sup>.



**Water is life's matter and matrix, mother and medium. There is no life without water."**

– Albert Szent-Gyorgyi, M.D.  
Discoverer of Vitamin C.

## HEALTH

Climate change is already impacting certain health outcomes in IGAD (e.g., temperature-related mortality) and risks for most health outcomes are projected to increase with increasing global warming, with young children below 5 years old, the elderly (>65 years old), pregnant women, individuals with pre-existing morbidities, physical labourers and people living in poverty or affected by other socioeconomic determinants of health being the most vulnerable. Women may be more vulnerable to climate change impacts than men of similar socio-economic grouping<sup>1</sup>.



## CHALLENGES

Contextualising projected impacts of climate change on health and how to best adapt to them requires an understanding of observed impacts<sup>1</sup>. Without adaptation, heat-related mortality is estimated to increase by a factor of more than 4 by 2080 across Africa and Horn of Africa<sup>9</sup>. Somalia, Djibouti and eastern parts of Ethiopia are particularly affected with even higher projected mortality rates. The IGAD region will increasingly be particularly affected by these extreme heat impacts as the region is predicted to suffer disproportionately from higher temperature-related all-cause mortality from global warming, compared to temperate northern hemisphere countries<sup>36</sup>. The number of days projected to exceed potentially lethal heat thresholds per year reaches 100–150 days in parts of coastal east Africa, including the Horn of Africa at 2.5°C, and over 200 days for parts east Africa including the Horn of Africa for >4°C global warming<sup>1,5</sup>.

Changing temperature and precipitation patterns are also increasing the suitability of conditions for the transmission of mosquito-borne, tick-borne, and rodent-borne diseases in many regions. For example, in east Africa, including the Horn of Africa, there has been an expansion of the *Anopheles* vector into higher altitudes<sup>37,38</sup> and increasing incidence of infection of the malaria with higher temperatures<sup>39-41</sup>. Under rising temperatures, by the 2050s, the IGAD region will see some of the greatest shifts in suitability for malaria transmission in Africa. Increases in Malaria incidence and outbreaks in IGAD have been linked with moderate monthly rainfall and extreme flooding<sup>42,43</sup>. In IGAD, malaria vector hotspots and prevalence are projected to increase. Under moderate emissions scenario (RCP4.5) to 50.6–62.1 million people in east and southern Africa will be at risk of malaria by the 2030s (1.5°C global warming), and 196–198 million by the 2080s (2.4°C global warming)<sup>44</sup>. Of IGAD countries, western Tanzania and central Uganda are predicted to be worst impacted in 2030<sup>1</sup>.

Although warming temperatures are largely responsible for increasing environmental suitability for mosquito vectors (e.g., malaria, yellow fever, and dengue)<sup>38</sup>, droughts can also increase transmission when open water storage provides breeding sites near human settlements, and when flooding enables mosquitoes to proliferate and spread viruses further<sup>1</sup>. Within Africa's rapidly growing cities, diseases vectored by urban-adapted *Aedes* mosquitoes pose a major threat<sup>1</sup>. Dengue virus expansion may cause explosive outbreaks but the burden of dengue haemorrhagic fever and

associated mortality is higher in areas where transmission is already endemic<sup>45</sup>.

Cholera incidence has been shown to increase with temperature<sup>1,46</sup>. Outbreaks, however, are most frequent in IGAD following tropical cyclones<sup>46</sup>. IGAD's rapidly urbanising population increases the demand for freshwater and is occurring in places that already have stretched water and sanitation infrastructure<sup>47</sup>. These conditions, especially during periods of water scarcity, can reduce the frequency and adequacy of hand washing and thereby increase disease transmission<sup>1,46</sup>. Future projections show cholera outbreaks are anticipated to impact countries in the IGAD region most severely during and particularly after ENSO events<sup>48</sup>.



## OPPORTUNITIES

Adaptation actions in the health sector range from building resilient health systems to preparing responses to health impacts of extreme weather events to reducing effects of increasing temperatures in residential and occupational settings<sup>1</sup>. There are opportunities in environmental health education for improved community health. At national level, initiatives taking advantage of early warning systems for preventive measures will deliver improved health outcomes. There is opportunity for climate health risks

Future influenza pandemics are highly likely, as are regional epidemics and pandemics of novel zoonotic viruses (including coronaviruses and flaviviruses)<sup>49,50</sup>. Characteristics of urban development and level of service provision, for example, crowded living spaces and transport facilities, and access to water and sanitation will influence the transmission of COVID-19 and future disease outbreaks<sup>51</sup>.

Acute mental health conditions such as anxiety, depression and post-traumatic stress can be experienced following extreme weather events. The cumulative effect of loss of livelihood, displacement, disrupted social cohesion and dislocation can also result in longer-term mental health disorders<sup>1</sup>.

assessments and studies, focused on the IGAD region/Member States, that account for major causal pathways that influence a range of health outcomes. This can inform early warning and adaptation strategies to lower or prevent exposure to these climate-sensitive diseases. The close dependency of many Africans on their livestock and surrounding ecosystems forms a context where integrated health approaches are especially critical for addressing climate change risks to health<sup>1</sup>.



Poor and low-income households often are not able to afford high out-of-pocket costs for medical care, or it consumes a large portion of their income. As a result, without financial aid, peoples' health needs may not be met after a climate shock. Microfinance (the provision of small-scale financial products to low income and otherwise disadvantaged groups by financial institutions) and disaster contingency funds can serve to reduce health risks of climate change for low-income communities<sup>1</sup>.

Adaptation to prevent malnutrition goes hand-in-hand with adaptation to prevent food insecurity<sup>1,46</sup>. Urban agriculture and forestry can improve nutrition and food security, household income and mental health of urban farmers while mitigating against some of the impacts of climate change, like flooding and landslides (by stabilising the soil and reducing runoff, for example), heat (by providing shade and through evapotranspiration) and diversifying food sources in case of drought<sup>1</sup>.

Increasing distribution and coverage of long-lasting insecticide-treated bed nets, improved diagnostic tests and increasing health service access can substantially reduce the impacts of climate change on malaria. Further, better understanding of seasonal shifts in malaria transmission suitability because of climate change can guide more targeted seasonal public health responses and better planning for different types of management and control interventions based on the impact. For example, an increase in the number of months where climate conditions are suitable for mosquito survival will require public health responses for an extended period of time<sup>1</sup>.

Climate-related adaptation to reduce diarrhoeal disease has significant synergies

with WASH outcomes including investment in robust water and sanitation infrastructure and technological adaptations, such as waterless on-site sanitation, diversification of water sources (e.g., rainwater harvesting and groundwater abstraction), and sharing of best practices across the IGAD region. Hand hygiene can be improved through the creation of handwashing stations, increased access to soap and simple technologies such as the foot-operated Tippy taps<sup>1,24</sup>.

## HUMAN SETTLEMENTS AND INFRASTRUCTURE

Ongoing rapid urbanisation and infrastructure development in the IGAD region faces a range of challenges from climate change impacts. Heavy rains, flooding, erosion, landslides, droughts, water scarcity, and poor water quality directly affect cities<sup>1</sup>. Higher temperatures, urban heat islands, and heat waves worsen air quality and exacerbate climate impacts. They pose a direct threat to vital infrastructure, including major roads and urban areas and the transportation sector. Roads are the backbone of the region's transportation network and are essential in linking farmers and markets. Biodiversity loss threatens ecosystem services in urban areas. Economic losses occur due to damage to infrastructure, agriculture, and livelihoods. Climate change contributes to rural-to-urban migration, which strains basic services, infrastructure, and labour markets. Marginalized populations, especially those with limited resources, are more severely affected by climate impacts. For instance, in Djibouti, climate change is leading



to erratic rainfall where droughts and floods are both on the rise and with most of Djibouti's infrastructure and population (88%) located in coastal areas, they are therefore at major risk from sea level rise<sup>52</sup>.



## CHALLENGES

The main challenges in building resilient cities and infrastructures/buildings include insufficient financing, institutional and governance issues, lack of awareness and information, technical and technological challenges, and equity considerations. There is also limited climate-proofing of infrastructure to enhance resilience to climate risks, such as power grids, roads, railway lines, ports, and airports. Updating the building codes to enhance levels of resilience in the urban built environment, including green building, has

been slow or not commenced. Progress on building energy codes (necessary for green building) is slow and not keeping up with the increasing demand for new buildings, which is driven by the growth in population and urbanization. Future rapid coastal development is expected to increase existing high vulnerabilities to sea level rise and coastal hazards, particularly in east Africa including the Horn of Africa<sup>1</sup>. Many innovative approaches, such as nature-based solutions (NbS), are also often inappropriately considered higher-risk investments compared to traditional infrastructure solutions. Overcoming these challenges requires holistic approaches that integrate financial mechanisms, governance frameworks, knowledge-sharing platforms, capacity-building initiatives, and inclusive stakeholder engagement. Collaboration among various stakeholders is crucial for addressing these challenges and building resilient and sustainable cities.





## OPPORTUNITIES

Nature-based solutions (NbS) and Ecosystem-based Adaptation (EbA) are crucial for building climate resilience in cities and peri-urban areas. NbS and EbA are often more cost-effective and provide innovative financing opportunities for risk management<sup>1</sup>.

Currently, planned climate change adaptation to coastal hazards in Africa's large coastal cities has mainly been achieved through expensive coastal engineering efforts such as sea walls, revetments, breakwaters, spillways, dikes and groynes. However, the use, protection and restoration of vegetated coastal ecosystems presents greater opportunities for African cities because of the lower costs<sup>1</sup>. For green infrastructure to be successful, however, sustainable landscapes and regions require both stewardship and management at multiple levels of governance and social scales<sup>1</sup>. The review and updating of building codes in the region is a key adaptation intervention to climate-proof the built environment. This will pave the way for retrofitting and upgrading deteriorating urban infrastructure to meet the challenges of climate change, such as the urban heat island effect, droughts, and flooding, present an opportunity to reinvent cities as greener, more liveable, and equitable spaces. There is opportunity to promote integrated, sustainable infrastructure approaches that achieve higher service levels with less infrastructure, while being resource-efficient, resilient, cost-effective, and environmentally friendly. Social learning platforms also increase communities' adaptive capacities and resilience to risk<sup>53</sup>.

## ADAPTATION BEST PRACTICE FOR THE SECTOR

### Private sector partnerships for sustainable livelihoods: the case of solar energy access in refugee communities in Ethiopia

Economically inclusive and resilient refugee hosting area in the Dollo Ado and Bokolmayo Woredas, Ethiopia, 2022-2024. This is the fourth phase of a long-standing partnership with IKEA Foundation in the Ethiopia and specifically in Melkadida sub-office. This project aimed at improving the livelihoods and self-reliance of refugee and host communities through increasing energy access through solar mini-grids and cooking solutions. Between 2019 – 2024, 6 solar mini-grids were installed and are being operated by energy cooperatives consisting of host and refugee members across the five camps and hosting areas. A total of 48 members are providing clean energy for 1,230 customers (households, institutions, businesses).

The main successes of this project include increased income generation (for 2022, income to 2.1 million ETB and savings of 0.7 million ETB), as well as increased access to energy for 1200+ customers. In addition, 50 people were trained and developed skills to become certified members on solar energy. The project is a business-oriented project, but at the same time the cooperatives are providing up to 10% of customer base to the most vulnerable customers with free



energy, in return of UNHCR/IKEA Foundation supporting in battery replacement which took place in 2021/2022.

The project proved and introduced the technology from 2019 and beyond, provided technical trainings and increased the capacity and set of skills which paved the road to other actors (EU/Spanish Cooperation Agency, Ethiopian Electric Utility and AfDB) to invest and implement energy projects in the area. The current access is around 12-15% and it's expected to be around 22% by June 2024, which is still low. The project can be scaled up, using the cooperatives, the Ethiopian Electric utility and other actors to increase access to energy. All the needs, costs, interventions are assessed as a part of a costed 5-years development plan for the area of operation which includes Energy, Water, Land and People.

Links to [research](#), [resources](#), [information](#)

## HUMAN MOBILITY AND DISPLACEMENT

Climate change is increasingly influencing trends in human mobility, including displacement within and across borders. Climate shocks and stresses are affecting people's lives and human mobility, whether as a last resort out of crisis conditions and away from harm, or as a proactive Strategy to reduce risk and access opportunities elsewhere.<sup>iii</sup>

Conflict and insecurity continue to intersect with the impacts of climate change, compounding vulnerability, amplifying multiple drivers of forced displacement and accelerating the protection and assistance needs of populations already living in situations of forced displacement. The IGAD region is home to one of the highest concentrations of forcibly displaced populations in the world, with 4.5 million refugees and asylum seekers and 12.8 million people internally displaced by conflict and violence<sup>54,55</sup>. In addition, weather-related hazards brought on at least 3.1 million new displacements in 2022 alone, with Somalia, Ethiopia, South Sudan, and Kenya being particularly hard hit by the effects of drought and floods<sup>54</sup>.

Refugee and internally displaced persons (IDP) settlements are frequently located in regions with higher-than-average warming levels, environmental degradation and exposure to climate hazards<sup>1</sup>, which add to their needs for

iii. Migration is among a wider set of possible adaptation alternatives and often emerges when other forms of adaptation are insufficient. While safe and orderly migration can be a successful adaptation Strategy, migration outcomes differ substantially with some populations pushed into poverty spirals. Forced displacement occurs when adaptation alternatives are exhausted or not viable and reflects non-climatic factors that constrain adaptive capacity and create high levels of exposure and vulnerability. Displacement is recognised as the clearest case of (non-economic) loss and damage across the continuum of human mobility.



protection and humanitarian assistance, and increase the risk of onward and protracted displacement when shelter and sites are damaged or destroyed. A recent study suggests that more than 600,000 refugees living in settlements across South Sudan, Kenya, Tanzania, Uganda, and Ethiopia face elevated climatic and environmental exposure compared to other potential IDP settlement locations<sup>56</sup>. While these populations are disproportionately exposed and vulnerable to climate-related shocks and environmental degradation, they are often among those without access to the resources and support they need to adapt, prepare for and recover from loss and damage at the speed and scale required, and their own capacities and contributions are not adequately recognised and enabled<sup>57</sup>.

Women, children, older persons, people with disabilities, and indigenous peoples, are among those in greatest need of protection. At the same time, displaced people and their hosts are already taking action, collaborating with stakeholders at all levels to protect the environment and strengthen resilience where it is most needed.

Climate sensitive resources, such as water, crops, and livestock, have already seen widespread losses and damages due to climate change<sup>1</sup>. Livelihoods in the region have long evolved around livestock's grazing needs and rainfed agriculture, but traditional coping mechanisms have been exhausted by increasing climate variability, forcing farmers to move and some pastoralists to become sedentary.

A recent case study that examined changes in human mobility patterns in the shared border regions of Ethiopia, Kenya and Somalia identified that climate change and disasters predominantly cause internal displacement and changed the internal and cross-border migration patterns of pastoralists. It further highlighted the temporary displacement of agropastoral and sedentary populations living along the riverbanks due to floods. Moreover, the ongoing drought, the longest and most severe drought on record in the Horn of Africa region, triggered both internal and cross-border displacements.

By the end of July 2023, over 2.3 million people had been internally displaced in Ethiopia and Somalia due to severe drought impacts and over 251,000 new refugees and asylum-seekers had crossed from and into drought-affected areas of Ethiopia, Kenya and Somalia. In Somalia alone, the drought has forced nearly 1.2 million people from their homes, many from regions that are also affected by conflict and violence<sup>58</sup>. Beyond causing new displacements, the drought is negatively impacting already displaced populations in the region. For many pastoralists, it may mean the end of their way of life. These forced displacements and the disruptions they cause represent significant economic and non-economic losses and damages<sup>54,59</sup>.

Movement in response to climate-related shocks and stresses is generally a last resort and often driven by a mix of motivations and factors<sup>60</sup>. In research undertaken by the Africa Climate Mobility Initiative (ACMI),<sup>iv</sup> about a quarter of respondents across their case studies expressed a desire to move but

indicated that they lack the resources or the capacity to do so<sup>60</sup>. Mobility as a potential adaptation Strategy is not accessible to them. People thus remain in at-risk places and may eventually be forced to evacuate in worse circumstances or become stranded<sup>60</sup>. This risk may be particularly elevated for women who perceive and experience climate stressors more acutely but are less likely to aspire to move than men<sup>60</sup>.

Moreover, severe climate impacts threaten the cornerstones of durable solutions for refugees and internally displaced persons by rendering areas of return and of local integration too dangerous to live in or too fragile to support large populations<sup>61</sup>. Displaced persons who have suffered extreme and sudden climate events often return to their places of origin to safeguard their land and livelihoods despite the continued presence of climate risks. Others settle in new locations available to them, including in informal settlements, where they may remain vulnerable and exposed to climate hazards. If climate impacts are not adequately considered in repatriation and local integration strategies, refugees and IDPs may be in harm's way and at risk of further displacement.

Unplanned and unsupported climate-related human mobility can result in new risks and vulnerabilities<sup>60</sup>. Current experiences indicate that mobility as a coping and adaptive responses is unlikely to prove successful if people lack awareness and knowledge about the risks of remaining in place or those associated with relocation, as well as the resources to make moving an accessible option.

iv. To explore this data further and read climate mobility Voices from the Frontlines, use the Africa Climate Mobility Initiative's online portal: <https://africa.climate-mobility.org/explore-the-data>

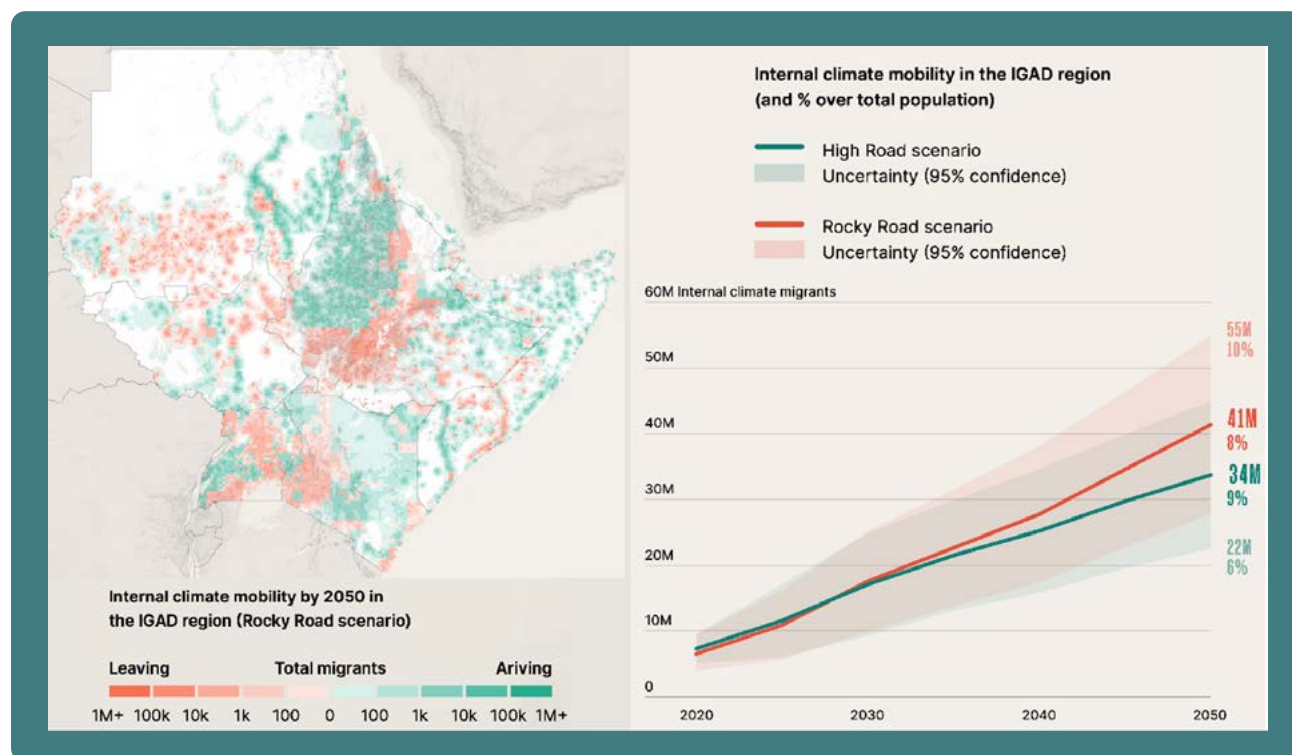




## CHALLENGES

Deteriorating living conditions due to climate impacts could eventually force people to abandon areas where climate impacts are no longer tolerable. Changes in water availability

and crop yields will be main drivers of displacement and migration, while adverse climate conditions generally depress rather than spur voluntary movements.



**Figure 6:** Projected climate-related mobility within IGAD region (2020-2050)<sup>60</sup>

The IGAD region will be particularly affected: It could see up to 10.5% of the region's population on the move by 2050, in response to climate drivers (Figure 6).<sup>v</sup> Under the Rocky Road scenario (a projection based on high GHG emissions scenario: RCP6.0; combined with low and inequitable development: SSP3), about 41 million people, and potentially up to about 55 million, could move within

countries in the IGAD region by 2050<sup>60</sup>. The overwhelming majority of this movement will happen within countries rather than across borders. Internal climate-related mobility within countries could reach up to 113 million people by mid-century under a high emissions and inequitable development (Rocky Road) scenario<sup>60</sup>.

v. For more detail on the methods and modelling approach used by the Africa Climate Mobility Initiative see, <https://africa.climate-mobility.org/report>. The ACMI modelling includes climate impacts on water availability, crop production, net primary productivity (an indicator used to gauge conditions in rangelands), flood risk, sea level rise, and heavy rainfall associated with tropical cyclones. In doing so, the model draws in the actual impacts on critical primary sectors, such as water, agriculture, and ecosystem services, all of which are central to a range of livelihoods. Beyond climate impacts, other factors, such as armed conflict, are also considered when projecting population shifts out of the affected areas and towards more favourable environments. This marks a significant technical advance compared to previous methods used to model climate mobility. To complement the modelling of internal climate mobility, the ACMI also modelled future climate driven cross-border migration on the African continent out to 2050. These projections are intended to shed light on how climate change will affect international migration trends within a South-South context. The cross-border climate mobility model projects future bilateral migration between two countries, combining development and emissions scenarios, and considering the same climate impacts that were used for modelling internal climate mobility. Rather than comparing a 'development only' to a 'climate impacts' scenario, the cross-border modelling compares the latter to a counterfactual scenario, which holds water availability and crop yields constant at their historical average (1990 to 2010).



## OPPORTUNITIES

Inclusive development choices and investments in people-positive adaptation options could significantly reduce the number of people compelled to move due to climate disruptions and support safer forms of human mobility and voluntary planned relocation<sup>60</sup>. To be fully inclusive, such development should adequately address climate-related exposure, vulnerability and response capabilities of affected populations. When mobility is planned, it provides greater opportunities for resilient outcomes for livelihoods<sup>1,2,60,62</sup>.

Since climate-related human mobility, like migration and displacement in general, is projected to be predominantly internal, inclusive climate adaptation and development actions at the local level will be at the forefront of supporting affected communities and the people who move<sup>1,62</sup>. Meaningful engagement, participation and co-implementation of climate action with displaced communities and their hosts, including through adopting and implementing principles for locally led adaptation will be key.

Addressing climate-related human mobility begins with understanding its spatial dynamics and the specific vulnerabilities and exposure of affected communities. Starting with current and projected future hotspot areas allows for deeper analysis, local engagement, and anticipatory actions for adaptation and resilience<sup>60</sup>. Targeted actions are needed to ease the climate adaptation burden for women, such as through equal access to rights, expanded social protection, diversification of livelihood sources and improved climate services, especially for women farmers and

those working in informal sector work in urban areas<sup>60</sup>.

Investing in green skills and jobs for youth can enhance their options around staying or moving and advance the wider societal effort for climate adaptation and for a green and just transition. Recognizing and supporting mobility as a legitimate coping and adaptation Strategy can allow communities to remain rooted in place, while some members move to pursue new livelihood and income opportunities.

Furthermore, legal frameworks in many countries do not foster formal access to employment for refugees: according to the UNHCR Internal Livelihoods Survey, 68 per cent of refugees live in countries with restrictions regarding the right to work and challenges to obtain work permits. Lack of legal work opportunities and economic participation significantly impacts the resilience of refugees and their capacity to adapt. Cities and urbanizing areas will be critical sites for managing the social and economic inclusion of people moving internally and across borders. Local governments must be equipped with the data, technical and financial resources and competencies needed to proactively plan for and address their increased exposure to both climate risks and human mobility. Addressing vulnerability and broader development challenges through investments in physical and social infrastructure and community cohesion in hotspot areas will be critical for reinforcing adaptation planning for climate-related mobility across the IGAD region<sup>63</sup>. By embracing the resulting 'multilocality' and the new connections forged between people and

places, the IGAD region could fortify its climate resilience, advance its long-held ambitions for political and economic integration, and reap development gains<sup>60</sup>.

Laws and policies on migration, asylum, and displacement have a part to play in averting, minimizing and addressing climate-induced migration and displacement. They can facilitate the movement of people across borders and ensure the protection of those who are forcibly displaced due to climate shocks. Africa is well positioned to use its existing institutions and forward-leaning legal frameworks, including the Organisation of African Unity (OAU) Refugee Convention and the 2022 Kampala Ministerial Declaration on Migration, Environment and Climate Change, as well as free movement agreements, to avert, minimize and address climate-induced displacement and migration<sup>60</sup>. IGAD Member States are leading the way by endorsing an IGAD Protocol on Transhumance that acknowledges the impacts of climate change

and by recently ratifying the Protocol on Free Movement in the IGAD region, that permits cross-border movement within the region "in anticipation of, during, or in the aftermath of a disaster"<sup>57,64</sup>. It also calls on its members to facilitate the stay of IGAD citizens when their country of origin remains impacted by disaster and return is not possible. Moreover, IGAD is leading the integration of forcibly displaced communities into national systems and policies of its Member States. IGAD in close cooperation with UNHCR has been leading a regional dialogue on solutions since 2017, with the Nairobi Declaration on Durable Solutions for Somali Refugees and Returnees which was soon after extended to include all refugees in the IGAD region. The IGAD lead Kampala Declaration on Jobs, Livelihoods & Self-reliance for Refugees, Returnees & Host Communities in the IGAD Region is essential in anchoring the right to work for refugees in the region, enabling them to seek alternative formalized income opportunities<sup>65,66</sup>.

## HUMAN SECURITY AND PEACEBUILDING

The IGAD region is a highly fragile region with different types of conflicts experienced to varying degrees in Somalia, South Sudan, Ethiopia, Sudan, Uganda, and Eritrea. As a result of the civil wars or conflicts as well as extreme weather events, the region hosts 14.8 million IDPs who are often severely food insecure and in need of assistance<sup>67</sup>. The fragility of some government institutions has constrained efforts to address the needs of

the population, which has sometimes been linked to social unrest, riots, and political instability. This fragility of governments is also a cause and a consequence of piracy and illicit trade in natural resources that are often linked with insecurity dynamics<sup>3</sup>. Meanwhile, the increasing climate crisis is exacerbating root causes of fragility and conflict in the land, water, and food systems, further contributing to increased grievances,



tensions, fragility and conflict among the most vulnerable populations<sup>9,68-70</sup>. Research shows that conflicts over the climate-induced competition for natural resources, often associated with cattle rustling, and grievances due to the climate-induced loss of agriculture livelihoods and food security have significantly increased in the past decade, with Ethiopia, Kenya, Sudan and Uganda being among the most affected countries field<sup>71-74</sup>. Key climate security pathways are also visible in the borderlands, in the form of threats to food

and water security; climate-induced mobility; historical grievances; cultural practices and governance and fragility<sup>75</sup>. These different types of conflicts undermine the resilience and adaptive capacity of people and communities, including those living in displacement, because of the damage to infrastructure, assets, natural resources, and social capital that enable climate adaptation and undermine the ability of climate adaptation efforts to improve the capacity of the most vulnerable to absorb, adapt and transform to compound risks<sup>3</sup>.



## CHALLENGES

Climate change and conflict have a compounding impact in the IGAD region, caught in a vicious circle in which climate change impacts exacerbate the risk of violence, conflict, and insecurity, while the occurrence of conflict and violence disrupts social systems, hampers sustainable resource management, and undermines the resilience of communities and individuals, reducing their capacity to adapt and augmenting their vulnerability<sup>71-73,75</sup>. Agriculturally dependent and politically excluded groups in Africa are especially vulnerable to the impact of drought on conflict. Additionally, armed conflict is degrading the environment, further compounding climate change impacts and vulnerabilities<sup>13,76,77</sup>. Overall, these feedback loops perpetuate chronic insecurity, undermine societal resilience, and hinder efforts to address climate change and conflict comprehensively<sup>3</sup>.

Traditional climate adaptation approaches are failing to address the climate, peace, and security nexus as they do not account for the compound effect that climate impact has on land, water, and food systems and indirectly on peace and security. Policies and policy instruments remain blind to the climate, peace and security nexus. CGIAR research shows that whilst policy documents do show evidence of understanding to some extent the conditions and circumstances that may heighten the chances of climate-related security risks emerging, translating this awareness into concrete policy measures remains a persistent challenge. Policy documents were found to be much more likely to in some way acknowledge climate-conflict linkages and the presence of climate-related security risks than they were to put forward climate security-sensitive programming that explicitly sought to prevent

such risks. There was, however, notable cross-sectoral variation in the extent and depth of engagement with climate-related security risks and potential interventions to mitigate these, with longer-term climate adaptation and mitigation activities being the least likely to be seen as entry points for addressing root causes of conflict. It could, therefore, be argued that within the IGAD region, policies enacted in sectors relevant to the climate security nexus are unlikely to address the root causes of climate vulnerability and conflict simultaneously<sup>77</sup>.

At the same time, the specific needs and challenges of people, communities and countries threatened or affected by fragility or conflict or facing high humanitarian needs, displacement and insecurity, such as in the IGAD region, remain largely unaddressed in global efforts to build climate resilience including due to barriers to accessing finance, capacity constraints, and real and perceived risks associated with working in such environments, leaving countries, communities and specific groups in vulnerable situations behind<sup>78</sup>.



## OPPORTUNITIES

There is great opportunity to prevent future conflict by nurturing community cohesion or encouraging regional climate change adaptation as an integral part of peacebuilding strategies in the IGAD region<sup>79</sup>.

In line with the New Agenda for Peace, traditional climate adaptation policies, strategies, plans, and approaches must be transformed to become an instrument for conflict prevention and sustaining peace<sup>80</sup>. Efforts should, therefore, be directed at:

1. Identifying and pursuing the co-benefits for peace and social cohesion that specific climate action initiatives may have – or, conversely, the benefits for climate resilience a conflict prevention or peacebuilding intervention may have - in a more systematic manner. This would

include, for instance, embedding objectives relating to climate resilience, peace, and social cohesion from the very beginning of programme design; undertaking climate security-sensitive baseline assessments, and ensuring that proxies for climate resilience, peace, and social cohesion are included in M&E exercises. This should be done at country as well as at the regional level to address transboundary climate-induced security risks<sup>75</sup>.

2. Scaling up and incorporating existing integrated and multi-dimensional programmatic initiatives that include reducing the risk of climate-related conflict – currently predominantly undertaken as part of DRR efforts - into more longer-term adaptation efforts as well.

3. Improving opportunities and capacities cross-fertilisation between climate and environment and peace and security policy sectors, both at the institutional and technical levels. Specifically, there is a need to create entirely new or utilise existing institutional spaces where actors working on various elements of the climate security nexus are able to coordinate, share knowledge and experiences, and anchor any collective action initiatives.
4. Improving the technical capacity of actors working at the intersection of climate, insecurity, and conflict to operate on the basis of the principles of adaptivity<sup>77</sup>.

Climate-security dynamics tend to invoke a range of interactive factors, including but not limited to changing climatic conditions. Intervention may therefore involve a range of approaches that go beyond climate change adaptation or mitigation practices. For example, by focusing on governance or dispute resolution dynamics within a given community, and only incorporated a climate change adaptation or mitigation component as a minor subcomponent or activity<sup>79</sup>. The response to climate change in these cases needs to involve all the other factors that make this environmental dynamic a conflict driver. Adaptation needs to happen with the human interaction creating the conflict, not just in the herding or agricultural practices<sup>79</sup>. In the IGAD regions it is therefore important to address the drivers of conflict or vulnerability holistically, including environmental or climate-related factors alongside other interrelated drivers, such as poor governance, lack of enforcement or dispute resolution, intracommunal tensions

or mistrust, inequity, exclusion or stigma against certain groups, poor socioeconomic indicators, and other sources of vulnerability or violence<sup>79</sup>.

In general, climate action interventions that foster peacebuilding should be decoupled from states<sup>81</sup>. Rising incomes may reduce conflict-climate relationships<sup>82,83</sup>. Household-level resilience to economic shocks has been shown to lower support for violence after drought<sup>84</sup>. Local-level institutions can support non-violence under adverse climate conditions<sup>81,85</sup>. Ameliorating ethnic tensions, improving political institutions and investing in economic diversification and household resilience could mitigate future impacts of climate change on conflict and contribute towards durable solutions for peacebuilding<sup>60,86</sup>. Local communities can build resilience, while not giving away their cultural identity which is often connected to the environment they inhabit. This approach allows for and encourages cross-sectoral, cross-boundary, and intercultural communication and a new form of mutual exchange. When it comes to conflict, intercultural knowledge can further strengthen our understanding as different perspectives form part of individual education.



**A nation that destroys its soils destroys itself. Forests are the lungs of our land, purifying the air and giving fresh strength to our people."**

– Franklin D. Roosevelt



# ECONOMY, POVERTY AND LIVELIHOODS

Despite the IGAD region's economic potential and abundance of natural resources, there are economically underdeveloped areas. The informal sector dominates the economy, with

women constituting more than half of the informal traders, including in the cross-border economy.



## CHALLENGES

Over 80 per cent of the region's population live in rural areas and derive their livelihoods primarily from semi-subsistence, rainfed, agriculture, pastoral, and agro-pastoral activities. The agriculture sector accounted for 31 per cent of the GDP in the region in 2018, 60 per cent of the export earnings, and 80 per cent of employment opportunities. Pastoralism is a diverse but widespread way of life across the IGAD region. It is estimated that there are 12–22 million pastoralists. Pastoralism contributes almost 15 per cent of the GDP of IGAD Member States and supports around 70 per cent of rural livelihoods<sup>87,88</sup>. The countries in the region face many issues: they have low levels of industrialization and trade, high poverty and unemployment rates, poor transportation infrastructure, and unplanned and rapidly growing urbanization. Regionally, the private sector remains weak, underdeveloped, and operates substantially below its potential bar with some exceptions. Youth unemployment in the region is high (exceeding 20 per cent in countries with high unemployment among the general population), and, even in countries where youth unemployment rates are lower, poverty rates remain high<sup>87,88</sup>.

Numbers of livestock have declined. Without sufficient water and grazing, livestock die;

some pastoralists lose all or most of their livestock, rendering their traditional lifestyle untenable. This leads to pastoralist 'dropouts', poverty and urban drift. The decision to drop out is often one made by the male head of household; women tend to remain behind within the pastoralist communities<sup>87,88</sup>. Without livestock, pastoralists move to villages and towns in search of work and to access resources. Many struggle to make a living, as their skills are ill-suited to a settled lifestyle. Those living in villages tend to be vulnerable – they lack sustainable livelihood options and are unable to support their families and pay for health care or education<sup>87,88</sup>.

Poor and female-headed households face greater livelihood risks from climate hazards<sup>1</sup>. Women often constitute a high proportion of the informal, or unrecognised and unpaid workforce, and are also more likely to be unemployed than men. These factors leave women, and particularly female-headed households, at greater risk of poverty and food insecurity from climate hazards<sup>1</sup>. Women provide a higher proportion of the agricultural workforce (between 70–80 per cent on average) though they have less access to and control over productive resources (e.g., land)<sup>1,89</sup>.



At the household level, pastoralist women often supplement household income through different livelihood activities. The traditional lifestyle is disrupted, as there is no core livelihood to pass on to children. Valuable knowledge, passed down through generations, about livestock management, the climate and environment, and survival practices in harsh conditions, is lost. Households are often dependent on the goats and sheep tended by women and children, for their nutritional components of milk and meat. Poverty and lack of viable livelihoods become intergenerational problems, as parents, often poorly educated, are unable to send their children to school or to impart skills that lead to employment<sup>87,88</sup>.



## OPPORTUNITIES

Poor households may reduce risk or aid recovery by cooperating with other households in their community to adapt collectively to climate change, for example, through informal insurance networks. Prioritising poor households for interventions including social protection, EbA, universal healthcare, climate-smart buildings and agriculture, flexible work

hours under extreme heat and early warning systems will increase adaptation to climate shocks<sup>1</sup>.

Pro-poor policies that link mitigation and adaptation, such as using renewable energy to increase rural electrification or using revenues from a carbon tax, combined with international financial support to increase social assistance that supports equitable and sustained access to renewable energy, could support sustainable eradication of poverty under near-term climate change<sup>60,90</sup>. Integrating urban green infrastructure into adaptation planning in informal settlements can simultaneously unlock pathways for inclusivity and social justice<sup>1</sup>.

Social protection has been used for decades, particularly in eastern Africa, to safeguard poor and vulnerable populations from poverty and food insecurity<sup>1,91-93</sup>. Instruments of social protection include public works programmes, cash transfers, in-kind transfers, social insurance and microinsurance schemes that assist individuals and households to cope during times of crisis and minimise social inequality. Evidence from Ethiopia, Kenya and Uganda indicates national social protection programmes are effective in improving individual and household resilience to climate-

related shocks, regardless of whether they aim specifically to address climate risks<sup>1,94,95</sup>. Strengthening social protection and better integrating climate risk management into design of social protection programmes can help build long-term resilience to climate change<sup>1</sup>. For example, public works

programmes can build climate resilience by targeting soil, water and ecosystem conservation and carbon sequestration, such as South Africa's Working for Water Programme that restores river catchments to reduce fire risk and increase water supplies<sup>1</sup>.

## ADAPTATION BEST PRACTICE FOR THE SECTOR



### Improving climate resilience through integrated land management and alternative livelihoods in refugee hosting districts in Kigoma, Tanzania

The project seeks to restore degraded landscapes in and around the Nduta and Nyarugusu refugee camps and refugee hosting districts (Kibondo and Kasulu), while enhancing community resilience and adaptive capacity through strengthened sustainable livelihoods and skills. This project is implemented by UNHCR in conjunction with World Food Programme (WFP). The project proposes a holistic landscape approach that combines interventions that increase vegetation cover (reforestation), reduce soil run off, improve water retention and soil restoration (applying a community led environmental restoration and asset creation approach), coupled with activities building community adaptive capacity such as promotion of sustainable agriculture practices, including agroforestry, perma- and kitchen gardens, and diversification and promotion of use of agriculture by-products

to produce alternative cooking fuel to mitigate negative environmental impacts. As a result, degraded landscapes are restored to provide their various ecosystem services and household resilience and food and nutrition security is improved.

The project is implemented within the framework of the UN supported area-based Kigoma Joint Programme, which ensures full engagement and oversight of the Kigoma regional authorities. The project is implemented by a range of partners, including from the government. Specifically, WFP, Danish Refugee Council (DRC); Local Government Authorities, Government Agencies (Tanzania Forestry Services Agency, Small Industries Development Organisation) Ministry of Home Affairs; as well as refugees and host communities.



Tanzania Forestry Service Agency's operational capacity has been strengthened, including through the construction of centralized tree nurseries that will also be used for community capacity development trainings. Landscape restoration activities have improved overall environmental protection, notably conservation of water sources and controlled flood and soil erosion contributing to sustainable housing and settlements. The application of community led landscape restoration combined with asset creation using a cash for work approach has contributed to community engagement and environmental awareness while building community resilience. Training on the fabrication of bio-briquettes for host community beneficiaries has had positive impacts to both beneficiaries. The beneficiaries now spend less time to fetch firewood and more time on productive livelihood activities. Beneficiaries in the refugee camps are supported to establish kitchen gardens resulting in improved nutritional outcomes, which is particularly important in view of recent cut in food rations, and building vegetable growing skills that can be applied in case of return to their country of origin.

The approach to project implementation follows an AGD (Age, Gender, and Diversity) approach. This approach ensures vulnerable people are consulted, provided tailored information, and are engaged throughout project processes from designing to monitoring and evaluation. This project leaves no one behind as it seeks to protect, conserve, and restore natural landscapes,

while building community resilience and adaptive capacity for everyone including the most vulnerable. Specific gender and youth targets have been considered to ensure inclusiveness.

The close involvement of the LGAs in the project is believed to have a positive effect on future public planning and budgeting of environmental activities at the district levels, as they are owning the achievements and impacts of the project activities, providing scope to scale up/sustain the interventions. Collaboration with government agencies such as TFS and SIDO will contribute to realizing sustainability of the interventions, while building local knowledge and operational capacity to replicate and scale up similar interventions. Promoting nature-based solutions using locally and cost-effective materials such as indigenous trees in landscape restoration initiatives and seeds in climate smart agriculture interventions. Pursuit of partnership approaches in fundraising and implementation to complement UNHCR limited financial resources for environment and climate action. Additional resources for similar activities are expected to be mobilized for the Kigoma region, including potentially through the Green Climate Fund, and the project is expected to provide valuable lessons learned which can be institutionalized and scaled up.

For further information please visit UNCHR <https://www.unhcr.org>

## BLUE ECONOMY

Marine and coastal ecosystems such as mangroves, seagrass and coral reefs provide storm protection and food security for coastal communities<sup>96,97</sup>. EbA has the potential to significantly enhance the resilience of society to climate change and could be a key part of national and global adaptation efforts. Blue Infrastructures, including rivers, ponds, peat bogs are a set of ecological continuities allowing the migration of species populations. The increased use of blue infrastructure can help to reduce some of the impacts of climate change we are likely to see this century, such as increased flood risk, heatwaves, droughts and changes to ambient temperatures.

There is a need to ensure that the natural capital of the region's marine and freshwater ecosystems is protected and restored. It is also important that consideration is given to promoting an inclusive regional Blue Economy, given the vulnerability and marginalisation of certain groups (e.g., women and youth). Such vulnerability and marginalisation are also reflected within particular sectors, for example, small scale fishers within the fisheries sector.

The Blue Economy plays a central role in the economy of IGAD Member States, including sectors such as fisheries and aquaculture, oil and gas, and shipping and ports. It is important to note that, in line with the AU's Blue Economy Strategy, the Blue Economy concept includes both marine and freshwater ecosystems and industries. Despite its centrality within the sub-region, there remains significant potential to further develop IGAD's Blue Economy, which can stimulate regional industrialisation, enhance trade, and support sustainable livelihoods. For instance, UN Habitat estimates that Kenya's maritime

ecosystems contribute just 4 per cent of the country's GDP, equivalent to US\$2.5 billion per year<sup>98</sup>. This has the potential to rise to US\$4.8 billion with appropriate scaling-up, investment and political will. The Blue Economy in Djibouti makes up 18% of total GDP and 22% of total employment<sup>99</sup>.

The IGAD Regional Blue Economy Strategy and Implementation Plan (2021-2025) is the regional framework for sustainable management of marine and freshwater environments. IGAD supports member states in developing their National blue economy strategies to guide national and sub-national policies and strategies. The regional and member states' blue economy strategies recognise the threats posed by climate change and the need to enhance climate adaptation to ensure the conservation and sustainable management of the marine and freshwater environments in the IGAD region.



## CHALLENGES

Marine and freshwater ecosystems provide multiple provisioning, regulating, supporting and cultural ecosystem services that are central to the wellbeing of IGAD's natural, economic and social systems. These ecosystems face a range of threats, including habitat destruction, pollution, overharvesting of living resources, governance challenges and challenges related to maritime security. For example, Somalia's marine and coastal communities are faced with challenges including sand dunes, pollution and Illegal, Unreported and Unregulated (IUU) fishing thus undermining the productivity of

the marine and coastal ecosystems. Climate change threatens the region's Blue Economy through a variety of drivers, including sea level rise, shifting rainfall patterns, more frequent and intense storms and droughts, warming sea temperatures, marine heatwaves and ocean acidification. It is important that efforts to enhance the climate resilience of the region's Blue Economy take an integrated approach to the multiple threats facing the region's freshwater and marine ecosystems. There is also a need to strengthen research to model and monitor climate impacts on the region's freshwater and marine ecosystems and support adaptation efforts to enhance resilience.



## OPPORTUNITIES

While freshwater and marine ecosystems are impacted by climate change, they also play a central part in enhancing resilience. By strengthening EbA, the region's resilience can be strengthened in ways that also deliver important biodiversity and socio-economic benefits. For example, the Mikoko Pamoja project in Kenya was Africa's first blue carbon project, providing inspiration for similar projects in Africa and globally<sup>100</sup>. The project has aided the conservation of 117 ha of mangroves in the Gazi Bay since 2014. Through protecting and restoring mangrove ecosystems, such projects are providing direct benefits to communities, enhancing biodiversity and strengthening climate resilience<sup>88</sup>. The development of climate-resilient cities and coastal infrastructure creates opportunities for investment, job creation and the revitalisation of coastal zones.

Lake Victoria, Africa's largest and the world's second-largest freshwater body, is particularly

important for the development of IGAD's blue economy. The lake plays an essential economic role for the region, supporting over three million people in the fisheries and related sectors. There is substantial opportunity to strengthen research to model and capacity to monitor climate impacts on the region's freshwater and marine ecosystems and support adaptation efforts to enhance resilience across production and beneficitation dimensions of the Blue Economy the Great Lakes region.

Somalia has massive blue ocean economy potential given it has the longest coastal shoreline of 3,333 kilometres in mainland Africa endowed with fisheries and marine resources including mangroves, coral reefs, and fishing. The development of the recent Somalia National Blue Economy (BE) Strategy provides an opportunity for enhancing investment and sustainable management of the blue economy sector.



## ADAPTATION BEST PRACTICE FOR THE SECTOR

### Enhancing climate resilience in the Benguela Current Fisheries System

Building on preceding regional research and collaboration between the countries bordering the Benguela Current Large Marine Ecosystem (BCLME), namely Angola, Namibia and South Africa, the project seeks to build resilience and reduce vulnerability to climate change of the marine fisheries and marine aquaculture sectors within the BCLME through implementation of adaptation strategies to ensure food and livelihood security.

The Project focuses on three outcomes: Increase stakeholder understanding of climate risks and vulnerabilities and enhance their capacity to mainstream climate change adaptation in fisheries and aquaculture; reduce vulnerabilities in fisheries and aquaculture; and support a proactive and forward-looking approach to addressing climate change risks by stakeholders. Participatory rapid vulnerability assessments and community-based adaptation planning of fisheries and ten fishery-dependent communities were undertaken across the three BCLME countries.

The key partners in this project include the Global Environment Facility, UN Food and Agriculture Organisation; Benguela Current Convention; Masifundise Development Trust; environmental, fisheries and related ministries of the three member countries; national marine research institutions. The project website provides access to all reports and assessments conducted through the project. In addition, project videos were conducted to provide insight into the community-level vulnerability assessment process.

The project has placed significant emphasis on working directly with local communities to jointly identify climate risks and co-develop effective responses. Collaboration with NGOs that have strong community networks, such as Masifundise Development Trust, further supported locally appropriate responses. Throughout the project, differentiated impacts and risks related to vulnerable groups (e.g., youth and gender dimensions) were incorporated.

The vulnerability mapping at community level was integrated with broader studies focused on specific fisheries (e.g., small pelagic fisheries in Angola) and comprehensive assessments considering institutional arrangements to support mainstreaming of fisheries vulnerability assessments and climate risk information into national and regional planning and management frameworks. The project can be scaled in various ways, for example, by extending community-level vulnerability assessments to a broader set of coastal communities, including other economically significant fisheries, and deepening the capacity building components to enhance resilience building at multiple levels.

Links to resources and contact details: Benguela Current Convention, headquartered in Swakopmund, Namibia. <https://www.benguelacc.org/>; South African Institute of International Affairs <https://saiia.org.za>



## ENVIRONMENT, ECOSYSTEMS AND BIODIVERSITY

As climate change advances and increasingly impairs the viability and reliability of livelihoods across IGAD member countries, populations increasingly resort to environmentally damaging activities as alternative sources of income. In Somalia, for example, successive droughts have led pastoralist communities to turn to, among other alternatives, the illegal charcoal trade. The charcoal trade, in turn, finances rebel groups and exacerbates armed conflict in the region. The terror group, Al Shabaab, was estimated to have earned between US\$38 and 56 million in peak times from charcoal trade in the region, strengthening the group's scope of action and driving further recruitment of young men<sup>101</sup>. Illegal exploration of the environment for activities such as mineral extraction, oil exploitation, wildlife poaching and timber trade are highly profitable economic activities that allow the finance of criminal activities and networks, thereby exacerbating regional and international insecurity.

Another environmental change that can potentially drive conflict is deforestation. Looking at the West Nile region of Uganda, for instance, wood and charcoal are widely used for energy and cooking. Trees are being cut down at an unsustainable rate due to the spike in demand for energy sources, particularly in areas where forestry management is weak. A scarcity of forestry products increases the risk of tensions and conflict around the competition to control and access these resources. It also heightens the risk of sexual- and gender-based violence, as women and girls are primarily responsible for collecting firewood, and its scarcity means they must spend more time and cover greater distances

in this process. In addition, deforestation increases the likelihood of droughts and floods through reduced water retention on the soil, contributing to further environmental degradation.

Intended solutions to environmental degradation can also have negative security outcomes if not planned in an inclusive manner. For example, biodiversity conservation often still happens in a colonial or neo-colonial manner, by expelling or cutting the access of local and indigenous populations to an entire area. In many cases, the livelihoods of populations are directly dependent on utilization of natural resources. When access is interrupted, populations may turn to criminal activity, or engage in clashes with other communities for resources in other areas. Also, such conservation practices disregard the fact that local and indigenous populations play an important role on forest and ecosystem management through their traditional practices, many of which are essential for conservation. Nature and biodiversity have been seen to degrade at a slower pace on indigenous lands.

Continued degradation of ecosystems not only reduces the adaptive capacity of people, but it also threatens the livelihoods of many rural communities that depend directly on the natural resource base for their livelihoods. In addition, a lack of healthy ecosystems, such as wetlands, watersheds, mangroves, forests and drylands will exacerbate drought and food insecurity that has plagued the region due to rising temperatures and the onset of climate disasters. A lack of understanding and capacity of ecosystem-based approaches to climate



change, has also resulted in unsustainable agricultural practices and infrastructure developments. Clearing of natural ecosystems also undermines the rights of local indigenous communities within the region, such as the Borana of Southern Ethiopia, and the Meru and Mijikenda of central and coastal Kenya<sup>102,103</sup>. To ensure that the Horn of Africa is better equipped to confront these challenges and enhance both the resilience of local communities and the overall environmental security of the region, there is a need to develop targeted ecosystem-based adaptation (EbA) interventions. These initiatives should be designed with inclusivity in mind and facilitate the participation of local communities, allowing them to benefit from, and contribute to, environmental preservation and sustainability. By replicating and upscaling these EbA interventions, The IGAD region can pave the way for a more secure and sustainable future, addressing the pressing environmental and climate-related issues that threaten the region's well-being.



## CHALLENGES

Countries in IGAD region are largely within the Warning and Alert categories in the Fragile States Index, scoring high throughout different indicators<sup>104</sup>. State fragility is closely interlinked with vulnerability to climate and environmental impacts, as these affect the availability and quality of natural resources, undermining livelihoods. As populations in fragile contexts often lack alternative income sources and government support, they often turn to maladaptation practices. Maladaptation happens when populations respond to climate change but the response increases vulnerability or compromises other adaptation options—in this context, when they find an alternative livelihood to cope

with resource scarcity affecting their original livelihood—in a way that further deteriorates the environment and drives conflict<sup>88</sup>. Maladaptive practices can take the form of small-scale farmers or pastoralists turning to the illegal timber and charcoal trade, thereby driving deforestation and further environmental degradation<sup>1</sup>. At a larger scale, maladaptive alternative livelihoods can also feed into wider transnational environmental crime networks. Environmental crime generates finance for non-state armed groups. Illegal mining, illegal exploitation and trade of oil, illegal drug production, illegal wildlife trade and poaching, and illegal timber trade are particularly relevant in financing criminal activity.



## OPPORTUNITIES

Entry points to address the impacts of environmental degradation include supporting livelihood diversification, implementing rapid post-disaster support for establishing climate, environment and peace-positive alternative livelihoods, and actively engaging local and indigenous populations in a consultative role prior and during programme implementation. Maintaining existing indigenous forest and indigenous forest restoration is a win-win, maximising benefits to biodiversity, adaptation and mitigation.

EbA is the use of biodiversity and ecosystem services to help people adapt to climate change. By restoring critical ecosystems, a variety of benefits can accrue to communities, including protection from the onset of severe climate change impacts such as cyclones and flooding, increased food and water security, improved livelihoods, and enhanced biodiversity. The multiple co-benefits that EbA interventions can provide, make it an attractive

and resource efficient adaptation option for the region. Restoring ecosystems such as forests and mangroves, can also contribute toward climate mitigation through the sequestering of carbon.

The protection, restoration and sustainable land use management of drylands, through agro-forestry, livestock and soil management, as well as other climate-smart agricultural practices, will also be important to ensure water and food security for the region. Restoration activities can also provide job and livelihood opportunities for rural communities. There is also opportunity to include indigenous communities in natural resource management models, because their cultural values are often aligned to biodiversity conservation. Additionally, regional responses through cross-country and multi-stakeholder partnerships can also help to upscale and replicate EbA initiatives across the eight Member States.

## ADAPTATION BEST PRACTICE FOR THE SECTOR



### Integrated and participatory landscape management in Ethiopia

A large part of Ethiopia's landscape is characterised by mountainous, undulating terrain that is highly susceptible to soil degradation and erosion. Land degradation and deforestation are caused by natural factors, such as soil and wind erosion, as well as population pressure. Soil loss in Ethiopia due to water erosion is a serious economic and environmental challenge. These factors contribute to Ethiopia's agricultural productivity and its food security is highly compromised. Soil and water conservation has been a priority for the government for the last two decades and it was given due consideration within the first phase of the Growth and Transformation Plan.

In recent years, the Integrated Watershed Management (IWM) approach has been promoted as a Strategy to address water and soil resource challenges that threaten agriculture and food security. IWM involves integrated activities aimed to maintain and restore the physical, chemical and biological integrity of an ecosystem while also providing sustainable economic growth opportunities for communities. Its holistic methodology optimises the use of water and vegetation to prevent soil erosion, and increases fuel, fodder and food production in a sustainable manner. One approach under IWM is closing degraded and deforested watershed areas from human and animal influx and encroachment, which has to be done in consultation and active participation of the community.

In Kemo Gerbi Kebele there is an area called Worja Mountain which covers an area of 260 hectares and is located to the West of Zeway town along ZewayButajira road. According to the focus group discussants in Goba Adat village, 15 to 20 years ago the mountain was fully covered by forest and wildlife and it was the main source of livelihood for the community. During that period there was adequate rainfall in the area. However, gradually the mountain became degraded and it was left with no forest cover. Farmers living downstream of the mountain catchment were highly affected by the high runoff flooding from the mountain and their crops are often damaged. The major factors contributing to the degradation of the mountain were illegal logging for charcoal and firewood. As open grazing is commonly practiced in the area, it has also contributed to the destruction of the forest and degradation of the soil. Understanding the seriousness of the problem, in 2010 the local government organized 55 vulnerable farming households living around the mountain to rehabilitate the mountain by preventing free grazing and avoiding the cutting of trees for charcoal and firewood purposes. However, this was unsuccessful as the community did not have alternative livelihood options and so illicit logging and free grazing continued unabated.

In 2013, the Promoting Autonomous Adaptation (PAA) project approached the community living around the mountain in





Kemo Gerbi kebele and organized them into five rural enterprises and cooperatives. The cooperatives have 357 community members (226 females) organized to sustainably conserve the forest and manage livelihood activities. The project provided these enterprises training in the causes and impact of climate change and on different alternative livelihood interventions that the project designed to implement. The livelihood opportunities proposed for promotion included the provision of improved crop and vegetable seed varieties; water harvesting for irrigation through pond construction and shallow well; dairy development; fattening; rearing goats; improved bee keeping; and improved poultry production. With the autonomous adaptation best practices, implementation of different livelihood opportunities complemented with awareness raising activities, the community was fully convinced of conserving and rehabilitating the 260-hectare Worja Mountain in particular and the watershed and environment in general. The community developed a strong bylaw to enforce this objective and protect the mountain from free grazing and cutting of trees for charcoal making and firewood

purposes. Intruders to the area now expect strong penalties. The bylaw requires farmers to apply cut and carry feeding systems to feed their animals instead of free grazing. The grass in the mountain can be used for animal feed and roof cover using cut and carry system. As the site is believed to have archeological importance for containing human fossils, plantation of trees in the mountain is not promoted and the Strategy is to regenerate natural species through area closure. However, the project has provided the communities with materials used to construct soil and water conservation structures such as digging shovels. In addition, in the downside of the closed mountain and the watershed, physical soil and water conservation activities such as soil and stone bund terrace have been constructed with the participation of the community.

The key stakeholders involved in this project include the Ethiopian Ministry of Environment, Forest and Climate Change, Ministry of Water, Irrigation and Energy and National Meteorology Agency.

Impact: They are now farming their farmland without constant fear of erosion hazard and produce more than before. The fattening enterprise and other livelihood activities such as water harvesting and irrigation development undergoing in the lower catchment area will benefit from the area closure through feed supply and conservation of water. Wild animals such as the dic dic are also back and now sheltering the mountain and this was attested during this assessment. The overall impact due to area closure was clearly visible and the community was encouraged by its success. "Thanks to the project, we are now able to sustainably rehabilitate our environment, especially the mountain. We have saved Birr 19, 000 in a bank from the sale of grass and fattening business". Says Ato Asmach Kediro Nebil chairman of Walda Gedemot Alati Forest Conservation and Fattening cooperative.

The area closure was considered by the Adami-Tulu Jido-Kombolcha Woreda as a best practice and visited by over 200 model farmers and development agents from all 43 kebeles in the Woreda. According to Ato Tahir Hideto, Adami-Tulu Jido-Kombolcha Woreda natural resource conservation process owner, the area closure has been very successful in a short period of time and enhanced the livelihood opportunities of the community. The Woreda is planning to conserve over a 20,000-hectare area in the next years through regular government programmes and the experience gained from Worja watershed will assist them to effectively implement their plan. The location of the area closure being along the main road, travelers can see the changes and share experiences.

The PAA project design and planning process has been very participatory. The project has conducted a vulnerability assessment in each PAA at the community level as a prelude to designing and implementing community-based adaptation plans and practices as well as aimed to build the capacity of local administration to enable them plan climate resilient plan and investment. The mid-term evaluation of the project was conducted in 2014. The findings of this evaluation indicated that the project performed satisfactorily, and it was on the right track to achieve its objectives and anticipated results. The review also indicated that while the performance of the project was good, documentation is among the major weaknesses observed. In other words, information on good/best practices and successful projects and activities has not been documented and made available publicly.

Source: Autonomous Adaptation Best Practices PAA Project a collaborative work of the Federal Democratic Republic of Ethiopia, GEF and UNDP.

## EDUCATION

The IGAD region has particularly low levels of climate literacy and some countries present little to no data for the evaluation of climate literacy levels. More can be done within the IGAD region to mainstream comprehensive climate literacy for policymakers, critical climate-reliant industries, and particularly vulnerable groups in society like women and the youth.

Understanding the human cause of climate change is a strong predictor of climate change risk perception and a critical knowledge foundation that can affect the difference between coping responses and more informed and transformative adaptation<sup>105-107</sup>. Climate literacy is defined in the African Union

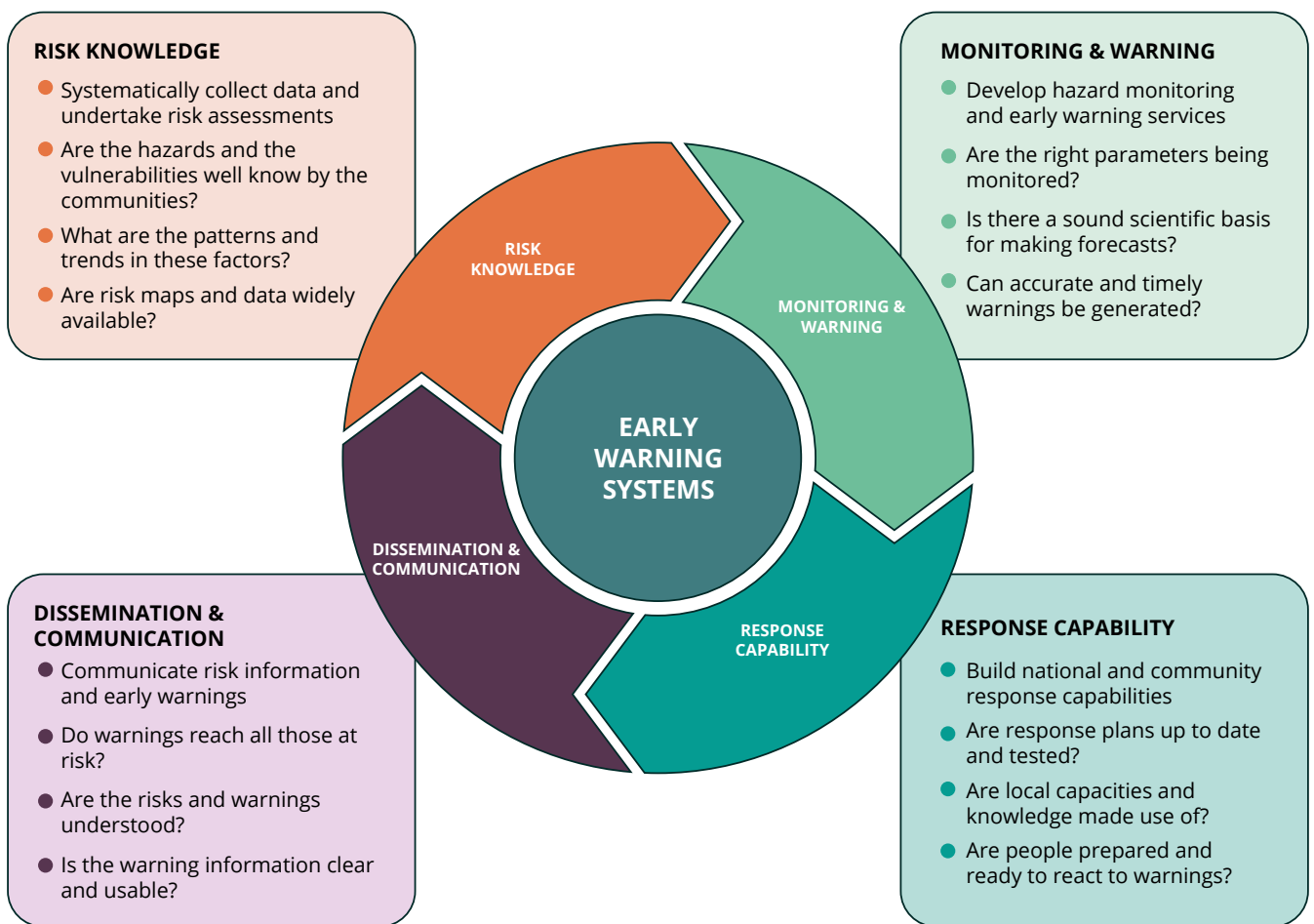
Climate Change and Resilient Development Strategy and Action Plan (2022-2032) as the understanding of our influence on the climate and how this impacts society and the economy<sup>108</sup>. Responses to climate change are dependent on how people perceive of the climate and its deterioration. Perception of climate change is common across Africa. However, without a comprehensive understanding of climate change, people are less able to understand how serious of a threat climate change poses to livelihoods<sup>109</sup>. Despite the critical role of climate change literacy for the development of regional climate change responses, the average national climate change literacy rate on the continent is only 39%, with large variations within and between countries<sup>109</sup>.



## CHALLENGES

Experiencing low rainfall, warming temperatures or extreme weather events reduce education attainment and that future climate change may reduce children's school participation, particularly for agriculturally dependent and poor urban households<sup>110</sup>. For example, more rainfall and milder temperatures during the main agricultural season are positively associated with educational attainment for boys and girls in rural Ethiopia<sup>111,112</sup>. Also, in Uganda, low rainfall reduced primary school enrolment by 5% for girls<sup>113</sup>.

Climate literacy is also dependent on climate information and early warning systems, of which IGAD requires major development and investment<sup>1,114</sup>. Early warning systems is an adaptive measure which uses integrated communication systems to help governments and communities prepare for dangerous climate events<sup>1</sup>. The IGAD region suffers from a lack of reliable climate data drawn from existing early warning and early action systems<sup>115,116</sup> (Figure 7). This is reflected in the COP27 outcome document which finds 60% of the continent is in need of early warning systems<sup>78</sup>.



**Figure 7:** Integrated view of early warning systems<sup>117</sup>



## OPPORTUNITIES

Investments in human capital, particularly education, are critical for socioeconomic development and poverty reduction providing valuable skills and expanding labour market opportunities<sup>1</sup>. There is opportunity mainstream comprehensive climate literacy for policymakers, critical climate-reliant industries, and particularly vulnerable groups in society like women and the youth to boost

public understanding of climate risk that includes education on effective adaptation options. As the identified factors driving climate change literacy overlap with broader developmental challenges on the continent, policies targeting these factors (e.g., increased education) can potentially yield co-benefits for both climate change adaptation as well as progress towards SDGs, particularly education



and gender equality<sup>1109</sup>. Progress towards greater climate change literacy affords a concrete opportunity to mainstream climate change within core national and sub-national developmental agendas in Africa towards more climate-resilient development pathways. Synergies with climate information services can also overcome gendered deficits, for example, although women are generally less climate change aware and more vulnerable to climate change than men in Africa, they are generally more likely to adopt climate-resilient crops when they are climate change aware and have exposure to extension services<sup>109,118</sup>.

Among the range of predictors for levels of climate literacy, general education levels play an important role in the awareness and comprehension within communities of climate change. Improving the accessibility and quality of education is a priority for the IGAD region, as reflected in the IGAD Regional Education Policy. Conditional cash transfer programmes have been shown to mitigate the negative effect of climate-related disasters on school attendance<sup>119</sup>.

Continued development of early warning systems within the region can help communities understand and prepare for the onset of climate disaster. The Strengthening Climate Information and Early Warning Systems project (SCIEWS) is one such development<sup>120</sup>. In Uganda, 64% of the population rely on subsistence agriculture but the systems in place to help communities prepare for climate disaster had fallen into disrepair and outdatedness. The project's updated early warning system provides more effective and reliable information for agricultural communities and disaster risk reduction<sup>121</sup>. Somalia has a similar initiative implemented by the grassroots organisation, Action for Women

and Children Concern<sup>122</sup>. The project merges investigations into local climate literacy and early warning systems development to help the Marka district community understand and prepare for disaster better<sup>123</sup>. In Kenya, the Climate Change Act requires climate education to be mainstreamed into the basic education curriculum and makes public awareness on climate change a key responsibility of the government.

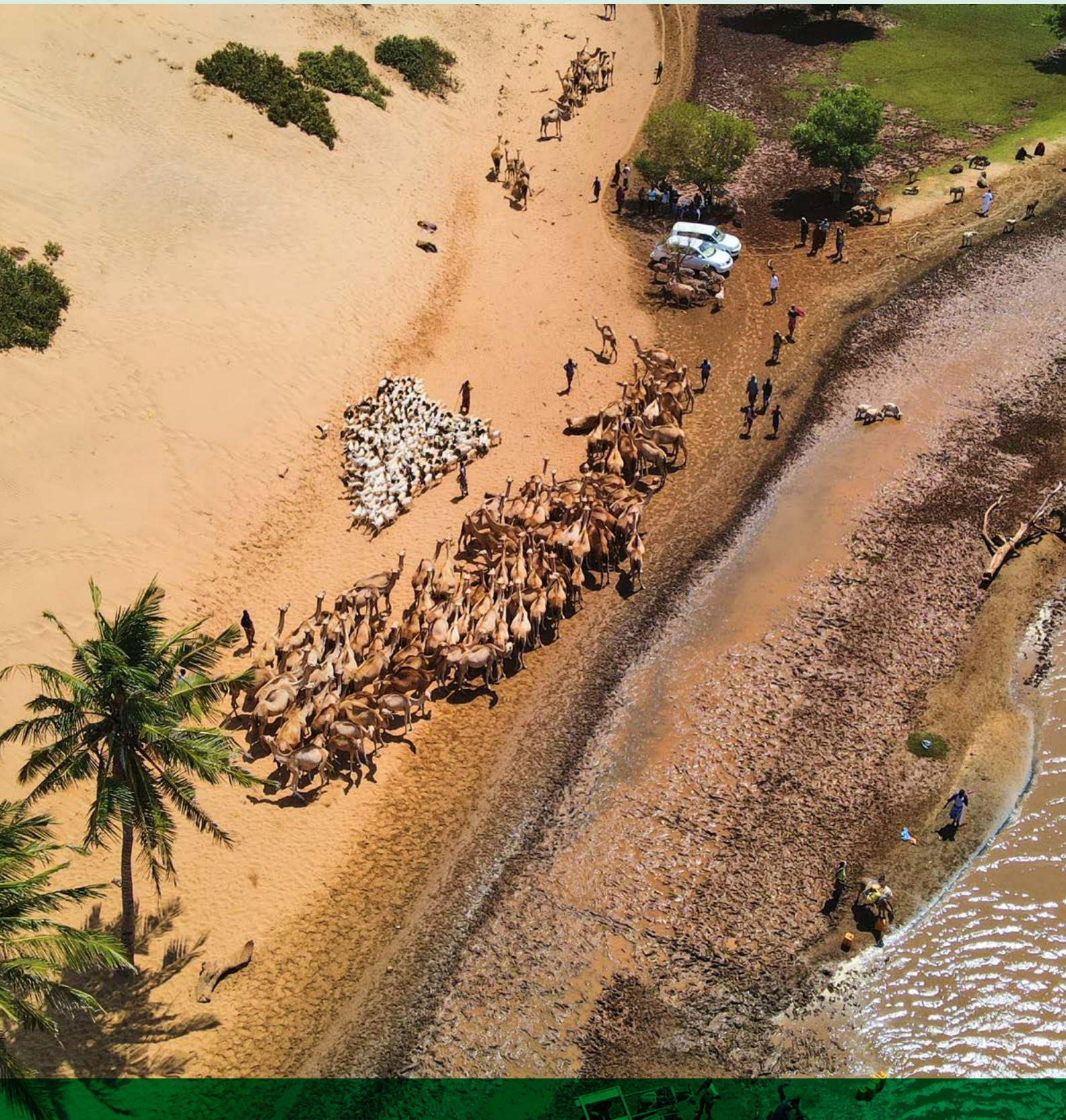
Indigenous, local, and traditional knowledge systems and practices, such as the holistic perspectives of indigenous peoples on community and environment, are valuable resources for adapting to climate change<sup>124-126</sup>. This knowledge can also play a significant role in addressing the combined challenges of climate change, food security, biodiversity conservation, and combating desertification and land degradation<sup>127</sup>. For generations, indigenous communities have monitored climatic and environmental changes, and developed adaptive practices. Traditional knowledge relies on nature-based solutions, passed on by their elders over generations and it can effectively contribute to adaptation strategies at the local, national and global levels. Their time-tested practices should inform policy decisions and be reflected along with indigenous peoples' rights into adaptation frameworks<sup>1</sup>.



**Education is the passport to the future, for tomorrow belongs to those who prepare for it today."**

– Malcolm X









# CROSS-CUTTING ISSUES

## LOSS AND DAMAGE

Climate change related losses and damages are already being experienced in the IGAD region and will likely escalate with increased global warming. Some of the projected losses and damages for the African region are species extinction and reduction, irreversible loss of ecosystems and their services, including freshwater, land and ocean ecosystems. There are risks to food security, risk of malnutrition, and loss of livelihoods due to reduced food production from crops, livestock and fisheries and ultimately displacement.

These losses and damages further include human mortality and morbidity due to increased heat and infectious diseases, inequality and poverty rates, risk to water and energy insecurity. The impacts included reduced economic output and growth, among others.

Losses and damages are unequally distributed across systems, regions and sectors. Communities are particularly prone to experiencing loss and damage when they experience climate change impacts that go beyond what they can adapt to. These limitations to adaptations area related to either lack of finance for implementation of adaptation activities or absence of measures that are feasible to implement.

Losses and damages can be divided into economic and non-economic. The economic losses and damages are those affecting resources, goods and services

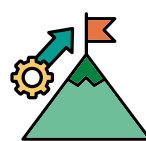
that are commonly traded in markets, such as damage to critical infrastructure and property or supply chain disruptions. This can be on a national scale or a local scale, such as impacts on individual farmers or communities. Non-economic losses can be the most devastating — such as the incalculable toll of losing family members, the disappearance of cultures and ways of living, or the trauma of being forced to leave from ancestral homes. While harder to quantify and monetize, non-economic losses have severe and detrimental effects on communities' well-being. There are various possible sources of funding such as humanitarian aid, disaster risk management and insurance for addressing loss and damage. However, little attention has been given to the contribution of carbon markets in the mobilization of much needed climate finance for this purpose.

All of the African countries have already experienced significant reductions of the per capita GDP due to climate change. The IPCC estimates that Africa incurred annual losses of US\$7 billion due to climate change between 2010 and 2019, which could rise to US\$50 billion by 2040 under a high-emissions scenario and reduce gross domestic product (GDP) growth in Africa by 2-4% per year by 2040 and by 10-25% by 2100. Substantially reducing both financial and non-monetary costs for the IGAD regions requires large and early investments in both global mitigation and regional adaption.

A closer examination of the carbon market in addressing the challenges associated with damage and loss can be two-pronged, preventive, and curative. For instance, there are countries that have successfully developed voluntary carbon projects (VCS) and have passed the validation, verification processes and have managed to sell verified carbon units (VCUs). Other countries within the IGAD region can pursue this VCS pathway, as well as the emerging compliance carbon markets under article 6 of the Paris Agreement. The IGAD region members states can adopt policy or legal requirements that require utilization of revenue from sale of VCUs. For instance, if a REDD+ project in one of the IGAD regions can generate resources, in addition to the usual benefits communities gets, they should be compensated to a certain degree if for instance their crops are damaged by wildlife raids, drought or floods. In such a case the ring-fenced revenue can be applied to finance an index-based crop or livestock insurance programme within specific jurisdictions, or parts of a national jurisdiction. While this might not be one to one ratio, a participatory approach will ensure that communities feel cushioned from the impacts of climate change that directly affect their livelihoods. Families can also be guaranteed to receive supplementary food supplies from ring-fenced carbon project revenue when their crops fail or are hit by disasters such as floods displacing communities. Additionally, carbon related projects can change their approach and procedures to ensure that communities impacted by climate leading to non-economic losses such as death, or displacement from ancestral land are assisted directly. This might take the form of assisting families with the involuntary resettlement, or any other agreeable forms of support. Other direct benefits that emanate from carbon markets

including scholarship programmes, smart agriculture programmes, alternative sources of livelihoods, biodiversity conservation among others yield direct and indirect jobs, enhances food security among others. They would therefore act as a cushion to communities against the impacts of climate change.

On the preventive side, most of the carbon markets are associated with protecting or restoring nature in exchange of generating carbons that can be sold in the markets. While the impact of this can be felt after many years, protections, conservation, and restoration of nature ensures that the ecosystem can still provide communities with the various ecosystem services which cushions communities from loss and damages associated with climate change impacts. For instance, when a project maintains the right vegetation cover, rehabilitates degraded land, the chances of surface run-off are drastically reduced. This eventually prevents flash floods while ensuring water percolates guaranteeing communities of their safety and ecosystem services such as fresh water for use.



## CHALLENGES

During United Nation Framework Convention on Climate Change the 27th Conference of Parties in Egypt, the idea of loss and damage was introduced as an agenda for discussion<sup>78</sup>. The concept of loss and damage refers to costs already being incurred by countries or individuals from climate-induced weather extreme or impacts including drought, floods, rising sea levels among others. However, at present, there is no consensus on what should count as or considered as loss and damage



caused by climate change. However, this could potentially include damaged infrastructure, property as well as natural ecosystems or capital which are hard to quantify. Two broad categorizations of loss and damage are economic and non-economic. Although

estimating the cost of economic loss and damage has been possible in different parts of the world, the non-economic assessment hasn't received much attention due to the challenge of estimating it directly, either in pecuniary or non-pecuniary terms.



## OPPORTUNITIES

As much as there are no clear policy guidelines on how carbon markets should contribute to loss and damage, there is an opportunity for it to be among the sources of financing to addressing the loss and damage. For this to be a success, there is a need for a broader consultative approach where the relevant stakeholders including the project developers, governments, communities and indigenous people, financial institutions, relevant carbon bodies, buyers, among others discuss freely and share suggestions on how to tackle loss and damage. There is also substantial opportunity for adaptation research and practice to learn from and synthesize approach to dealing with loss and damage including from heritage studies, archaeology and psychology to better understand and manage

both the tangible and intangible losses and damages from climate change. Loss and Damage provides an opportunity to scrutinize and address the root causes of vulnerability. The breakthrough to establish a Loss and Damage Fund at COP27 was a significant milestone. The Transitional Committee's recommendations on the operationalization of the new Loss and Damage Fund (LDF) will be considered for adoption at COP28 in Dubai, United Arab Emirates this year. The subsequent NDCs revision of IGAD Member States provides an opportunity to include concrete Loss and Damage evidence to make the case for accessing LDF, technology and capacity support needed to address Loss and Damage.

## A SPECIFIC FOCUS ON GENDER AND YOUTH

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.

All scenarios of Africa's population growth see a substantial youth bulge up to mid-century and beyond. Increasing youth unemployment is a major challenge, along with increasing food prices, despite increased food imports and some expansion of food production<sup>128</sup>.

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<sup>129</sup>. 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.

Africa has substantial 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. Also, the increasing youth unemployment is a major challenge, along with increasing food prices, despite increased food imports and some expansion of food production.

The IGAD Youth Policy is a regional framework designed to guide and mainstream youth priorities in policies, laws and programmes to empower the youths. The policy promotes

youths' rights and ensures they actively participate in the development agenda of the IGAD region. The policy recognises the need to put youths at the centre of climate solutions in the adaptation agenda since they comprise the majority of the population in the region and are among the most vulnerable.

The IGAD Gender Equality Strategy 2023-2030 is the regional framework for priority interventions in the implementation of IGAD Vision 2050 and builds on several ongoing programmes established to develop resilient ecosystems and economic growth. The Gender Strategy is evidence of IGAD's commitment to advancing gender equality, inclusion and empowerment. The strategy recognizes the need for gender responsive climate resilience agenda to achieve sustainable development agenda. Gender-responsive is one of the key guiding principles of the IGAD Climate Adaptation Strategy.



## CHALLENGES

Women and girls are disproportionately vulnerable to the impact of climate change based on their roles, rights, and opportunities, which are shaped by gender norms and socio-economic status. This vulnerability is often tied to the fact that women and girls depend heavily on small-scale natural resource-based livelihoods which are contingent on favourable climate conditions. The current climate crisis compounds with other human security risks to disproportionately affect the most vulnerable. Deeply rooted gender and social norms, relations, and inequalities

shape, and are shaped, by the impacts of both climate and conflict and influence how women and men of different backgrounds (e.g., age, race/ethnic community, class/caste) adapt to and respond to these shocks<sup>130</sup>. Agenda 2063 recognises 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. The lack of gender-disaggregated data undermines efforts to design gender-responsive interventions to enable women to cope with and adapt to climate change impacts.



## OPPORTUNITIES

Regional debate acknowledges the importance of social inclusion, including the critical role that women and youth, and Indigenous People play critical roles as change agents in informing and driving climate responses at multiple levels. To promote an inclusive and ambitious climate approach, climate change strategies should seek 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. Climate change adaptation should mainstream gender-inclusive, gender-sensitive and gender-transformative goals.

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 climate change response strategies must be owned and driven by the inclusion of stakeholders and partners. This is best achieved through the collective development and implementation of these strategies – guided by multilevel stakeholder participation and multisectoral engagement.

Policy should be designed and implemented in a way that supports women’s agency in climate adaptation processes and transforms gender relations and power imbalances between women and men. Moreover, policy frameworks should at all levels account for gender related climate related security risks. Despite recognition that gender equality, climate resilience and security are inextricably linked, climate change and conflict issues have been treated as separate – oftentimes siloed – agendas in policy responses for gender equality and women’s empowerment<sup>130</sup>.

The 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.

## ADAPTATION BEST PRACTICE FOR THE SECTOR



### Supporting the inclusion and engagement of gender and youth in climate policies in Uganda and Kenya

Most countries recognize the value of intergenerational and gender-responsive approaches to adapting to climate change. Several countries have made concerted efforts to promote inclusivity in the development and design of their NDCs, their National Adaptation Plans and national climate policies and legal frameworks. This includes Uganda, Zambia, Kenya and South Africa. Gender inclusivity is essential in adaptation efforts because women have unique knowledge and experiences related to climate impacts that can improve the resilience and sustainability of the country's policies. Similarly, young people will be the most affected by climate change in the future, raising the importance in gathering their views and ideas when attempting to develop resilient policy options for adaptation. Young people are also often at the forefront of innovation and technology, both crucial elements for improving resilience.

Uganda has conducted a gender analysis of key NDC sectors (energy, waste management and agriculture) to improve the gender-responsiveness of its NDCs and climate policies. Zambia has integrated gender indicators into its NDC implementation plan and its measurement, reporting and verification (MRV) framework. Kenya has done the same through the Ministry of Environment and Forestry's Technical Working Group, which has developed gender-responsive indicators for tracking Kenya's NDC implementation in

the national MRV system. To ensure gender-responsiveness, Namibia's updated NDC included climate change risk and vulnerability assessments to enhance their disaster preparedness and response mechanisms.

In 2021, South Africa has established the Presidential Climate Commission (PCC) to enhance the representation of different stakeholders in the development and review of climate change policy, especially as it undergoes a country-wide Just Energy Transition away from coal-fired electricity. To consult and engage broadly, the PCC brings together government stakeholders, women's activists, workers and trade unions, faith groups and youth groups to review and make inputs into the country's climate change policies. The PCC gives a platform for these stakeholders to make presentations at important national meetings, as well as to integrate their views in vulnerability assessments and other key planning policy structures. In addition, youth participants are officially accredited to participate on South Africa's national negotiating team going to the Conference of parties meetings each year. This ensures that youth are able to negotiate on behalf of their constituency and bring the realities and challenges faced by young people to the fore.

Considering the inclusion of youth, gender and indigenous perspectives and approaches to climate adaptation can improve the



IGAD region's adaptive capacity. Promoting youth, gender and indigenous inclusivity in climate adaptation is essential for the IGAD region. The population is expected to grow rapidly over the next years in a region particularly vulnerable to climate change impacts. The sustainability and resilience of adaptation measures can be improved by a regional framework which promotes the creation of multi-stakeholder forums for reviewing national policies. A regional M&E system can learn from the Kenyan and Ugandan gender indicators to improve gender-responsiveness. The framework should also stipulate how Member States should support the capacity building of young people and of indigenous groups to ensure both communities can contribute effectively to the development of policies.

Links to [resources](#) and [other information](#)



# COMMUNITY-BASED, PARTICIPATORY CLIMATE ACTION

Community-based adaptation to climate change is a community-led process, based on communities' priorities, needs, knowledge, and capacities, which should empower people to plan for and cope with the impacts of

climate change. This includes working with government to plan for climate adaptation, as well as the incorporation of local knowledge in the decision making process.



## CHALLENGES

Frontline communities are often excluded from decision-making and implementation processes due to political choices or failures to identify ways to make participatory frameworks more inclusive. In addition, policy intervention

opportunities for communities are often not available or unknown. Dedicated capacity building programmes and climate literacy can help to address these engagement challenges.



## OPPORTUNITIES

Improving the flow of information between governments and local communities is paramount to achieving effective climate change adaptation and disaster risk reduction. There are numerous actions that can be taken to deepen participation and improve community-based climate action, this includes participation in decision-making processes, participatory budgeting and planning, environmental civic service, and education and curriculum development. These pathways contribute to improving governance by

incorporating community views and priorities, while simultaneously giving communities the tools and knowledge needed to become active contributors to climate change adaptation implementation. Meaningful inclusion will result in community-owned initiatives which will ultimately result in more sustainable climate adaptation in the region. There are many best practices examples that illustrate the benefits of community-led preparedness and anticipatory action.

## ADAPTATION BEST PRACTICE FOR THE SECTOR



### Community-led flood preparedness and anticipatory action in South Sudan

As the risk of climate events continues to increase, community-led initiatives in South Sudan are leading action to address climate risks using community coordination mechanisms with dedicated focus on area-specific needs to identify, engage and coordinate arrangements for flood preparedness and anticipatory action. Five area-based task forces are taking the lead in the overall coordination of anticipatory actions to reinforce community preparedness and resilience to flooding events in collaboration with other humanitarian actors.

The community-led interventions on flood preparedness activities strive to strengthen community capacity to prepare and anticipate appropriate action in a coordinated way towards managing flooding events through community-led, area-based management teams for timely and effective anticipatory action. Five task teams with area-specific focus were set up to lead community interventions. The activities undertaken are identified in consultation with the member of the community to solve area-specific needs and can include both structural measures such as construction and improvement of dykes and drainage channels along the critical breakaway points on the river and within the community and non-structural measures including early warning information dissemination.

The community actions included: the planning and identification of actions that could reduce the severity of the flood impact on the local population and their

assets; collaboration towards fundraising for both material and financial resources and volunteer labor works; activation of a flood preparedness coordination forum and active communication among stakeholders regarding the risk of flooding; dissemination of information on the rainfall and flood forecast on the Baro-Akobo-Sobat River sub-catchment shared from the ENTRO Nile Basin initiative; set up and support two early warning networks upstream of river Yabus points in Shata and Gismalla villages to monitor and timely share information on the flooding risk and runoff-triggered flooding to the downstream communities so they can effectively prepare and enhance community adaptation capacity including advisory information sharing to the communities to move to high ground and flood safety awareness to the community.

Maban Refugee camps host over 180,000 refugees in four refugee camps (Doro, Gendrassa, Kaya and Gendrassa) and over 70,000 members of the host community. Community contributions and humanitarian partners include UNHCR, WFP, FAO and humanitarian partners. Other stakeholders and partners include members of the forcibly displaced and host community members, including youth, men and women, humanitarian agencies, local authorities and traditional leaders. Community members are at the centre of the implementation of the activities and volunteer their time and resources. The local authorities provide community leadership and issue permissions for land access and earth material utilization.

There are a number of structural activities that have been completed. These include a 1.7 km of embankment (dykes) along the seasonal stream on the flood breakout points were completed, and a total of 118m of culvert rings were installed on 8 flood-prone road sections on community roads. A total of 105 (66 Female 39 Male) members participated in the excavation of drainage improvement channels in key sections around camp roads and households and a total of 1.85 km of drainage channels have been dug using community-led actions.

There were also a number of non-structural activities completed, including the establishment of five community-led, area-based task force groups to coordinate activities and also raise community awareness and information sharing on flood risks and hazards (these include host community task team (35 members), Doro refugee camp task team (24 members), Batil refugee camp task team (18 members), the Gendrassa refugee camp task team (19 members), and Kaya refugee camp task team (20 members)). Tools include 10,000 empty bags, 150 hoes, 301 spades 16 pickaxes, 4 pickaxe handles, 31 shovels with Hand, 295 crowbars and 500 hammers have been made available to support community-led activities across the refuge and host community locations with the support of humanitarian partners. The project has also distributed tree seedlings to the community to engage in reforestation/afforestation programmes to restore the vegetation cover within the camps. In addition, Disaster Risk Reduction Committees have been set up within the refugee camps to raise awareness on flooding preparedness

and information sharing. Partners completed early prepositioning of medical supplies at multiple health facilities across the camp. Established community-led early warning systems to coordinate efforts on information sharing in Gismalla, Sheta and across the refugee camps. A mobile phone and airtime has been provided for each location for communication.

The project ensures the safety of the most vulnerable members of the community and the participation of both forcibly displaced persons and members of the host community. These include women, men, youths, the elderly, and persons with disabilities with over 50% female participation.

The project presents an opportunity for strengthening community governance and accountability for actions that directly address climate risks. It sets up a whole community, cost-effective and collaborative model, that can be replicated in other locations with full participation of local population taking responsibility and accountability for their role in addressing climate challenges. It presents opportunities for scale-up of the structural measures and early warning systems to mitigate or prevent flooding, for human and ecosystem safety against floods and climate hazards.

For more information: <https://www.unhcr.org>



## ADAPTATION BEST PRACTICE FOR THE SECTOR

### Participatory climate action for peace: Climate-Smart Villages

The project aims to create Climate Smart Villages (CSVs) and promote the adoption of Climate-Smart Agriculture (CSA) approaches while encouraging national governments to participate. It also strives to set new standards for conflict-sensitive and peace-responsive climate action through innovative methods and toolkits, serving as a model for such initiatives. Climate-Smart Villages are examples of local actions that promote adaptation and resilience to climatic stresses. Researchers, local partners, farmer groups, and policymakers work together to identify the most suitable technological and institutional interventions based on global knowledge and local conditions to increase productivity, raise incomes, achieve climate resilience, and enable climate mitigation. This approach also encourages the identification of mechanisms to support the uptake and use of such innovations so that stakeholders and partners can sustainably scale them up, using CSVs as learning grounds. This project - particularly the addition of a peace and security component - can enhance adaptive capacity and resilience by addressing the intersection of climate adaptation and community security by emphasizing the role that climate change can play in exacerbating socio-economic vulnerabilities and competition over natural resources. The project's CSVs approach is inclusive and promotes trust-building and social cohesion, which can lead to positive peace, shared values, and reduced structural violence. CSVs also encourage cooperation on natural resource management through

joint decision-making and knowledge sharing, ultimately reducing conflicts and strengthening community resilience.

Project components include:

- 1. Climate-Smart Agriculture (CSA) Practices, Technologies and Climate Information Services:** this part focuses on supporting practices and technologies that enhance climate resilience while promoting peace and social cohesion, such as agroforestry, conservation agriculture, and sustainable water management. At the same time, the project will provide climate information services, including weather forecasts and early warning systems, to encourage collaboration and community action in response to climate challenges.
- 2. Capacity Building and Knowledge:** capacity-building, peer-to-peer learning, and gender-responsive empowerment will be offered to strengthen climate resilience and social cohesion.
- 3. Peace-Responsive Village Development Plans:** the project aims to integrate peace-building strategies into village development plans, including conflict-sensitive assessment, community-based peace committees, and equitable access to resources, fostering social cohesion and collaborative action.

The project's geographic focus is in West Africa, East Africa including the Horn of Africa, South Asia, Southeast Asia, Latin America (forthcoming: South Africa) and is funded by the CGIAR Trust Fund. It involves community groups, consisting of farmers, researchers, rural agro-advisory, service providers, village officials, private and public sector actors for scaling up

The widespread acceptance of context-specific CSA practices, including the use of organic manure/compost, crop association, and intercropping/crop rotation, with adoption rates as high as 90% to 95% in various regions like Ghana, Mali, and Niger, indicates that the CSV method is a promising Strategy for expanding the adoption of climate-smart agriculture across a broader range of agro-ecological zones in West Africa<sup>143</sup>. Early findings indicate a shift toward on-farm diversification, with households now adopting more than three crop innovations, significantly expanding on-farm options for resilient varieties<sup>24,144</sup>. Sweet potatoes for food (tubers) and livestock feed (vines) are becoming increasingly popular. Because of the new livestock breeds, approximately one-third of the small ruminants in Nyando are cross-breeds that can withstand heat stress, better utilize low quality forage, cope with disease burden, and recover from drought with faster compensatory growth, thus maturing to market weight in a shorter period than the local breeds<sup>145</sup>. About 63% of the households diversified their crop enterprises, shifting to improved resilient crops and crop varieties. Another 37% adopted fertilizers, while 38% applied pesticides and herbicides. Conditional

on the unobservable heterogeneity effects, the results show that household adoption decisions on diversification of multiple stress-tolerant crops and crop varieties, fertilizer, and pesticides and herbicides are complementary. In addition, the results confirm existence of unobserved heterogeneity effects leading to varying impact of the explanatory variables on adoption decisions among farmers with similar observable characteristics<sup>146</sup>. The study's key findings show that smallholder farmers who implemented CSA measures earned significantly more farm income and improved their food security compared with non-adopters. The contribution of CSA measures on farmers' income and food security can be strengthened by providing subsidies, extension services, and accurate climate services. This study suggests that promoting and scaling up a portfolio of CSA measures for farmers living in diverse landscapes should be identified and prioritized<sup>147</sup>.

The project, by ensuring marginalized groups' access to resources and decision-making processes, contributes to dismantling systemic barriers that perpetuate social inequalities and exclusion in climate action, further enhancing adaptive capacity and resilience. Results suggest that in both districts, involvement in CSA practices improved the level of participation in political, social, economic, and agricultural domains compared to households in non-CSVs. Improved participation in the four domains of empowerment may highlight the key role CSVs are playing in promoting gender empowerment<sup>148</sup>.

The improved indigenous breeds that were introduced into the smallholder farming systems and their crosses with local animals exhibited improved growth rates, resulting in the farmers availing animals for sale for meat within 1.5 years, hence increasing their net returns from rearing sheep and goats<sup>149</sup>.

Expanding and disseminating the interventions involves two key approaches:

- 1. Horizontal Scaling (Scaling Out) of CSA options:** This entails using CSVs as demonstration sites where farmers can learn from one another, often facilitated by self-help groups or producer organisations. It also involves promoting climate-smart agricultural practices within local government initiatives, programmes, and policies, as well as integrating them into private-sector business models.
- 2. Vertical Scaling (Scaling Up):** The research and knowledge accumulated in CSVs offer evidence of the effectiveness of various practices, technologies, services, processes, and institutional options. This evidence can then influence broader-scale investments in climate-smart agriculture, drive institutional changes at a larger level, and inform the development of policy instruments.

## DISASTER RISK MANAGEMENT

The IGAD region is one of the most vulnerable areas to natural hazards and, compared with other regions in Africa, disasters caused a higher proportion of mortalities and people affected. The total number of disasters, triggered by extreme hydrometeorological events, reported in the IGAD region has been on the rise during the last 30 years. Also, the number of people in need of humanitarian assistance has risen over the last decade, while number of lives lost related to disasters has declined in most of the IGAD Member States. IGAD has had a regional focus on drought risk through the [IGAD Drought Disaster Resilience and Sustainability Initiative](#).

The high levels of vulnerability compound to undermine the coping and adaptive capacity of communities and households in the region. This situation calls for the strengthening of DRM strategies by enhancing knowledge, improving the understanding of disaster risks in a changing climate, strengthening hazard monitoring and Early Warning Systems capabilities and increased investment for resilience.

In many respects, the region is recognised as the global epicentre for drought and food insecurity. For instance, from 2015 up to 2017, it was estimated that 15 million people in the Horn of Africa were severely food insecure<sup>131</sup>. Additionally, drought, fueled by the changing climate, often triggered disease outbreaks, massive displacements of populations, livestock morbidity and mortality,

## ADAPTATION BEST PRACTICE FOR THE SECTOR

as well as conflict over resources. The PDNA reports from IGAD Member States estimate the economic impact of drought and hunger in the region to be 3-5 percent of the Gross Domestic Product (GDP). Drought often alternates with floods, which damage infrastructure, limits access to educational and health facilities, deteriorates the environment, and disrupts access to vital social services. The accumulative effects of successive disasters are pushing communities into a downward spiral, where losses outweigh limited development gains and the levels of disaster risk continue to increase. Increasing disaster losses will seriously compromise and undermine the achievement of the Sustainable Development Goals unless decisive action is taken to reduce disaster risk.

Due to the regions' low coping capacity, high vulnerability and exposure to hazards, it is likely to continue facing high disaster risk. The total number of people affected by disasters over the 2008-2018 period is 82.7 million, according to the EM-DAT data<sup>132</sup>. The trend in the number of reported events causing disasters has been on the rise, as recorded by EM -DAT. The lack of disaggregated data in the region makes it hard to properly assess the extent to which gender, disability and age, among other factors, compound to increase the levels of vulnerability to natural hazards in the IGAD region.



### Drought risk financing and index-based livestock insurance in northern Kenya and southern Ethiopia

De-risking investments in livestock value chains is possible through provision of index-based livestock insurance. Pastoralists can build resilience against droughts by insuring their livestock, and other services can be bundled together with the insurance to help improve herd health, offer additional financial services and provide climate information services. Index based Livestock Insurance (IBLI), for which standard premiums and payouts are determined within defined geographic insurance units, relies on Normalized Different Vegetation Index (NDVI) satellite imagery, a proxy for available biomass, to make payments to those policyholders living in regions that are affected by poor forage availability compared to the average conditions. Compensation is provided early in the season to minimize livestock losses by supporting drought coping strategies. IBLI coverage has been shown to increase investments in livestock health services, improve household income and reduce distress sales of livestock during drought when prices are low. Programmes implemented by governments, NGOs, private sector, and humanitarian organisations are increasingly integrating IBLI for long-term resilience building. Beyond protecting livestock, IBLI plays an important role in protecting livelihoods. Linking IBLI with



resilience building programmes requires de-risking of investments in the livestock value chain. There are ongoing efforts to bundle IBLI with other services. These services include financial (credit and savings), veterinary services, fodder production, and climate information services. The bundling of IBLI with other services is important to enhance the value proposition and ensure a sustainable business case to value chain actors.

Key partners in this project include the donors to the International Livestock Research Institute (ILRI), the World Bank through the Kenyan government, livestock keepers, private insurance companies, ILRI, the Kenyan and Ethiopian governments.

The benefits of IBLI in resilience building can be summarized in the impacts generated by the product. In severe droughts, pastoralists manage considerable risk of livestock losses. Often this risk makes and keeps people poor. IBLI can prevent the downward slide of vulnerable populations into poverty and crowd-in investment and assets accumulation by the poor. During drought, households with IBLI coverage tend to obtain higher incomes and milk production (Matsuda et al., 2019). Adopter households are 27–36% less likely to skip meals and 22–36% less likely to practice distress selling (Janzen and Carter, 2018). IBLI coverage increases investments in livestock as a productive asset. Evidence shows a doubling of veterinary expenditures and 46% increase in livestock sales in non-drought years (Jensen et al., 2017). In addition, IBLI reduces the risk inherent in

keeping livestock in a vulnerable system and enhances financial deepening in pastoral areas. There are also positive impacts on other indicators of well-being. For example, IBLI has been associated with improvements in child nutrition as well as better access to credit by women IBLI policy holders (Gesare et al., 2016). There are currently ongoing efforts to understand the potential impacts of IBLI on conflict mitigation.

Distribution strategies ensuring that insurance company agents visit the pastoral communities in their catchment area increase access to IBLI by pastoralists, who are among the most vulnerable to climate change.

Since its introduction in Marsabit county in 2010, IBLI has scaled to eight ASAL counties under the Kenya Livestock Insurance Programme (KLIP). Further scaling is evident from the new World Bank funded regional project titled, “De-Risking, Inclusion, and Value Enhancement of Pastoral Economies in the Horn of Africa (DRIVE). The project aims to increase pastoralists’ access to IBLI in all the ASAL counties. Scaling efforts are also ongoing under the IGAD whose “Strategy for Sustainable and Resilient Livestock Development in view of Climate Change in the IGAD Region (2022- 2037)” clearly emphasizes the contribution of IBLI as a climate risk management innovation.

For further information: <https://www.cgiar.org>



## ADAPTATION FINANCE

Access to adequate financial resources is crucial for climate change adaptation<sup>1</sup>. Finance commitments targeting adaptation

have increased since 2014 for the region but are a fraction of the current adaptation costs<sup>1</sup>.



## CHALLENGES

Despite progress in national adaptation planning, the financing to implement these plans is inadequate. Developing countries face a significant gap between the estimated needs for international adaptation finance and the actual flows received, which are 5-10 times lower than required. As a result, the implementation of adaptation actions is not keeping up with the pace of climate impacts, resulting in a widening adaptation implementation gap. The estimated annual adaptation costs, taking inflation into account, are projected to be between US\$160-340 billion by 2030 and US\$315-565 billion by 2050<sup>133</sup>. Currently, international adaptation finance flows fall short by five to 10 times compared to these estimated needs, and the adaptation finance gap continues to increase.

Adaptation costs in Africa have been estimated at US\$7–15 billion per year by 2020<sup>1</sup>. Many IGAD countries, particularly Least Developed Countries (LDCs), express a stronger demand for adaptation finance—a study of financial demands in INDCs for 16 African countries suggests a ratio around 2:1 for adaptation to mitigation finance with demand for Eritrea and Uganda approximately 80% for adaptation<sup>1</sup>.

There are substantial bottlenecks in the procurement of climate finance for IGAD nations<sup>1,134</sup>. In order to overcome some of these barriers, efforts need to be made to strengthen institutional coordination and capacity; resolve instability and security challenges; reduce investment risk in

adaptation projects; promote bankable projects and strengthen the capacity of public financial bodies and institutions. Currently, adaptation investments insufficiently target countries at substantial risk of climate-driven instability and conflict. Although a growing focus is being given to fragile and crisis settings, climate funding still supports siloed responses and solutions that are not conflict-sensitive and context-sensitive. Conflict prevention and peacebuilding objectives are rarely featured in adaptation programming and, currently, very few projects promote integrated approaches to climate and conflict risks<sup>135</sup>. Additional challenges include a lack of technical expertise and sufficient financial management systems, as well as difficulties in accessing and managing climate finance.

Even when accredited, many IGAD countries experience significant institutional and financial challenges in programming and implementing activities to support concrete adaptation measures<sup>1</sup>. Low disbursement ratios suggest a need for further technical and capacity support to implement projects once they have been approved<sup>136</sup>. Systemic barriers have been highlighted in relation to the multilateral climate funds, including funds not providing full-cost adaptation funding, capacity barriers in the design and implementation of adaptation actions (including the development of fundable project proposals) and barriers in recognising and enabling the involvement of sub-national actors in the delivery and implementation of adaptation action<sup>137</sup>. As of 2017, most GCF disbursements to Africa (61.9%) were directed to support national stakeholders' engagement with regards to readiness activities, with only 11% directed to support DAEs in implementation of concrete projects/pipeline development<sup>138</sup>. While supporting readiness activities is important for strengthening country ownership and

institutional development, research suggests adaptation finance needs to shift towards implementation of concrete projects and more pipeline development if the goal of transformative and sustained adaptation in Africa is to be realised<sup>1</sup>.



## OPPORTUNITIES

Improving the effectiveness of adaptation requires considering the links between adaptation and mitigation from the outset. Strong political will and increased long-term investments in adaptation are crucial to closing the adaptation gap and addressing the energy and food security crisis. International efforts must be backed by action on adaptation, mitigation, and loss and damage at future climate conferences.

Increasing public and private finance flows by billions of dollars per year, increasing direct access to multilateral funds, strengthening project pipeline development and shifting more finance to project implementation would help realise transformative adaptation in the IGAD region<sup>1</sup>. Concessional finance will be required for adaptation in low-income settings. Aligning sovereign debt relief with climate goals could increase finance by redirecting debt-servicing payments to climate resilience<sup>1</sup>.

Recently, there has been a growing number of policy declarations and commitments by multilateral development banks, bilateral donors, and others to increase the finance directed toward ecosystem-based approaches. There is possibility to utilize revenue from carbon markets to finance curative and preventive aspects of the loss

and damage experienced by IGAD Member States. The discussion on utility of debt-for-nature (DfN) and debt-for-climate (DfC) swaps is also advancing, and IGAD should play a key role to ensure final outcomes are favourable for its Member States. These states also face significant sovereign debt stress and therefore a fair and equitable DfN/DfC swaps framework can deliver relief from debt stress, while availing much needed climate finance.

Together with the GCF, CGIAR FOCUS Climate Security is developing a Climate Security Programming Dashboard to help global climate funds to understand and integrate the impact that climate has on multiple risks, including security. This will have the potential to increase the flow of climate adaptation funds to IGAD countries.

## ADAPTATION BEST PRACTICE FOR THE SECTOR



### Climate Smart Agriculture Investment Plan for Kenya

Kenya's Climate Smart Agriculture Investment Plan (CSAIP) is a strategically developed and stakeholder-engaged initiative that identifies and prioritizes climate-resilient agricultural investments. It aims to create a nationally supported portfolio, leveraging resources from various stakeholders, including the private sector, international donors, and public institutions, to transform the agricultural sector, aligning with Kenya's existing programmes and international frameworks.

A comprehensive process was undertaken to develop Kenya's CSAIP. It began with a situation analysis and expert pre-validation, leading to the identification of a long list of nationally prioritized CSA investments. Subsequently, a final shortlist was generated based on specific criteria established during a prioritization workshop. These investments underwent concurrent analysis, including cost-benefit assessment, climate modelling,

policy analysis, financial evaluation, and monitoring and evaluation. The findings informed the development of detailed project concepts. The eight priority CSA investments were assessed based on several criteria, including their objectives, geographic distribution, target beneficiaries, alignment with CSA pillars, problem justification, climate suitability, policy coherence, risks, and potential for collaboration and partnership. The process culminated in a validation workshop and an external quality review conducted within the country.

This process was led by the Accelerating the Impact of CGIAR Climate Research for Africa (AICCRA), supported by a grant from the International Development Association (IDA) of the World Bank, and it included the Ministry of Agriculture and Livestock Development (MoALD), Kenya Climate-Smart Agriculture Multi-Stakeholder Platform (CSA MSP) and communities.



The CSAIP process and development were scaled as a training to the county level to support them in developing their capacity to respond effectively to climate change challenges and create awareness and sensitivity to the Financing Locally Led Climate Action (FLLoCA) programme and its requirements for accessing climate funds. The planned investments will have a direct positive impact on farming households and communities, with a particular focus on vulnerable groups such as women and young farmers who are most affected by climate change. Additionally, these priority

investments will bring indirect benefits to rural populations within the project's coverage areas by generating both on-farm and off-farm job opportunities. Furthermore, the investments will have a cascading effect, leading to increased benefits for various stakeholders in the agricultural value chain, including those who supply inputs and provide services. This, in turn, will stimulate the growth of small and medium-sized enterprises (SMEs) in rural areas, ultimately leading to increased employment opportunities for impoverished rural communities.



# ADDRESSING CROSS-SECTORAL AND TRANSBOUNDARY CLIMATE RISKS

Climate change related risks and impacts transcend national borders and traditional sectoral division. Dedicated mechanisms are needed to facilitate interactions and collaborations between people, countries and

regions<sup>1</sup>. The IGAD Climate Prediction and Applications Centre's (ICPAC) was established within the IGAD framework to help the region address climate variability and change related challenges.



## CHALLENGES

Drought triggers forced displacement of people from their homes to find pasture and water for livestock, and food for their families. In the IGAD region, drought is a cross-border climate risk because people move across national boundaries<sup>55,87</sup>. Yet poor governance, particularly at the transboundary level, can undermine water security and climate change is likely to add new challenges to pre-existing dynamics, emphasising the necessity of formal transboundary arrangements<sup>1</sup>. Traditional risk assessments typically only consider one climate hazard and one sector at a time, but this can lead to substantial misestimation of risk because multiple climate risks can interact to cause extreme impacts<sup>11,139</sup>.

Conflict has become an impact pathway that follows drought in parts of the region. Cattle rustling/raiding for example is a practice

amongst some pastoral communities that are commonly used for re-stocking livestock. Climate risks such as floods and drought have increased the need to restock lost cattle, triggering conflict. Climate extremes easily start historical grievances and mistrust among bordering communities and countries when shared natural resources are affected. Historical cultural grievances originating from disputes over limited pasture and water have carried over in some countries with migration from rural to urban areas, increasing the complexity of the conflict in urban areas. Transboundary conflict over natural resources threatens to escalate tensions in the region. As the region continues to explore adaptation and mitigation strategies, such tensions are bound to increase within.



## OPPORTUNITIES

The IGAD region is experiencing an increase in the frequency and severity of other climate risks such as desert locust invasions. In 2021, IGAD launched an inter-regional platform for the sustainable management of desert locusts and other trans-boundary pests. The platform, developed to contain the desert locusts, aims to strengthen synergies, sustained management, and control of desert locusts and other trans-boundary pests. It will also provide an effective and well-coordinated early warning system for continuous intensive surveillance and monitoring of desert locusts and other trans-boundary pests. i.e., locust breeding areas as well as ground and aerial control operations to detect and neutralize hopper bands or adult swarms in time.

Placing cross-sectoral approaches at the core of adaptation provides significant opportunities to deliver large benefits and/or avoided damages across multiple sectors including water, health, ecosystems and economies<sup>1</sup>. They can also prevent adaptation or mitigation action in one sector exacerbating risks in other sectors and resulting in maladaptation, for example, from large-scale dam construction or large-scale afforestation (e.g., water– energy–food nexus and large-scale tree planting efforts)<sup>1</sup>.

Cross-sectoral or ‘nexus’ approaches can improve the ability of decision makers to foresee and prevent major climate impacts. Barriers to developing nexus approaches

arise from rigid sectoral planning, regulatory and implementation procedures, entrenched interests, and power structures and established sectoral communication structures. Opportunities for overcoming these barriers include creating a dedicated home for co-development of nexus risk assessment and solutions, promoting co-leadership of projects by multiple sectors, specific budget allocations for nexus projects, facilitating and coordinating services, compiling useful strategies into toolkits, ameliorating inequitable power relations among participants and measuring progress on nexus approaches through metrics<sup>1</sup>.

Beyond cross-sectoral collaboration, international cooperation is vital to avert dangerous climate change as its impacts reach beyond the jurisdiction of individual states. International good practice and regional agreements, protocols and policies together recognise that regional integration, cooperative governance and benefit-sharing approaches are cornerstones of effective resource security and climate change responses in Africa<sup>140,141</sup>. Natural resource development, particularly governance of shared river basins, exemplifies opportunities for governance responses for African nations that can be cooperative, regionally integrated and climate resilient<sup>1</sup>.



## LEVERAGING ARTIFICIAL INTELLIGENCE

Artificial intelligence (AI) solutions are increasingly being used to reduce climate mitigation and to enhance adaptation. For example, AI can aid weather forecasters monitor weather changes, heavy rainfall, and tropical cyclones with an increased accuracy. With timelier and more precise predictions, people can better plan and prepare for expected weather and minimize risks. Such technology can also anticipate wildfires, heat waves, and other extreme weather events with greater accuracy and hence minimize risks to weather shocks. There are many opportunities for deploying AI technologies in IGAD region in this regard. The Internet of Things (IoT) is an important technology that provides efficient and dependable solutions in domains such as CSA and environment. The combination of IoT, AI and blockchain technology has the potential to transform CSA into the Internet of smart agriculture, providing greater control, management, and security in supply-chain networks. Further, farming accounts globally for approximately 70 per cent of all freshwater use. Within this sector, 40 per cent of water is lost to poor resource management by some estimates.

Many sprinkler heads, for instance, waste around half the water they use. But with AI technology, farmers can reduce such waste by irrigating crops more efficiently—a critical improvement as climate change exacerbates global water scarcity. AI can also help farmers optimize fertilizer use and better schedule planting seasons, leading to more productive harvests.

AI can analyse satellite imagery far faster than humans, and this expanded processing power can quickly provide important conclusions, like the rate of deforestation. With greater access to information, governments can more easily monitor environmental protection efforts and consumers can better understand how their investments contribute to climate change. climate-induced weather.

AI, as a tool for climate change adaptation, offers a range of capabilities that can help identify vulnerable areas, simulate future climate scenarios, and assess risks from climate impacts and opportunities for businesses and infrastructure.





## ADAPTATION BEST PRACTICE FOR THE SECTOR

### Forecast-based financing for disaster risk reduction in Uganda, Niger, Togo and Mozambique

At the onset of climate disasters, disaster risk responses are often delayed due to a lack of available finance and poorly planned response measures. Forecast-based Financing (FbF) is a model that seeks to pre-emptively overcome these barriers by working with communities at-risk, meteorological services, agencies specialized in disaster risk reduction and other relevant national actors, to agree on a set of priority responses, and the necessary budget, that would be initiated prior to the onset of a disaster, when the disaster-forecast reaches a certain trigger 'threshold'. In essence, FbF releases humanitarian funding for planned activities based on forecast information which reduces risks, enhances preparedness, and makes disaster risk management more effective.

By determining a set of Standard Operating Procedures (SOP) and a realistic, accompanying budget, the roles and responsibilities of departments within the national societies as well as national, regional and local focal points are agreed and decided on ahead of time and implemented in accordance with disaster risk forecasting. In the various Red Cross Society FbF pilot countries – Uganda, Togo and Niger – these SOP were pre-

tested and validated by local stakeholders to ensure that the response measures were aligned with community needs and interests. In addition, through Google's Flood Forecasting Initiative, vulnerable communities in Mozambique are being assisted through FbF pilots where historical flood data has been analysed to identify communities most at-risk of flooding. This triggered the transfer of mobile money to vulnerable communities three days ahead of Cyclone Freddy in March 2023.

This project has been supported by the German government through the German Red Cross (GRC), as well as Google and GiveDirectly through partnerships with organisations such as the International Federation of Red Cross and UN OCHA. Key contributors include the Red Cross Society national offices who work closely with national, regional and local focal points to ensure the standard response measures and funding are in line with the needs of the local communities. Communities are also engaged with and included in disaster risk response planning. In Mozambique, the non-profit organisation, GiveDirectly, Google and the National Institute of Disaster Management (INGD) worked together with vulnerable communities in the Nhamatanda

District to help set up mobile money accounts for the delivery of cash transfers in case of severe flooding.

Impact: In Uganda, the Red Cross Society undertook a FbF pilot in four villages with over 2000 people at risk of severe flooding. A 24-hour response period was decided on, giving national societies enough time to warn communities and prepare ahead of severe flooding. In the floods that occurred in November 2015 and April 2016, disaster relief funds were transferred to communities within 24 hours and relief items, including food, were dispersed to 367 affected families prior to the onset of the floods.

In Niger, the Red Cross Society trailed FbF to provide drought relief assistance to 2000 households within the Zinder region. Early warning drought forecasts, monitored by the European Centre for Weather Forecasts, resulted in the distribution of millet and cowpea seeds three months ahead of an anticipated drought during the trial period. During the second phase of the trial, predictions of low-rainfall for the following years harvest enabled the release of funds to affected communities allowing them to buy food well ahead of the onset of drought.

In Togo, the Red Cross Society undertook a trial in 15 villages to forecast anticipated flooding from the Nangbeto Dam on the Mono River. Rainfall and river levels were monitored by volunteers, enabling the preparation of evacuation sites and relief supplies such as water storage containers,

food, soap and water purification tablets. In 2016, radio alerts of anticipated flooding allowed dam operated to release water early to limit the flooding and resulted in the transfer of emergency funds to affected communities, and the distribution of relief supplies to evacuation sites. Communities were thus well prepared ahead of time when the flooding did arrive.

In Mozambique, in March 2023, GiveDirectly and Google implemented a pilot in the Nhamatanda District to send mobile money cash transfers to vulnerable communities at risk of severe flooding. SIM cards were distributed to community members who needed them and were assisted in registering their accounts. This enabled 4183 people to receive US\$225 via M-PESA several days ahead of Cyclone Freddy. Communities were thus able to buy the necessary essentials such as food and clothing which they lost due to the severe floods.

Focus on the Most Vulnerable: The FbF pilot projects had a strong focus on safeguarding the most vulnerable communities against the onset of climate disasters. This includes rural and poor households who are highly exposed to climate change. In the FbF pilots in Uganda, Niger and Togo, vulnerable communities were key stakeholders involved in the preparation of response planning. In Mozambique, community meetings were held to assist community members in setting up mobile money accounts, and to educate them about the project.

Scale-Up Pathways: FbF can be used as

a disaster risk response Strategy, in addition to traditional disaster risk planning (it is not meant to replace traditional methods but rather adds an additional layer of security on top of pre-existing disaster risk reduction strategies). Currently national Red Cross Societies operate in 15 communities in Africa, the Americas and Asia-Pacific, where they are implementing FbF pilot projects. Lessons from implementation in these pilot countries can be used as a framework for scaling up FbF in the IGAD region.

Google's flood forecasts are now available in 80 countries, providing flood forecasting up to seven days in advance of a flood to 460 million people. Africa has a high presence of mobile money among low-income earners and poor communities, many of which are at high risk due to climate change. There is thus high potential to implement similar projects as that of the pilot project implemented in Mozambique by GiveDirectly and Google.

For further information on the Red Cross initiatives, please find resource 1 and resource 2, or contact [climatecentre@climatecentre.org](mailto:climatecentre@climatecentre.org). For further information on the Google/ Give Directly initiative <https://www.givedirectly.org>







## PRIORITY AREAS FOR ADAPTATION ACTION

To ensure immediate and structural action, the following key priority areas for climate adaptation in the IGAD region have been identified.





## PRIORITY AREAS

### Priority areas and actions are identified for investment in people-positive adaptation:

- **Action 1:** Increase risk assessments to determine exposure, vulnerability and adaptation feasibility
- **Action 2:** Enhance new and innovative financing mechanisms
- **Action 3:** Adopt an integrated, cross-sectoral, transboundary and long-term planning approach
- **Action 4:** Improve climate information services to enhance climate literacy, early warning and preparedness
- **Action 5:** Strengthen coordination and collaboration between Member States
- **Action 6:** Implement nature-based solutions and ecosystem-based adaptation
- **Action 7:** Scale climate-resilient infrastructure
- **Action 8:** Strengthen adaptation capacity
- **Action 9:** Promote research, data sharing and dissemination
- **Action 10:** Enhance climate change adaptation law and governance
- **Action 11:** Increase monitoring, evaluation and learning

It should be noted that age, gender and diversity, participatory and intersectional approaches will be mainstreamed across all these action areas, and conflict sensitivity standards and peace responsiveness will also be embedded across all areas. Leadership by, and empowerment of women, indigenous peoples, youth, people

of determination, stateless persons, refugees and other displaced populations, and migrants, among other affected groups, will be ensured, supported by formal and informal education and training, to enhance the impact and sustainability of climate action.

## ACTION 1

### INCREASE RISK ASSESSMENTS TO DETERMINE EXPOSURE, VULNERABILITY AND ADAPTATION FEASIBILITY

Enhancing granular and integrated risk assessments and risk mapping at the transboundary, national, subnational and community level, is important to identify

sudden shocks and trends impacting communities and assess how these trends overlay with social, political, and economic dynamics.

PRIORITY ACTIONS	SUGGESTIONS ACTIONS
<b>Climate-security nexus</b>	<ul style="list-style-type: none"> <li>Produce policy-relevant evidence on how, where and for whom climate is exacerbating root causes of conflict.</li> </ul>
<b>Decision making</b>	<ul style="list-style-type: none"> <li>Develop a decision-making support platform at regional level to raise awareness and help policymakers and government in targeting, programming, and investments to mitigate the impact of climate on conflict. CGIAR has recently launched the Climate Security Observatory. An IGAD version of the CSO could be created;</li> <li>Invest in wider and deeper multi-stakeholder collaboration for integrated multi-sectoral climate related risk assessment and analysis, data-sharing, and evidence on successful programming and solutions: This should have a focus on the most vulnerable communities and the intersection of climate impacts and other factors compounding vulnerability.</li> </ul>
<b>Policy influence</b>	<ul style="list-style-type: none"> <li>Create a technical working group across multiple actors working on the climate-peace-security nexus that will coordinate the collation of evidence across IGAD countries to inform the IGAD Climate Security Coordination Mechanism and Member States programmes and policies decision making processes.</li> </ul>

## ACTION 2

### ENHANCE NEW AND INNOVATIVE FINANCING MECHANISMS

PRIORITY ACTIONS	SUGGESTIONS ACTIONS
<b>Innovative finance</b>	<ul style="list-style-type: none"> <li>• Strengthen the technical and institutional capacity of national governments and local actors to absorb, leverage, and allocate finance effectively.</li> <li>• Prioritise local impact and results, including through providing adequate finance at the local level to respond to local needs and priorities and working effectively with local government and non-government delivery partners.</li> <li>• Leverage financial and technical support from the private sector and adopt tailored financial instruments to mobilize new sources of financing for national and local responses.</li> <li>• Facilitate the regional integration of climate finance projects by promoting shared initiatives that have benefits across borders, thus encouraging mutual investment.</li> <li>• Prioritize investments in readiness activities such as capacity-building initiatives. These should aim to bolster institutional structures, governance, and technical know-how in IGAD, ensuring countries, particularly high-risk ones, have the requisite capabilities to manage and effectively use climate finance.</li> </ul>
<b>Ecosystem-based adaptation</b>	<ul style="list-style-type: none"> <li>• Banks, pension funds, microfinance institutions, insurance companies, equity funds, and other investors leverage significant private finance for EbA and help address the current funding gap.</li> <li>• Create green bonds to channel greater levels of private finance towards EbA and generate finance to fund ecosystem-based initiatives (such as mangrove restoration, wetland conservation, or reforestation projects) that can confer adaptation benefits to society.</li> <li>• Pursue debt relief to offer a financial mechanism for incentivizing action on adaptation. Through “debt for climate” or “debt for nature” swaps, debtor nations can make payments in local currency to finance climate projects or conservation actions. This approach promotes investment in EbA by using debt relief to fund the conservation, restoration, and sustainable management of ecosystems that mitigate climate; and for financing curative loss and damage.</li> <li>• Multilateral development banks and development agencies can require that infrastructure initiatives consider the use of green and blue infrastructure, and provide loans with better rates to support this approach</li> </ul>

PRIORITY ACTIONS	SUGGESTIONS ACTIONS
<b>Ecosystem-based adaptation CONT.</b>	<ul style="list-style-type: none"> <li>• The use of Natural Capital Accounting approaches can help advocate for NbS financing by valuing and monitoring their benefits.</li> <li>• Scale other innovative municipal financing approaches through which funds are raised from external sources in support of municipal financing for NbS, such as municipal climate bonds, carbon credits, public-public partnerships, blended finance, revolving funds or funding from national COVID-19 stimulus plans.</li> <li>• Encourage private funding and public-private partnerships where risks and responsibilities for NbS financing either lie with private actors or are shared between public and private actors, such as land value capture through, for instance, tax increment financing or business improvement districts, as well as sponsoring and entrepreneurial activities, crowdfunding and other community-sourced funding or in-kind support strategies.</li> <li>• Develop incentives programmes and tax schemes which aim at encouraging investments from private actors, such as zoning strategies, including zoning bonuses and transfer of development rights, property taxes abatement, water charges earmarking, stormwater fees schemes, cities labels, green building certifications, or allowing the use of vacant municipal lands for green space or community gardens.</li> <li>• Encourage mandatory requirements which push private investment toward NbS, such as municipal codes on impervious land cover, enforcement of biotope ratio, or green roof regulations</li> </ul>
<b>Climate security</b>	<ul style="list-style-type: none"> <li>• Prioritize investments in readiness activities such as capacity-building initiatives. These should aim to bolster institutional structures, governance, and technical know-how, ensuring countries, particularly high-risk ones, have the requisite capabilities to manage and effectively use climate finance.</li> <li>• To maximize fundraising and leverage complementary expertise between states, IGAD should facilitate the regional integration of climate finance projects. This could be achieved by promoting shared initiatives that have benefits across borders, thus encouraging mutual investment. Such an approach can also ensure a more equitable distribution of funds across the region.</li> <li>• Actively promote 'Climate for Peace' initiatives, including peacebuilding strategies within climate change mitigation and adaptation efforts, creating a comprehensive approach to the dual challenges of climate change and security.</li> <li>• Collaborate with the global climate funds to de-risk IGAD Member States by supporting the implementation of the Climate Security Programming Dashboard and guidelines.</li> </ul>



## ADAPTATION BEST PRACTICE FOR THE SECTOR

### Climate finance for transboundary adaptation and natural resource management: how the NDC Delivery Lab is mobilizing resources

The NDC Delivery Lab is an approach being used to translate policy into actionable and bankable investments that achieve implementation of climate action. The NDC Delivery Lab approach brings together a range of stakeholders to jointly identify and prioritize problems and then co-create solutions with the aid of innovations and inventions from research and innovation centres. This is translated into high-impact bankable investment plans which are implemented as projects on the ground. The NDC Delivery Lab provides a novel way of solving key issues around climate change adaptation and mitigation through a multi-stakeholder forum that brings forth and connects key actors/partners within different sectors including agriculture, water, environment, planning and development sectors. The approach perfectly fits the climate change adaptation cycle as it can identify vulnerable populations, develop the required solutions, support the uptake of the solutions, and evaluate its overall impact on the communities for further learning and improvements.

The NDC Delivery Lab is currently focusing in the Karamoja-Turkana/Pokot-Eastern Equatoria-SNNPR Region in the greater horn of Africa, covering a total area of about 177,650 square kilometers and comprising north-eastern Uganda (Karamoja), north-western part of Kenya (Turkana/Pokot), south-western Ethiopia (SNNPR), and south-eastern of South Sudan (Eastern Equatoria). The region is predominantly arid

and semi-arid (ASAL) with the main source of livelihoods being pastoralism. The NDC Delivery Lab is implemented by the African Group of Negotiators Experts Support (AGNES) and is co-funded by grants from the Bill and Melinda Gates Foundation (BMGF) and the Open Society Foundation (OSF). The CGIAR as a partner also co-funds some of the Delivery Lab activities.

The key partners of the project include the African Group of Negotiators Experts Support (AGNES), the Alliance of Biodiversity and CIAT, the International Livestock Research Institute (ILRI), and the Global Green Growth Institute (GGGI). Key stakeholders the project will engage include government, international organisations, international finance and investment groups, non-governmental organisations, civil societies, the private sector, local farmers with their representatives and consumers.

The Karamoja-Turkana/West Pokot-Eastern Equatoria-Southwest Ethiopia Cluster is one of the most vulnerable regions to climate change and climate variability shocks and stressors. Cycles of droughts have negatively affected the livelihoods of people living in this region leading to other cascading impacts such as conflicts among the different communities. To get a better understanding of the region, a situational analysis and ground truthing exercise were conducted and results show that the region is one of the most heavily invested clusters

in the IGAD region. There have been several stakeholders including NGOs, international financing, bilateral and multilateral financing, and INGOs among others who have set up several programmes and projects with an aim of providing solutions to the problems experienced in this region. But still, the problems of food and water security, livelihood disruptions and conflicts persist. Through the NDC Delivery Lab, several stakeholders at the country level have been engaged to craft innovative solutions and priorities which will then feed into a Green Climate Fund (GCF) proposal for funding. The intention is to ensure we engage local-level stakeholders as well as the national level for country ownership and ensure sustainability and replicability. The first of four GCF proposals which was crafted using the NDC Delivery Lab for Kenya will be submitted within the course of this year.

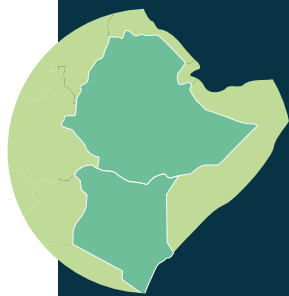
The NDC Delivery Lab has an understanding that climate change is not gender or age-neutral: there are those that are more exposed and more vulnerable to the effects of climate change. The social dynamics and structure that exist within the region are as unique and complex as its environment and ecosystem. Equally complex is gender relations. Gender analysis investigates roles and power among both women and men within the region. For centuries culture and traditions have dictated gender roles. These gendered roles dictate power relations. Through a granular gender and climate change vulnerability hotspot mapping the project will be able to map out hotspots where the climate change and gender nexus

exists in the region to custom fit activities that will build on their adaptive capacities and resilience. Since the lab is built on the idea of multistakeholder engagement, it will bring together all relevant stakeholders in its quest to identify the best local and national interventions that will have the most impact and also ensure sustainability.

The intention of the partners and stakeholders is to address transboundary climate and adaptation risks that are becoming rampant in the borderland regions of the Horn of Africa and the Sahel. To start this off, the lab is using a two-prong approach, first unlocking national-level climate funding (GCF) for the four countries (Kenya, Uganda, South Sudan and Ethiopia). The second is to take a programmatic approach that will be anchored on the four GCF projects with a focus on the transboundary climate risks. The programmatic approach will be an avenue to reel in more funding from the private sector and international sources. Once successful in the HoA, we will domesticate the same strategies to address the TCARs in the Sahel region.

For further information: <https://agnesafrika.org/>

### Drought risk financing and index-based livestock insurance in northern Kenya and southern Ethiopia



De-risking investments in livestock value chains is possible through provision of index-based livestock insurance. Pastoralists can build resilience against droughts by insuring their livestock, and other services can be bundled together with the insurance to help improve herd health, offer additional financial services and provide climate information services. Index based Livestock Insurance (IBLI), for which standard premiums and payouts are determined within defined geographic insurance units, relies on Normalized Different Vegetation Index (NDVI) satellite imagery, a proxy for available biomass, to make payments to those policyholders living in regions that are affected by poor forage availability compared to the average conditions. Compensation is provided early in the season to minimize livestock losses by supporting drought coping strategies. IBLI coverage has been shown to increase investments in livestock health services, improve household income and reduce distress sales of livestock during drought when prices are low. Programmes implemented by governments, NGOs, private sector, and humanitarian organisations are increasingly integrating IBLI for long-term resilience building. Beyond protecting livestock, IBLI plays an important role in protecting livelihoods. Linking IBLI with resilience building programmes requires de-risking of investments in the livestock value chain. There are ongoing efforts to bundle IBLI with other services. These services include financial (credit and savings), veterinary services, fodder production, and climate information services. The bundling of IBLI with other services is important to enhance the

value proposition and ensure a sustainable business case to value chain actors.

Key partners in this project include the donors to the International Livestock Research Institute (ILRI), the World Bank through the Kenyan government, livestock keepers, private insurance companies, ILRI, the Kenyan and Ethiopian governments.

The benefits of IBLI in resilience building can be summarized in the impacts generated by the product. In severe droughts, pastoralists manage considerable risk of livestock losses. Often this risk makes and keeps people poor. IBLI can prevent the downward slide of vulnerable populations into poverty and crowd-in investment and assets accumulation by the poor. During drought, households with IBLI coverage tend to obtain higher incomes and milk production (Matsuda et al., 2019). Adopter households are 27–36% less likely to skip meals and 22–36% less likely to practice distress selling (Janzen and Carter, 2018). IBLI coverage increases investments in livestock as a productive asset. Evidence shows a doubling of veterinary expenditures and 46% increase in livestock sales in non-drought years (Jensen et al., 2017). In addition, IBLI reduces the risk inherent in keeping livestock in a vulnerable system and enhances financial deepening in pastoral areas. There are also positive impacts on other indicators of well-being. For example, IBLI has been associated with improvements in child nutrition as well as better access to credit by women IBLI policy holders (Gesare et al., 2016). There are currently ongoing efforts to understand the potential impacts of IBLI on conflict mitigation.

Distribution strategies ensuring that insurance company agents visit the pastoral communities in their catchment area increase access to IBLI by pastoralists, who are among the most vulnerable to climate change.

Since its introduction in Marsabit county in 2010, IBLI has scaled to eight ASAL counties under the Kenya Livestock Insurance Programme (KLIP). Further scaling is evident from the new World Bank funded regional project titled, “De-Risking, Inclusion, and Value Enhancement of Pastoral Economies

in the Horn of Africa (DRIVE). The project aims to increase pastoralists’ access to IBLI in all the ASAL counties. Scaling efforts are also ongoing under the IGAD whose “Strategy for Sustainable and Resilient Livestock Development in view of Climate Change in the IGAD Region (2022- 2037)” clearly emphasizes the contribution of IBLI as a climate risk management innovation.

For further information, please find the following resources and information <https://www.cgiar.org>

## ACTION 3

### ADOPT AN INTEGRATED, CROSS-SECTORAL, TRANSBOUNDARY AND LONG-TERM PLANNING APPROACH

PRIORITY ACTIONS	SUGGESTIONS ACTIONS
<p><b>Human Mobility</b></p>	<ul style="list-style-type: none"> <li>• Recognize and support mobility as a legitimate Strategy for climate adaptation in local, national, regional, and international policies, including NAPs and NDCs, through actions that support in situ adaptation, movement with dignity, reception in communities, and multilocal and transnational household risk management strategies.</li> <li>• Create or reinforce national and local structures for the cooperative governance of shared and transboundary water resources, adopting the river basin as the unit for water- resources management; strengthening river-basin and aquifer management; and creating an enabling environment for cooperation between countries sharing international water basins, including management at the lowest appropriate level and institutional arrangements for full stakeholder participation.</li> <li>• Significantly increase funding and financing for climate adaptation in the most vulnerable cities, countries, and regions, and pursue cross-sector alliances to scale up the use of innovative financing instruments, including green and blue bonds, municipal bonds, CAT bonds and parametric insurance, as well as debt-for-climate and nature swaps.</li> <li>• Produce evidence on how climate security risks affect forced displacement and migration in the IGAD region</li> </ul>



## ADAPTATION BEST PRACTICE FOR THE SECTOR

### Transboundary water management and long-term planning in the Cubango-Okavango River Basin

The Permanent Okavango River Basin Water Commission (OKACOM) was established in 1994 as a 'cooperation, coordination and information-sharing platform' to encourage an integrated response to the management of the Basin's water resources and to mitigate, as far as possible, current and future activities and extraction practices that are determinantal to the basin as a whole. OKACOM has achieved over 25 years of sustained cooperation between the three countries which share the basins' resources, namely Angola, Botswana and Namibia. It is considered a successful model of transboundary natural resource management in the Southern African region. Much of its success is due to the recognition and importance it has placed on developing a strong regulatory and scientific framework that encourages cooperation and basin-wide management and inform its long-term planning, in an equitable way.

In response to building pressure to develop the Cubango-Okavango River Basin resources to increase economic benefits and alleviate poverty in the basin population, the Basin authorities undertook a Transboundary Diagnostic Analysis (TDA) to provide technical transboundary information for basin-wide planning. This assessment was conducted in Angola, Botswana and Namibia – the three countries which share the resources of the basin – with support from the UNDP and GEF. Following the TDA, a set of transboundary priorities were approved by the respective Cabinet in all three states and jointly endorsed

as the Strategic Action Programme (SAP). OKACOM's Strategic Action Programme (SAP), developed in 2010 and to be implemented over a 20-year period, is a joint Strategy that lays down the principles and strategic direction for the development of the Basin. It seeks to avoid the loss of ecosystem services and wetland functioning by curbing unregulated upstream developments and managing unsustainable changes in land and water use. These tools and policies help OKACOM assess the environmental and socio-economic threats to the Basin, focusing on the relationship between current and future water use and hydrological flow, and identifying thresholds and the scope of 'acceptable development space'. This project supports the implementation of the SAP through strengthening the joint management and cooperative decision-making capacity of the basin states on the optimal utilization of resources in the basin, aiming to simultaneously support the socio-economic development of the basin communities and sustain the health of the basin ecosystems.

Links to [resources](#) and [resources 2](#) contact details.

## ACTION 4

### IMPROVE CLIMATE INFORMATION SERVICES TO ENHANCE CLIMATE LITERACY, EARLY WARNING AND PREPAREDNESS

PRIORITY ACTIONS	SUGGESTIONS ACTIONS
<b>Mainstreaming climate literacy across the region</b>	<ul style="list-style-type: none"> <li>• Develop and promote climate information sharing services which can reach targeted climate-reliant sectors within the region such as subsistence farmers and small-scale fishers.</li> <li>• Develop and promote climate information sharing services for vulnerable portions of the community i.e., women and youth.</li> <li>• Address climate illiteracy within key national departments to equip policymakers with a comprehensive understanding of climate change and its impacts.</li> <li>• Train and support expert and policy makers on climate smart practices and technologies and climate smart livelihood options that contribute to peace and stability</li> </ul>
<b>Improving the availability and dissemination of regional weather and climate data</b>	<ul style="list-style-type: none"> <li>• Invest and develop in more robust and updated early warning systems to improve the reliability of climate data;</li> <li>• Boosting regional data collection, analysis and forecasting capacity to facilitate the creation of a reliable climate information system;</li> <li>• Dissemination of climate information to migrant and displaced populations through accessible and updated climate information systems.</li> </ul>
<b>Increase the peace potential of climate information services</b>	<ul style="list-style-type: none"> <li>• Enhance the climate security sensitivity of agriculture extension services and promote gender-sensitive climate smart agriculture practices;</li> <li>• Design Socio-Technical Innovation Bundles (STIBs) combining Climate Smart Agricultural Practices, best-fit system management approaches, and technologies to build and sustain climate smart agriculture with social inclusion approaches;</li> <li>• Develop disaster risk reduction and natural resource management strategies and plans (land, forests, water, etc.) (e.g., Forest Landscape Management Plan around settlements, land use strategies, etc.) through collective action strategies that consciously account for conflict risks and peacebuilding opportunities.</li> <li>• Create and strengthen climate information centres providing agrometeorological services, advisory and forecasting, community-based (CB) early warning and response systems and serving as hubs for knowledge sharing, peace-building activities, and climate change awareness campaigns;</li> <li>• Create climate-sensitive community-based peace committees and bottom-up conflict early warning and response systems that build upon disaster preparedness efforts;</li> <li>• Develop climate-sensitive peace-responsive settlements development plans</li> </ul>

PRIORITY ACTIONS	SUGGESTIONS ACTIONS
<p><b>Promote alternative livelihoods, early warning systems, and sustainable land use practices</b></p>	<ul style="list-style-type: none"> <li>• Develop community based early warning systems on climate, peace and security to reduce vulnerability to climate change, strengthen community-based adaptation and break the vicious cycle of climate and conflict</li> </ul>
<p><b>Human mobility</b></p>	<ul style="list-style-type: none"> <li>• Enhance public understanding of climate risks and threats, including through building climate change literacy, the co-production of actionable climate information services and access to early warnings, to support informed decisions on how to adapt, whether and when to move, and where to settle;</li> <li>• Empower women, including those displaced, with climate information, adaptive skills, social and legal protection and through adequate training for livelihood diversification to bolster their agency in decisions on climate adaptation and in human mobility;</li> <li>• Ensure nationally and locally owned disaster and climate risk early warning mechanisms and response protocols that account for the needs of internally displaced people, migrants, refugees and other cross-border displaced people, as well as other potentially marginalised populations such as the poor, less-educated, children, women, and ethno-linguistic minorities.</li> <li>• Ensure nationally and locally owned disaster and climate risk early warning mechanisms and response protocols that account for the needs of internally displaced people, migrants, refugees and other cross-border displaced people, as well as other potentially marginalised populations such as the poor, less-educated, children, women, and ethno-linguistic minorities.</li> <li>• Promote the incorporation of multiple channels of communication such as radio, television, mobile phones, and community-based networks for displaced communities and their hosts.</li> <li>• Enhance protection-centred anticipatory/early action, preparedness and response to support protection and solutions for people at risk of displacement by weather related hazards, already displaced communities and their hosts, and communities that are trapped. Human rights-based safeguards and conflict-sensitivity must be mainstreamed.</li> </ul>
<p><b>Promote alternative livelihoods, early warning systems, and sustainable land use practices</b></p>	<ul style="list-style-type: none"> <li>• Pilot and demonstrate innovative evidence-based climate security smart practices and technologies (crop, livestock including feed production and soil and water) and climate smart livelihood options by combination of indigenous knowledge and scientific studies particularly for forcibly displaced persons and host communities including promoting water conservation and harvesting;</li> <li>• Produce and disseminate the catalogue of best climate security smart agriculture practices and techniques as validated with local and national stakeholders.</li> </ul>



## ACTION 5

### STRENGTHEN COORDINATION AND COLLABORATION BETWEEN MEMBER STATES

IGAD is a Regional Economic Community (REC), one of the eight building blocks of the African Economic Community (AEC). The strategic location of the region, its size, ecological diversity, vast resources and people who are naturally integrated by culture and transboundary resources are among the main advantages that IGAD possesses.

Furthermore, the IGAD region is host to a number of UN agencies and the AUC (in Addis Ababa and Nairobi), which allows for leveraged communications and facilitating meetings with the various Heads of State on high level policy issues and topics of common interest within the region.



PRIORITY ACTIONS	SUGGESTIONS ACTIONS
<b>Scale-up of contributions to existing and future Humanitarian Response Plans (HRP)</b>	<ul style="list-style-type: none"> <li>• Mapping of vulnerability and priority areas across the Member States;</li> <li>• Pooling of resources for targeted responses among the Members States;</li> <li>• Raising of additional funding;</li> <li>• Forward planning on regional disasters such as climate shocks using regional climate centres</li> </ul>
<b>Collaborative action by all actors</b>	<ul style="list-style-type: none"> <li>• Safeguard the lives and livelihoods of communities through prioritized area of action and targeted resources;</li> <li>• Sharing of information on such events like effects of the drought;</li> <li>• Building longer-term resilience for the regional through collaborative efforts.</li> <li>• Enhance coordination for effective protection responses and strengthen capacities of IGAD Member States on protection engagement regarding human mobility in the context of climate change and disasters.</li> </ul>
<b>Early Warning and Response Mechanism</b>	<ul style="list-style-type: none"> <li>• Development of synchronized system for early warning across the various section;</li> <li>• Coordinated and targeted system for response to climate change effects;</li> <li>• Early mobilization of resources for response mechanism</li> </ul>
<b>Programme and initiatives connection</b>	<ul style="list-style-type: none"> <li>• Connect country programmes and initiatives to a longer term vision and outcomes;</li> <li>• Harmonisation and creation of synergies to avoid duplication of efforts</li> </ul>
<b>Regional climate centres (RCC)</b>	<ul style="list-style-type: none"> <li>• Ensure that RCC hold annual or bi-annual meeting to share information and lessons towards regional adaptation agenda;</li> <li>• Sharing of programmes by RCC on activities focus;</li> <li>• Publication of progress on Strategy</li> </ul>
<b>Development partners</b>	<ul style="list-style-type: none"> <li>• Create platform for development Partners to discuss regional priority interventions;</li> <li>• Mainstreaming of development partners' programmes and initiatives into regional development frameworks</li> </ul>

## ADAPTATION BEST PRACTICE FOR THE SECTOR



### Promoting meaningful stakeholder engagement through Kenya's Climate Smart Agriculture Multistakeholder Platform

The Kenya Climate Smart Agriculture Multistakeholder Platform (CSAMSP) provides a coordination and networking mechanism for stakeholders within the agriculture and climate change sector of Kenya to share experiences and identify synergies in their activities. Chaired by the head of the Climate Change Unit of the Ministry of Agriculture and Livestock Development, the CSA MSP aids in the implementation of the Ministry's Climate Smart Agriculture Strategy and Implementation Framework.

Since 2019, the CSA MSP has convened stakeholders involved in climate change and agriculture in Kenya on a quarterly basis to share knowledge, discuss approaches and coordinate activities around climate smart agriculture and similar efforts. The platform brings together government actors, NGOs, research and academia and the private sector. A Steering Committee meets monthly to assess the progress of the five thematic working groups that make up the platform. These working groups are focused on knowledge sharing; reporting; networking and collaboration; policy development, and social inclusivity.

This project received joint support from projects implemented by the International

Livestock Research Institute (ILRI), Biovision, WWF and other partners. Key stakeholders and partners included the Climate Change Unit, Ministry of Agriculture and Livestock Development, Kenya, ILRI, Biovision, WWF, WoFAK, ACTN, and many more

The African Agricultural Transformation Initiative (AATI) approached the CSA MSP to implement a CSA Hub within the country. Other partners use the platform to reach a wide range of stakeholders. The thematic working group of social inclusivity liaises with other working groups to ensure that social concerns are incorporated in activities of the platform. The national level CSA MSP has embarked on establishing county level MSPs with the support of platform members. These county-level platforms are a mechanism for coordination on-the-ground activities and reaching farmers and other food system actors more directly.

Links to resources and information: <https://www.cgiar.org>

## ADAPTATION BEST PRACTICE FOR THE SECTOR

### Building resilience in regreened landscapes through dynamic multistakeholder and multisectoral partnerships

Over the last five years, the Regreening Africa programme has played a crucial role in restoring stability to regional communities whose livelihoods are dependent on healthy lands, by addressing land degradation and fostering climate resilience, through agroforestry. This initiative has built a dynamic multi-stakeholder partnership, which has bolstered transboundary adaptation efforts and successfully bridged the gap between science, policy and implementation at various scales. Through collaboration between governments, NGOs, local communities, research institutions, and other diverse stakeholders, Regreening Africa has been able to expand its geographic reach, scale its influence, and reflect on diverse experiences to address the challenges of land degradation, climate change, and food security. The production of co-created knowledge and the sharing of lessons learnt on climate resilience, value chain development, and sustainable land management, are invaluable for future interventions in Africa by all stakeholders.

Through the integration of technological innovations, community participation, collaborative learning, and adaptive strategies, Regreening Africa works to build community resilience in 'regreened landscapes'. The primary goal of this initiative is to expand ecosystem restoration and promote the adoption of locally suitable and sustainable agriculture practices. In addition, the programme builds collaborative efforts across its eight participating countries – Ethiopia, Ghana, Kenya, Mali, Niger, Rwanda, Senegal, Somalia – equipping them with

decision making and monitoring tools to reduce land degradation.

Regreening Africa's partnership-driven model has played a crucial role in allowing for collaboration between global policy processes and regional, national, and local levels. A Regreening Africa consortium was established that comprises of international and national organisations, all tasked with scaling-up agroforestry and other land restoration practices. Each partner brought their unique skills, approaches, and networks to the programme. The NGOs, for example, offered an extensive network of technical support, while the research partners brought an enquiring perspective, data to determine progress and impact, and adapt implementation strategies and tactics if needed. Close coordination among the implementing consortium partners was important to ensure coherent and effective implementation. In addition, National Oversight and Coordination Committees, chaired by a senior government agency representative, ensured the strong linkage to policy and provided strategic advice.

This dynamic partnership model between communities, development actors, government, and research institutions, enabled the extensive scaling of contextually adapted practices, generated essential evidence, and facilitated the exchange of knowledge to enhance impact, and effectively influence policy. In addition, and importantly, Regreening Africa worked at a local scale with diverse farmers and

land managers, actively addressing the engagement of women and youth, by leveraging and boosting the capacities of local cooperatives and community-based organisations, while sharing information through farmer-to-farmer approaches. Strongly building off these powerful local networks, the programme created robust linkages and synergies between implementation on the ground and continually adaptive technical support. At sub-national and national levels, Regreening Africa worked with a range of stakeholders to provide evidence suggesting useful policy and investment shifts and so helped usher in policy and institutional environments that enabled and facilitated the successful scaling of sustainable land management practices by and for communities.

This project is funded by the European Union. Partners include the World Agroforestry (ICRAF) was the lead research partner for the project. Other partners included World Vision (WV), Catholic Relief Services (CRS), Cooperative for Assistance and Relief Everywhere (CARE), Oxfam, and Sahel Eco.

Regreening Africa has reversed land degradation among 607,088 households and across one million hectares in Ethiopia, Ghana, Kenya, Mali, Niger, Rwanda, Senegal, and Somalia. It has also built alternative income generation opportunities for many people. For example, tree farmers in Kenya's Migori County have been trained on beekeeping, site selection, and hive management. They are now integrating bee farming within their tree-based restoration initiatives, helping

to generate additional income and food sources. The Regreening Africa initiative places inclusivity at the forefront, actively involving local communities, especially marginalized groups like women, youth, and indigenous communities, in decision-making and capacity-building activities. It tailors its strategies to suit the specific requirements of each area, promoting fairness in the distribution of benefits and resources to enhance social equity. Ongoing monitoring and evaluation ensure that the project's adaptability to the diverse community needs, with a core objective of empowering local stewardship and broadening resource access.

Regreening Africa provides important lessons on addressing the nexus of land degradation and poverty through its innovative approach, combining scientific research with indigenous knowledge, to establish an adaptive system for delivering better development outcomes. Its achievements can also be attributed to strategic investments in inclusion, working locally, movement building, research development, stakeholder engagement, and value chain engagement. In addition, this initiative has demonstrated that the convening of a range of partners with a diversity skill set, resources and capacities in different policy, research and implementation spaces, at multiple scales, can be transformative.



## ACTION 6

### IMPLEMENT NATURE-BASED SOLUTIONS AND ECOSYSTEM-BASED ADAPTATION

Manage land, water, and other shared natural resources cooperatively and sustainably to support agricultural and ecosystem-based livelihoods and boost productivity, while reducing environmental impact and harnessing ecosystems and biodiversity protection for economic development and climate resilience. Invest in ecosystem protection and restoration, conservation agriculture practices, sustainable land management, and

integrated catchment management. Roll out Sustainable Land and Water Management Practices for agriculture and food security across the continent by promoting systematic data collection, monitoring and evaluation of practices, knowledge-sharing and peer-learning among farmers, and capacity-building for the communities and institutions managing land and water resources.

PRIORITY ACTIONS	SUGGESTIONS ACTIONS
<p><b>Nature-based solutions and ecosystem-based adaptation in urban areas</b></p>	<ul style="list-style-type: none"> <li>Urban EbA practices can provide essential ecosystem services like cleaner air and water, recreation areas, reliable food sources, and economic opportunities in urban green areas. For instance, an interesting approach to accelerate action on EbA is to integrate the use of "green" and "blue" infrastructure (e.g., ecosystems such as forests, parks, wetlands, and mangroves) in future infrastructure investments.</li> <li>Green spaces and natural corridors in cities also offer physical and mental health benefits, biodiversity support, community engagement, and ownership.</li> <li>Governments with existing green procurement procedures could review and update their technical standards and procedures to ensure that EbA options are always included as potential options in the assessment of new infrastructure or development projects (e.g., roads, energy infrastructure, coastal development, agricultural infrastructure).</li> </ul>
<p><b>Climate resilient infrastructure</b></p>	<ul style="list-style-type: none"> <li>Implementing rainwater harvesting and recharge systems and plant trees and vegetation to recharge groundwater and reduce flooding risks.</li> <li>Create urban forests and green spaces and incorporating structural designs for heat reduction, such as Trombe walls, green roofs, and reflective surfaces.</li> <li>Use innovative designs for coastal flooding, sea-level rise, cyclones, and strong winds resilience, such as the construct of flood-resistant houses on pillars or elevated buildings</li> </ul>

PRIORITY ACTIONS	SUGGESTIONS ACTIONS
<b>Financing Mechanisms</b>	<ul style="list-style-type: none"> <li>• Multilateral development banks and development agencies can require that infrastructure initiatives consider the use of green and blue infrastructure, and provide loans with better rates to support this approach;</li> <li>• The use of Natural Capital Accounting (NCA) approaches can help advocate for NbS financing by valuing and monitoring their benefits;</li> <li>• Uptake of other innovative municipal financing approaches through which funds are raised from external sources in support of municipal financing for NbS, such as municipal climate bonds, carbon credits, public-public partnerships, blended finance, revolving funds or funding from national COVID-19 stimulus plans;</li> <li>• Private funding and public-private partnerships where risks and responsibilities for NbS financing either lie with private actors or are shared between public and private actors, such as land value capture through, for instance, tax increment financing or business improvement districts, as well as sponsoring and entrepreneurial activities, crowdfunding and other community-sourced funding or in-kind support strategies;</li> <li>• Incentives programmes and tax schemes which aim at encouraging investments from private actors, such as zoning strategies, including zoning bonuses and transfer of development rights, property taxes abatement, water charges earmarking, stormwater fees schemes, cities labels, green building certifications, or allowing the use of vacant municipal lands for green space or community gardens;</li> <li>• Mandatory requirements which push private investment toward NbS, such as municipal codes on impervious land cover, enforcement of biotope ratio, or green roof regulations.</li> </ul>
<b>Cross-sectoral, transboundary, and long-term planning</b>	<ul style="list-style-type: none"> <li>• National and local governments can promote the use of green and blue infrastructure by including it in infrastructure standards, regulations, and procurement policies, by requiring that key service providers (such as water utilities, stormwater departments, flood management agencies, and power companies) consider its application, and by integrating its use into local and regional planning initiatives.</li> <li>• Building codes and zoning regulations should consider climate risks and mandate the evaluation of ecosystem-based adaptation options for infrastructure. Land and coastal zoning regulations should be revised to protect vulnerable ecosystems critical for adaptation, prohibiting development in floodplains and coastal areas. These measures enhance climate resilience and ecosystem conservation.</li> </ul>



PRIORITY ACTIONS	SUGGESTIONS ACTIONS
<p><b>Research, Data Sharing, and Dissemination</b></p>	<ul style="list-style-type: none"> <li>• Address key information gaps by collecting data and evidence to support actions to decarbonize and improve the efficiency of buildings. The focus should be placed on the information needed for integrated and spatial urban planning policies and activities, data collection activities, the participation of the informal sector, building component labelling, building envelopes, the adoption of space cooling systems and heat recovery, the use of life-cycle assessment, material labelling, and environmental standards, risk mapping and resilience actions, decentralized renewables deployment, and subsidies. Putting in place systems to capture this information will allow for greater certainty around the impacts that policies and markets are having.</li> <li>• More information needs to be made available to governments and populations in terms of climate change projections, information on stakeholder vulnerability, adaptation, and the extent of ecosystems, or information on the costs, benefits, and effectiveness of different urban EbA measures, including with conventional engineering approaches.</li> <li>• Better access to knowledge and possible EbA/NbS solutions</li> </ul>

## ADAPTATION BEST PRACTICE FOR THE SECTOR



### Nature-based solutions for malaria prevention and increased environment health in the Palorinya refugee settlement in Uganda

Incidences of malaria are very high in Palorinya Refugee Settlement in Uganda, where 57% of children under 5, and 56% of pregnant women, have reported malaria infections. The settlement's location makes it prone to flooding and pools of stagnant water, aggravated by deforestation. This creates a breeding ground for mosquitoes which vastly increases the risks of malaria. To reduce mosquito breeding, repellent plant species, such as lemon grass and neem tress, have been planted and refugees are now trained to produce mosquito repellent products as part of green livelihood opportunities.

As one of the awardees of 2022 UNHCR's Environment and Climate Action Innovation Fund, the project sought to address the linked challenges of loss of vegetation and associated heightened risk of flooding that further contributes to increase in malaria incidence. This community led, nature-based solution to revegetate degraded environment through agroforestry and soil conservation techniques of planting mosquito repellent species (lemongrass and neem trees) aims to create multiple benefits for a positive feedback loop of environmental regeneration, reduced flooding risks, reduced malaria incidence and provision of livelihoods opportunities (manufacture and sale of natural mosquito repellent cream or spray products) that will be sustained and replicated by communities.

This project was funded by the UNHCR's Environment and Climate Action Innovation Fund. All project activities have included capacity building components to ensure the intervention is fully owned by communities and they can take up responsibilities for sustainability of the approaches. Project inception activities have

engaged stakeholders from local government (District Local Government, National Forestry Authority) and actors (refugee leaders) in the settlement to ensure buy in and support, as well as familiarization with the techniques used and their benefits. The UNHCR team in Uganda, supported by UNHCR's Innovation Service developed the Project Monitoring Plan, particularly considering the need for iteration and testing for innovative pilot. Project risks are regularly monitored by UNHCR Moyo Sub-Office which oversees Palorinya Settlement to review project progress and challenges. The marketing team plans to implement vigorous Pharmacovigilance on lemongrass/neem products to detect any adverse reaction before it enters the market.

500 people engaged in neem tree and lemongrass propagation through cash for work; 200 people were trained in production and marketing of lemongrass and neem tree derived products and receive start up kits to establish businesses; 300,000 assorted tree species to be planted including 57,000 lemongrass and neem trees, and locally degraded watershed area (50 hectares) were restored through revegetation. Refugee households have been targeted as direct beneficiaries.

Project impact is mostly realized in a long term hence this innovative project may require funding to extend project period/time to realize estimated long-term impacts. Current project targets refugees at household level, expanding it to institutional level (school, hospitals, district local governments, etc.) would be desirable.

Links to resources: <https://www.unhcr.org>



## ADAPTATION BEST PRACTICE FOR THE SECTOR

### Nature-based Solutions from a circular bio-economy perspective for resilient refugee hosting landscapes and livelihoods

Refugee influxes are compounding pressures and competitions for firewood, fertile land, water and financial support. Located mostly in drylands characterised by poor soils, water scarcity and limited natural resources, the increasing population accelerates the deforestation and land degradation by harvesting firewood and timber from surrounding woodlands, making small-scale agricultural production and environmental protection challenging. The aim of the project is to increase the resilience of these communities through the implementation of circular bio-economy solutions. This work builds on previous research and innovations by project partners in developing, testing and verifying technologies and livelihood models for gender-responsive, circular bioeconomy solutions to capture energy, water and nutrients, and building resilient food and energy systems for refugee settlements and their host communities.

The project has the following key interventions:

- Resources recovery and reuse (RRR)-Circular bioeconomy solutions (CBE) to enhance food and nutrition security through: Home gardening with culturally important, nutritious fruits and vegetables; safe use of greywater for irrigation; compost, and biochar for soil improvement; microscale ensures a viable approach for women with substantial carework burdens;
- Access to cleaner cooking energy and reducing women's burden while improving environmental sustainability through

sustainable biomass harvesting; the conversion of organic residues into fuel briquettes; agroforestry and efficient use of biomass energy and circularity in resource flows at household level for food, energy and environment

The project promotes the following participatory approaches:

- Stakeholder consultation
- Gender integration Strategy
- Co-development of training manual
- Training of trainers
- Training of refugee and host communities
- Continuous technical backstopping

The project took place in Kenya's Kakuma and Kalobeyei refugee settlements, Uganda's Rhino and Imvepi refugee settlements, and Ethiopia's Kule and Tiekidi. Due to instability in Ethiopia the implementation in this country was only the stakeholder consultation at inception and baseline study among 200 households at the ratio of 70:30 of refugee and host community.

Funding for this project comes from the BMZ commissioned by GIZ through the Fund International Agricultural Research, United States Department of Agriculture - National Institute of Food and Agriculture (USDA-NIFA), and Hatch Appropriations of the United States government. Key stakeholders involved include the International Water Management Institute, World Agroforestry Center and

International Centre for Tropical Agriculture. The Danish Refugee Council (DRC), Kenya and Uganda; Adventist Development and Relief Agency, Ethiopia. Dr. Ruth Mendum, Gender Researcher, formally of Pennsylvania State University, Dr. Desta woldetsadik and Dr Andrew Adam-Bradford from UN Habitat, FAO and the Department of Refugee Services, Kenya Office of Prime Minister Uganda.

The circular bio-economy solutions were met with great interest, particularly for women with extensive childcare responsibilities. Despite tough agronomic conditions, successful home gardens were evident. Shortage of water remains a key challenge. Evidence of peer-to-peer knowledge sharing. Innovation and entrepreneurship were evident among households. 3,600+ households from refugee and host community settlements trained in home gardening, agroforestry and biomass energy. Outreach to 200,000+ people indirectly. The project activities are carried out within a gender-sensitive framework that aims to lighten the load of women and schoolgirls and build technical and entrepreneurship capacity of household members both men and women and youth from both refugee camps and host communities. Throughout the implementation process, regular monitoring has shaped the practical project activities to ensure they were modified to the specific needs of both the refugee camps and host communities. Working with both refugee and host communities should strengthen social cohesion between refugees and the host communities. The work is guided by the gender integration Strategy: Approaches for research and development in a refugee

context and other settings in Africa developed under this project (Mendum et al 2022).

Scale in this capacity development focused initiative considers number of participating and reached households and people, size of land improved, number of trees grown and amounts of products and income. This human-centred approach brings together people and acreage. The scale-up pathway includes replicating and adaptation of the innovations in other areas and integration of the best practices into policy, plans and programming by stakeholders including UN Agencies, NGO's, governments and private sector.

Links to [resources](#), [information](#), [research](#) and other sources of [information](#)



## ACTION 7

### SCALE CLIMATE-RESILIENT INFRASTRUCTURE

**To ensure sustainable infrastructure development, the following key factors should be considered:**

- Strategic planning: Align infrastructure policies with global sustainable development agendas and create an enabling environment.
- Responsive service provision: Build infrastructure that meets actual needs, allows for changes and uncertainties, and promotes synergies between projects and systems.
- Life cycle assessment: Assess the sustainability of infrastructure projects throughout their lifespans to avoid negative cumulative impacts on ecosystems and communities.
- Environmental considerations: Minimize environmental impacts by investing in natural infrastructure and leveraging nature's ability to provide cost-effective services and multiple co-benefits.
- Resource efficiency and circularity: Minimize the natural resource footprint of infrastructure, reduce emissions and waste, and increase service efficiency and affordability.

- Equity and inclusiveness: Balance social and economic infrastructure investments to protect human rights and promote the well-being of vulnerable or marginalized groups.
- Economic benefits: Generate employment and support the local economy through infrastructure projects.
- Fiscal sustainability and innovative financing: Address the infrastructure investment gap within constrained public budgets through innovative financing mechanisms.
- Transparent and inclusive decision-making: Involve stakeholders through stakeholder analysis, ongoing public participation, and grievance mechanisms.
- Evidence-based decision-making: Monitor infrastructure performance and impacts using key performance indicators and promote data sharing among stakeholders. Source: GFB5.pdf (unep.org)
- Nature-based solutions for drought resilience: Implementing rainwater harvesting and recharge systems. Planting trees and vegetation to recharge groundwater and reduce flooding risks. And nature-based solutions for heatwave resilience: Creating urban forests and green spaces. Incorporating structural designs for heat reduction, such as Trombe walls, green roofs, and reflective surfaces.
- Innovative designs for coastal flooding, sea-level rise, cyclones, and strong winds resilience: Constructing flood-resistant houses on pillars or elevated buildings

Building buoyant multi-purpose structures for flood-prone areas. Employing round-shaped houses and aerodynamic orientation to mitigate wind damage. Utilizing strong connections, multiple slope roofs, central shafts, and frangible architecture for wind-resilient buildings.

- Enable cities with the actionable data, financial and technical resources — and the political agency needed to facilitate planned, resilient and inclusive urban growth, social inclusion and social protection — while building stronger ties across cities, and between cities and rural areas and economies.
- Support receiving communities of both internal and cross-border movements in the context of climate change and disasters through anticipatory planning, community engagement, and by aligning humanitarian and development assistance to advance locally led strategies for strengthening public infrastructure and services, promoting labour market inclusion of newcomers, and pursuing social cohesion.
- Plan for greater urban growth, particularly for smaller cities, and density by overhauling outdated zoning laws and codes to match contemporary urban needs and realities and by designating and equipping areas of prospective settlement with basic infrastructure and transportation links to economic opportunities.



PRIORITY ACTIONS	SUGGESTIONS ACTIONS
<b>Climate-Resilient Infrastructure</b>	<ul style="list-style-type: none"> <li>Invest in climate-resilient infrastructure, sustainable housing, waste management and access to clean energy and clean cooking in refugee camps and settlements to enhance protection and climate resilience while protecting the environment</li> <li>Invest in technology to detect deep-aquifers to address water scarcity in drought-affected areas. For example, UNHCR, Aarhus University, and Water Mission have piloted an innovative electromagnetic resonance technology to locate new water sources at a depth of one hundred meters in East Ethiopia.</li> </ul>
<b>Climate-resilient coastal cities and infrastructure</b>	<ul style="list-style-type: none"> <li>Undertake vulnerability assessments to identify key risks and opportunities related to climate resilient coastal infrastructure.</li> <li>Develop and scale financing for climate resilient coastal infrastructure.</li> <li>Ensure that efforts to enhance the climate resilience of coastal cities and infrastructure attend to the needs of vulnerable sectors of society, who often live in areas most exposed to climate hazards and have low levels of adaptive capacity.</li> </ul>
<b>Ecosystem-based adaptation</b>	<ul style="list-style-type: none"> <li>Integrate ecosystem-based adaptation and or hybrid solutions into climate, Blue Economy and urban development planning.</li> <li>Improve access to finance for ecosystem-based adaptation solutions in support of climate resilient coastal cities and infrastructure.</li> <li>Strengthen regional collaboration and lesson sharing to support the scaling and effective implementation of ecosystem-based adaptation responses in support of a climate-resilient Blue Economy</li> </ul>
<b>Research and policy</b>	<ul style="list-style-type: none"> <li>Strengthen capacity and collaboration between research institutions (including agencies such as KMFRI and universities) to undertake research on climate impacts and response measures related to the Blue Economy.</li> <li>Support integrated governance mechanisms and policy alignment at national and regional levels.</li> <li>Enhance the climate resilience of key Blue Economy sectors, with a particular focus on the most vulnerable, for example, small scale fisheries.</li> </ul>

## ACTION 8

### STRENGTHEN ADAPTATION CAPACITY

The following areas could be used to address adaptation capacity:

Provision of trainings and financial support for community-based preparedness and locally led climate action by communities in the most vulnerable situations.

Promoting climate smart livelihoods and livelihood diversification: Promoting sustainable agricultural practices and community-led reforestation and environmental rehabilitation methods in refugee hosting areas through capacity development, knowledge sharing, technology transfer and training, including climate-smart

farming techniques, crop diversification, agroforestry, hydroponics and improved water management to increase agricultural productivity, improve livelihood opportunities and enhance food security. Reforestation efforts can also entail intercommunal environmental peacebuilding methods which support common resource management. In addition, supporting income-generating activities and vocational training programmes for both refugees and host communities for skill development in areas such small-scale entrepreneurship, and vocational trades helps diversify livelihood options and enables individuals to adapt to changing conditions and become more self-reliant.

PRIORITY ACTIONS	SUGGESTIONS ACTIONS
<b>Ecosystem-based adaptation</b>	<ul style="list-style-type: none"><li>• Conserve, restore and rehabilitate degraded ecosystems such as rangelands, drylands, mangroves, wetlands, forests, watersheds and riverbeds in priority areas of terrestrial and coastal zones.</li><li>• Integrate EbA interventions into national and regional climate adaptation planning policies and processes.</li><li>• Promote the development of alternative sustainable livelihoods alongside the implementation of EbA-related interventions.</li><li>• Ensure indigenous communities are accounted for in climate change adaptation planning through the promotion of community-based natural resource management models.</li></ul>

PRIORITY ACTIONS	SUGGESTIONS ACTIONS
<b>Capacity building for sustainable</b>	<ul style="list-style-type: none"> <li>Enhance the capacity of IGAD Member States to conserve, restore and rehabilitate degraded ecosystems through the promotion of biodiversity management plans;</li> </ul>
<b>biodiversity management</b>	<ul style="list-style-type: none"> <li>Implement targeted trainings for accessing finance for biodiversity-related climate change; interventions both nationally and regionally.</li> </ul>
<b>Research and development</b>	<ul style="list-style-type: none"> <li>Strengthen biodiversity and management institutions to accurately track, monitor and assess the impact on biodiversity due to climate change.</li> <li>Create platforms for cross-country learnings and best-practice sharing on biodiversity and climate change related interventions that can be replicated and upscaled.</li> <li>Promote inclusive governance and public consultations on biodiversity-related climate issues which can be incorporated into policy and planning.</li> </ul>

## ACTION 9

### PROMOTE RESEARCH, DATA SHARING AND DISSEMINATION

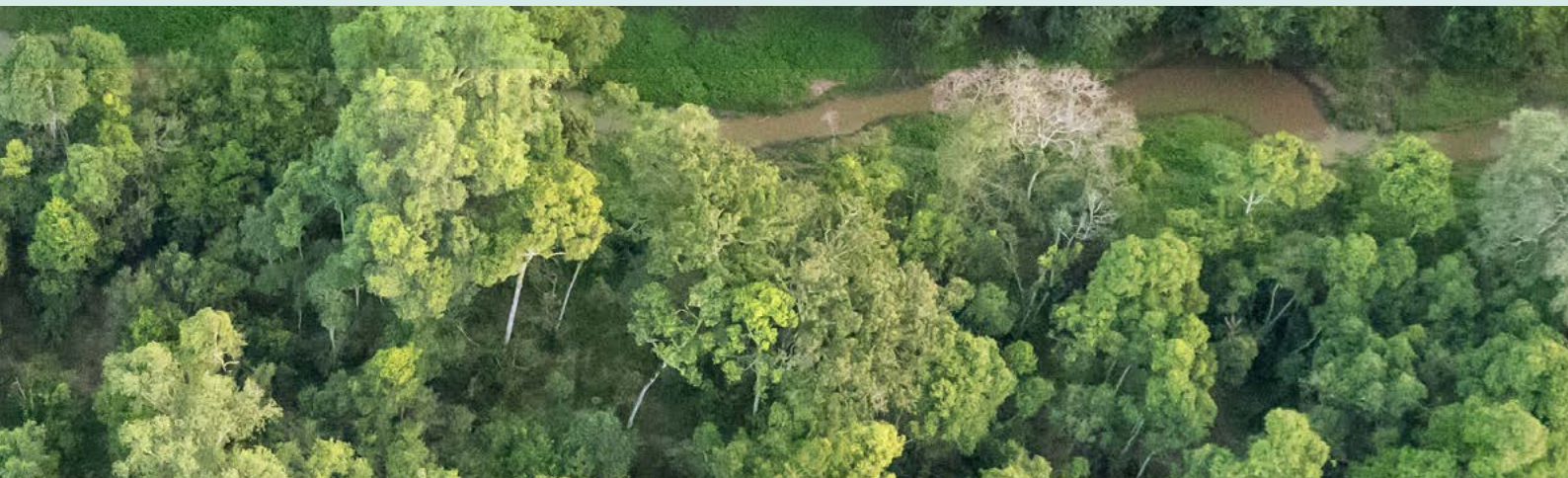
Strengthening the evidence base around the types of climate action that are feasible, effective, and contextualized, and can deliver multiple benefits, leveraging the experience, knowledge and data generated by the different IGAD Member States, regional and local institutions and building on community- and indigenous knowledge,

Enhancing collaboration and coordination and the exchange of information between countries and regions, and across sectors, and coordinating the development of shared data and evidence building resources, including on early warning and analysis of climate-related security risks, supporting open accessibility of data



PRIORITY ACTIONS	SUGGESTIONS ACTIONS
<b>Climate Security</b>	<ul style="list-style-type: none"> <li>• Generate state-of-the-art evidence on how, where and for who climate is exacerbating root causes of fragility and conflict;</li> <li>• Assess the peace potential of common adaptation approaches. Review practices, approaches and innovations that are traditionally implemented to increase resilience and identify gaps to align climate resilience and peacebuilding objectives;</li> <li>• Capacity building of regional, national, and local government on how to assess and mitigate climate security risks.</li> </ul>
<b>Human Mobility</b>	<ul style="list-style-type: none"> <li>• Use forecasting methods and shared analysis to identify potential climate mobility hotspots and start early consultations with local populations on anticipatory actions for risk mitigation, including contingency planning for evacuations and protocols between neighbouring countries and communities. Such effort should also consider long-term planning for relocations where the limits of local adaptation may be reached, taking account of emerging lessons and good practices from around the world;</li> <li>• Increase the availability of African-owned, localised, and timely weather and climate data through improved data collection, analysis, and forecasting capabilities;</li> <li>• Build research and development capacity in the agricultural sector in Africa to ensure better alignment between R&amp;D and the needs and conditions of African countries and communities and improve adoption rates of climate resilient agricultural practices and technologies;</li> <li>• Prioritize quantitative and qualitative research to fill the gap in knowledge regarding the specific nexus between climate change and cross-border movement in the region. The research should be undertaken with the affected populations identifying clearly the protection needs arising from climate-induced displacement and their traditional knowledge and mechanisms for addressing their needs.</li> </ul>





## ACTION 10

### ENHANCE CLIMATE CHANGE ADAPTATION LAW AND GOVERNANCE

PRIORITY ACTIONS	SUGGESTIONS ACTIONS
<b>Governance</b>	<ul style="list-style-type: none"> <li>• Review the legal frameworks of Member States to ensure that gaps on addressing climate change response Strategy is evaluated and updated;</li> <li>• Create awareness among IGAD regional stakeholders on the legal framework and where action is required;</li> <li>• Prepare illustrated and domesticated awareness material on legal education;</li> <li>• Explore and promote regional good governance models through training and the continuous monitoring of governance systems.</li> </ul>
<b>Human Mobility</b>	<ul style="list-style-type: none"> <li>• Create a coherent regional protection framework on human mobility for addressing and protecting migrants and displaced populations, as well as a sufficient and consistent application of the frameworks that are in place in highly complex environments where different forms of mobility simultaneously prevail and intersect. A human rights-based approach should be utilised.</li> <li>• On the national and regional level, facilitate the inclusion of actionable, explicit provisions on displacement and meaningful engagement of local and Indigenous communities in adaptation planning including NDCs and NAPs, other climate action policy frameworks, disaster risk reduction frameworks, development planning, preparedness, early warning and early action and response systems.</li> <li>• Establish community feedback mechanisms during the implementation process of projects, policies and strategies.</li> </ul>

## ACTION 11

### INCREASE MONITORING, EVALUATION AND LEARNING

PRIORITY ACTIONS	SUGGESTIONS ACTIONS
<b>Improve and implement a monitoring and evaluation system</b>	<ul style="list-style-type: none"><li>• Formulate a data capture framework across various actions to ensure clear and transparent way of tracking climate change Strategy response;</li><li>• Train the duty bearer data capture on the importance and value of data capture. These should include state and non-state actors in climate action in order to inform decision making;</li><li>• Build a database that collates and stores data in an easily retrievable manner;</li><li>• Agree and co-design a data capture format and frequency from various units across the region.</li></ul>

### ADAPTATION BEST PRACTICE FOR THE SECTOR

#### Tracking and reporting on adaptation commitments in Kenya and Morocco

Monitoring and evaluation (M&E) systems are used to track the impact of climate adaptation policies, making clear areas needing improvement to keep up with increasing climate volatility. The M&E systems will enhance and encourage climate resilient policymaking, informed by climate data. There is no single M&E system or tool which can be implemented across all countries, making it difficult to design, finance and use them effectively. However, many countries have made significant headway to strengthen and integrate adaptation into the climate policy frameworks and tracking tools. Kenya, for example, is developing an M&E system to track and report on the implementation of its national climate adaptation actions set out in its National Adaptation Plan and Climate Change Act.



In addition, Morocco has harmonized a number of climate databases into a National Information system.

Kenya is developing a simplified M&E system to measure the country's progress on achieving improved climate resilience through the implementation of effective adaptation policies. The national M&E system will encourage the inclusion of climate awareness in all government policies and improve the resilience and adaptive capacity of the country to increasing climate variability. The M&E system will support the National Climate Change Framework Policy and Climate Change Action Plan which set out the mechanisms for Kenya to achieve low-carbon development. Kenya is taking a phased approach to the development of its M&E system as the country embarks on capacitating its M&E sector.

Morocco's comprehensive M&E system is designed to deliver easily accessible data on the country's climate-related activities and is the result of the harmonization of various national databases which previously tracked climate adaptation and mitigation across separate regions of the country. In Morocco's continuous efforts to address climate change, the national government decentralized the collection and management of climate change and environmental data to form Regional Information Systems for the Environment and Sustainable Development with Regional Observatories for the Environment and Sustainable Development for each region. For selected regions, the government established adaptation M&E systems which analyzed adaptation measures implemented in those selected regions. This allowed the government to assess its M&E capacities while tracking the efficacy of adaptation measures.





The creation of the National Information System allows Morocco to better understand the needs of the entire country which will improve policymaking for climate resilience.

The development of Kenya's M&E system is being followed by the NAP Global Network, with funding from various development partners. Morocco's project was financed by Deutsche Gesellschaft für International Zusammenarbeit (GIZ) Germany. Key stakeholders include relevant Kenyan national departments and local governments, and civil society. In Morocco, the key government stakeholder involved include the Office of the Secretariat of State to the Ministry of Energy, Mining and Sustainable Development, the Regional Observatories for the Environment and Sustainable Development, the Climate Change Committee, the High Commission for Waters and Forests and the Fight against Desertification and the Agency of the Hydraulic Basin, Agriculture, Waters and Forests and Tourism.

The M&E system is still under development in Kenya. The integrated M&E system enhanced Morocco's knowledge of key vulnerable sectors (water, biodiversity and agriculture) which will improve policymaking for climate resilience.

While the Kenyan M&E system is still being developed, the process to harmonise Morocco's M&E systems into a National Information System was developed through an extensive national consultation process. This included the Climate Change Committee which brings together stakeholders from academia, government and research institutions.

Effective M&E systems for adaptation efforts can be replicated across the IGAD region. Just as Kenya has decided, these systems can be established in a phased approach nationally, identifying the relevant government bodies which can contribute data on key priority sectors to the system before scaling this up to include data on all adaptation sectors. Ultimately this will improve the region's international reporting and allow governments to assess the impact of their adaptation measures.

The IGAD region is particularly vulnerable to climate change impacts. While Member States are already implementing adaptation measures and various adaptation projects, the efficacy and impact of these measures must be evaluated to ensure Member States are using their constrained finances in the best way possible. The conclusions drawn from the M&E system will contribute to the refinement of Member States' national climate policies, ultimately improving their resilience to climate change.

Then as Morocco embarked on a national harmonization of different, regional M&E systems, the IGAD region can implement a similar harmonization process across the region, sharing information on best practices for adaptation. An 'umbrella' information system can be established, made up of the various existing national M&E systems. Where some Member States systems are only able to focus on priority areas, insights can be shared regionally from more expansive M&E system data.

Links to resources for Kenya and [here](#), and for Morocco



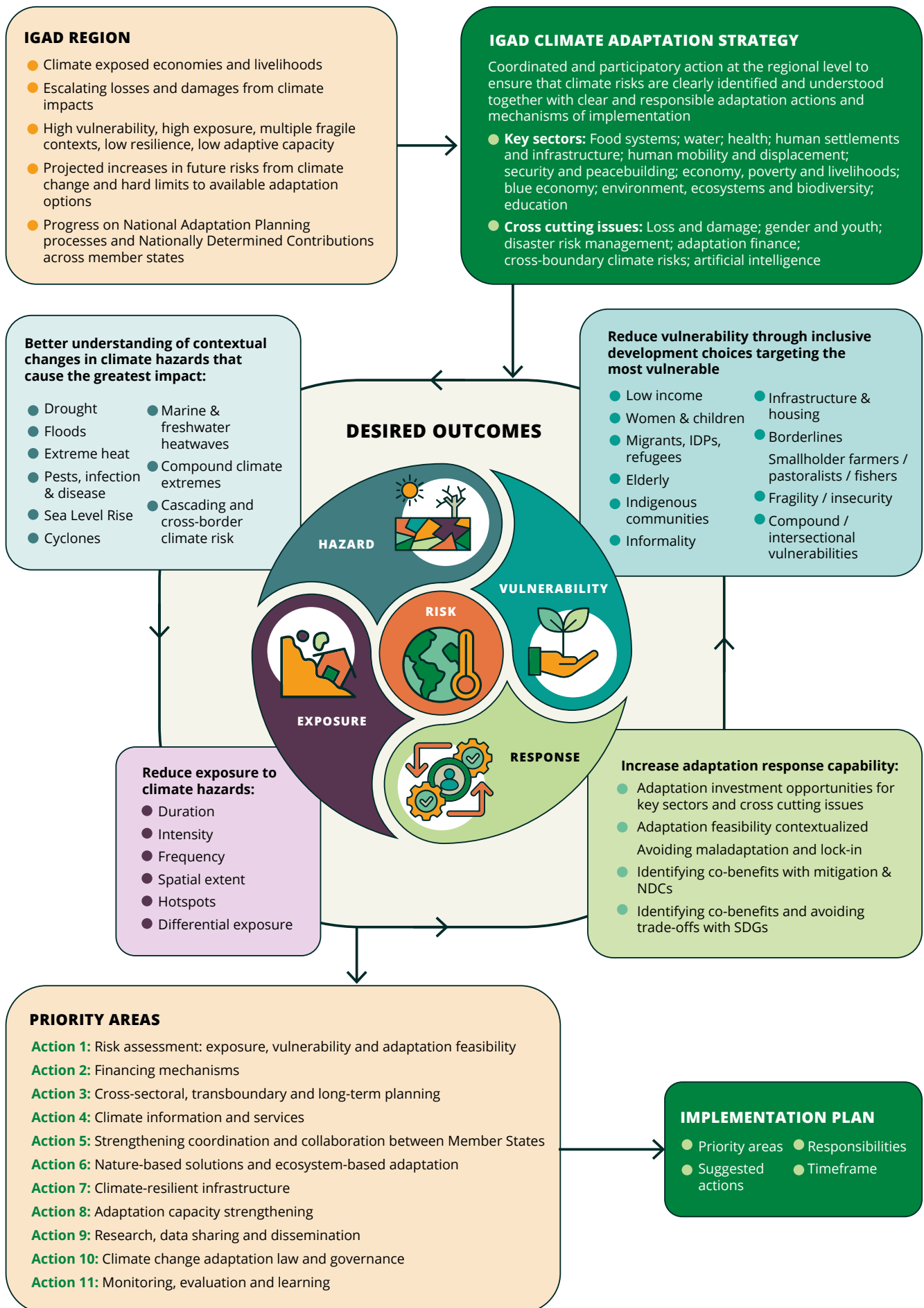


## THEORY OF CHANGE

The IGAD Climate Adaptation Strategy (2023-2030) focuses on identifying climate risks faced by the IGAD region, assessing the levels of vulnerability of its people, communities and countries, and their economic, social, and environmental systems. In the context of climate change, risks can stem from the potential impacts posed by climate change as well as from human responses to it<sup>2,11,139</sup>.

Vulnerability describes a set of conditions

that influence how a society or people are affected by climate hazards. The severity of the impacts of climate hazards are strongly affected by the level of vulnerability and exposure to these events. Trends in vulnerability and exposure influence which groups are particularly affected by climate impacts including women and girls, youth, indigenous peoples, people with disabilities, stateless persons, displaced people and their hosts and other marginalized groups.

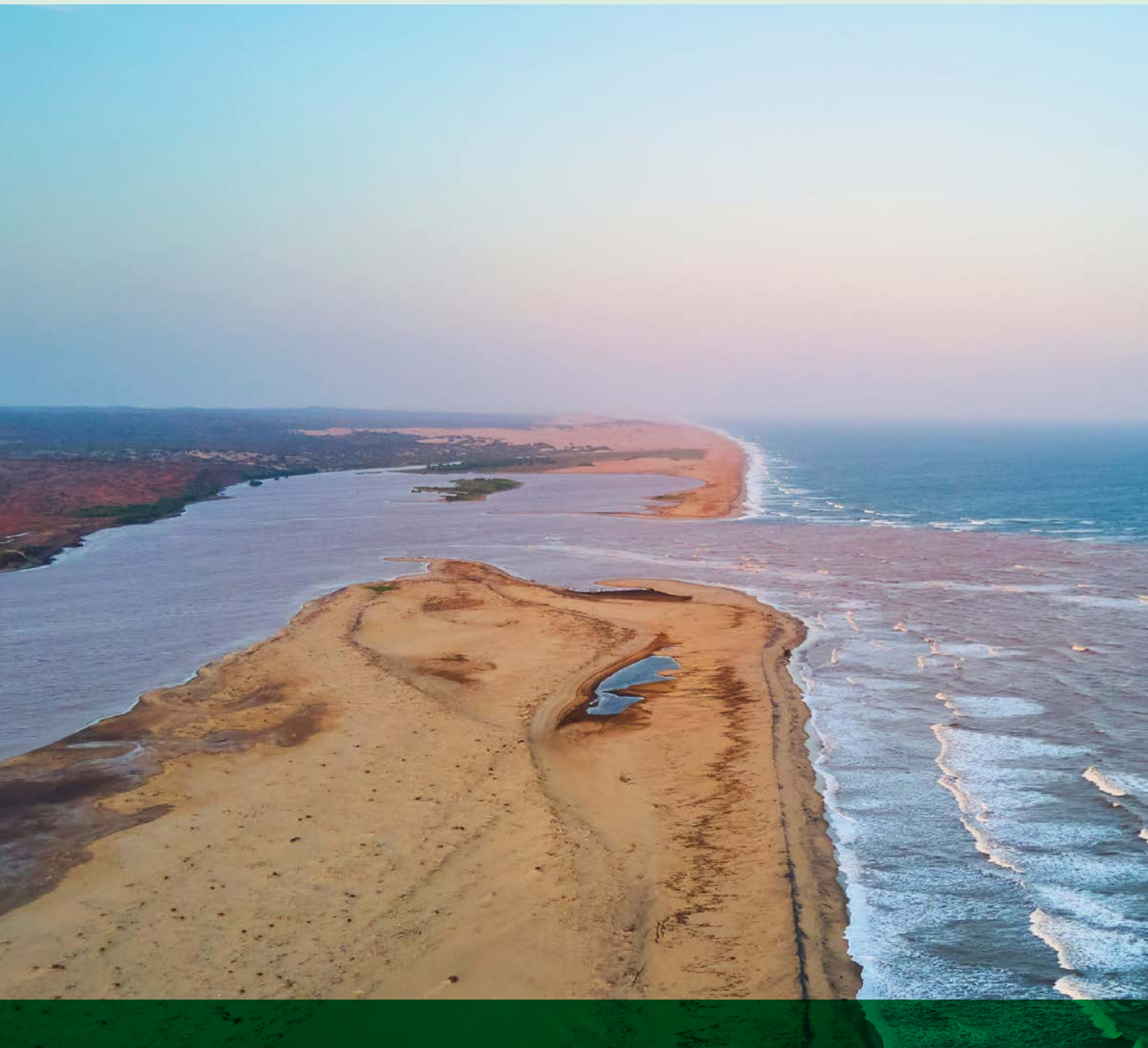


**Figure 8:** Adaptation Strategy Theory of Change



**Figure 8** sets out the change pathway that successful implementation of adaptation actions in this Strategy should follow, to overcome the challenge of vulnerability, and debilitating damage that this exposure brings to the IGAD region. It highlights the role of this Adaptation Strategy as a tool for coordination and coherence of adaptation planning in the region by providing a regional perspective of common challenges and opportunities for investments in adaptation. Importantly, the priority areas and implementation plan are informed by and align with the desired outcomes of improving understanding of climate changes and variability, reducing exposure and vulnerability and supporting increased adaptation capabilities for the region. Inaction, or implementing weak, incoherent interventions could deliver the undesired impact of continued vulnerability, and exposure to climate risks, maladaptation, and the resulting loss and damage. The IGAD Adaptation Strategy Theory of Change adopts a coordinated and participatory action approach that frames clear and responsible adaptation actions with implementation plan that is aligned with priority areas, includes suggested actions, responsibilities and timeframes highlighting the need for adaptation feasibility costs estimates.





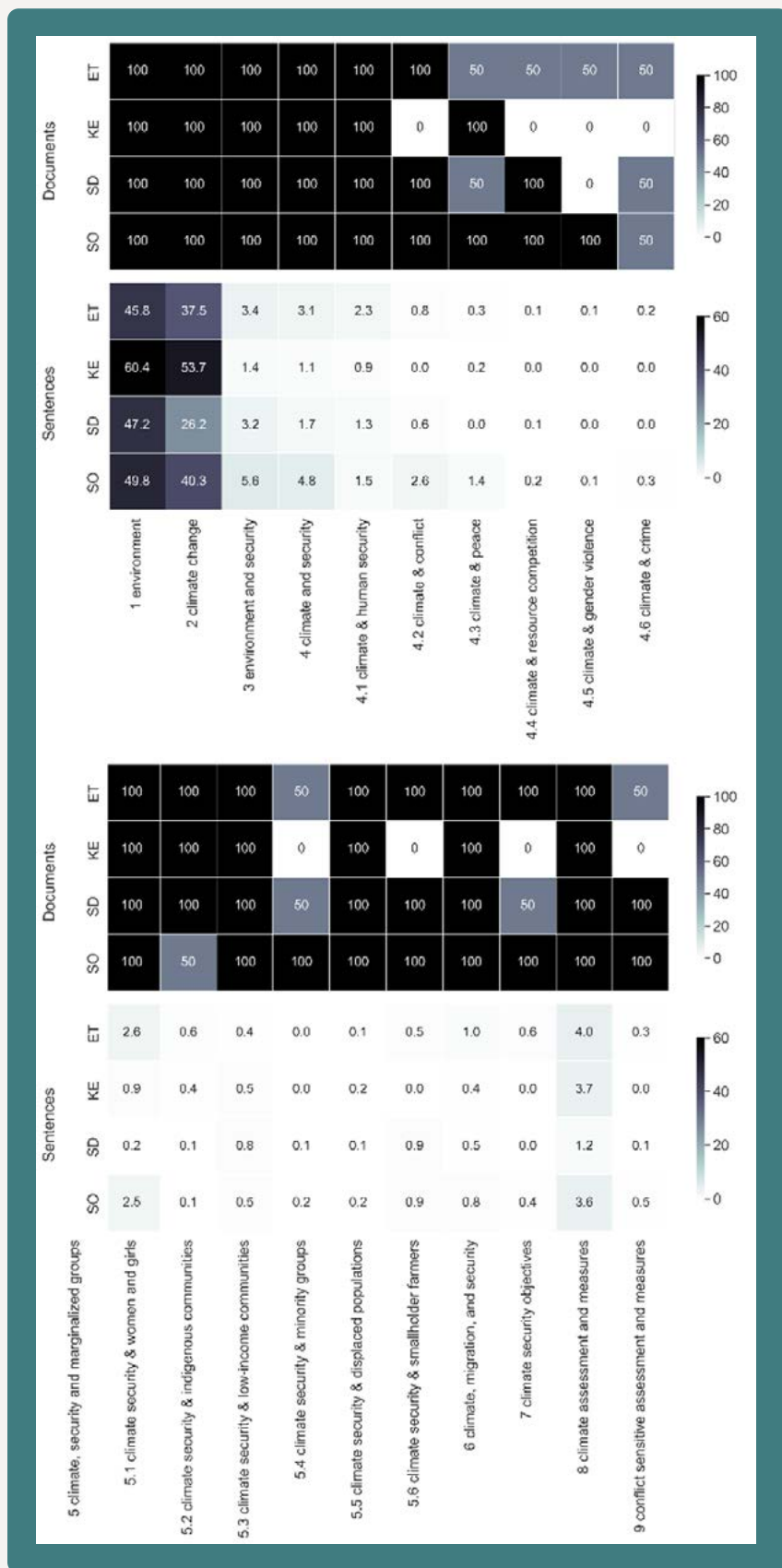
# NATIONAL ADAPTATION PLANNING



Adaptation planning in the IGAD region necessitates long-term planning, all-of-government approaches, transboundary cooperation and benefit-sharing, development pathways that increase adaptation and mitigation and reduce inequality, and implementation of NAPs and NDCs<sup>1</sup>.

Currently, all countries in the region have published NDCs, while Sudan, South Sudan, Ethiopia and Kenya have also finalised their National Adaptation Plans (NAPs). However, these climate policies currently need to be strengthened to include important dimensions affecting the implementation of adaptation and climate-resilient development. For example, NAPs and NAPs do not explicitly address the climate-security nexus, which highlights the role of climate change in exacerbating existing risks and insecurities that could also affect peace and security in the region.

To better understand the levels of policy engagement with the climate-security nexus, the CGIAR FOCUS Climate Security developed an automated content analysis on NAPs and NAPAs from Ethiopia, Somalia, Kenya, and Sudan. This analysis highlighted several strengths but also gaps in addressing the intersection of climate adaptation, peace, and security (Figure 9).



**Figure 9:** Thematic engagement of Adaptation Plans (NAPs) and National Adaptation Plans/Programmes of Action (NAPAs) for Ethiopia, Somalia, Kenya, and Sudan<sup>12</sup>

All the policy documents examined by CGAIR demonstrate an understanding of the relationship between climate change and threats to human security. All strategies unanimously recognised the heightened climate-related risks faced by marginalised groups such as women, girls, indigenous communities, and displaced populations. Nonetheless, the potential for climate change to escalate conflict risks was less consistently acknowledged, with Kenya's adaptation strategies standing out as the only exception. The concept of deriving peace-related benefits from climate adaptation was not universally discussed, appearing in only 50% of Ethiopian and Sudanese strategies. Moreover, discussions on climate conflict and peace were often engaged at a superficial level, evidenced by the low number of sentences referencing the two topics within documents. With the exception of Somalia's adaptation policies, discussions on climate-conflict were present in less than 0.1% of total sentences, suggesting that such considerations have not yet been truly mainstreamed.

Further investigation revealed gaps in comprehending the specific forms of conflict and violence that may arise due to climate change. Whilst natural resource competition is recognised as linked to climate impacts in most adaptation strategies (except for Kenya's), the potential relationship between climate change and gender-based violence is absent in Kenya's and Sudan's adaptation strategies, whilst only 50% of Ethiopia's strategies recognise this intersection. The link between climate change and the risk of criminal activities was similarly underrepresented. Finally, CGIAR's analysis suggests that whilst all adaptation strategies deploy climate-related measurements and assessment methods, the deployment of

conflict-related analyses – such as conflict analysis, conflict driver mapping or pro-peace analysis – is less common. These results suggest that conflict sensitivity is not universal when it comes to the design of adaptation policies across these countries.

Regarding references to displacement, all existing NAPs in the region contain explicit references to displacement<sup>142</sup>. While the NAPs of Kenya, South Sudan and Sudan contain concrete provisions, Ethiopia's NAP only contains contextual references to displacement. The NAP of South Sudan can serve as a best practice example for the inclusion of existing displaced populations. Meanwhile, there is still a wide inclusion gap with regards to the NDCs of countries in that they still do not explicitly include references to displacement, with Somalia being the only IGAD Member State exception.



**Gender equality is more than a goal in itself. It is a precondition for meeting the challenge of reducing poverty, promoting sustainable development and building good governance."**

– Kofi Annan



# IMPLEMENTATION PLAN



The IGAD Climate Adaptation Strategy has an 8-year timeframe (2023-2030). This is synchronised with the operationalisation of the IGAD Regional Strategy For Disaster Risk Management (2019-2030), IGAD Climate Change Strategy and Action Plan, the SDGs, the NDCs, the Paris Agreement, the AU Climate Change and Resilient Development Strategy, and other similar regional and international commitments of IGAD Member States running until 2030. This IGAD Adaptation Strategy has identified many strategic interventions that require large efforts in resources mobilisation, institutional reforms, partnership development, and active participation of all relevant stakeholders, including communities, women and young people.

Over the 8-year life cycle of the Strategy, a phased approach to implementation will be adopted. The implementation will have three phases: A readiness phase, a pilot implementation phase, and lessons sharing and scaling phase.

### Readiness Phase:

- a. Create an enabling institutional environment, including the identification of an appropriate institutional arrangement for coordination and implementation (whether existing or new);
- b. Prepare proposals for readiness actions;
- c. Outreach and awareness on the Strategy's main objectives at IGAD Member States-level, and to other relevant stakeholders;
- d. Refine and unpack priority climate actions and recommended actions at different levels;
- e. Unpack the timeframes, budgetary and reporting requirements for each action;
- f. Develop a resource mobilization Strategy and plan;
- g. Prepare proposals for pilot phase implementation of top priority actions;

- h. Develop a monitoring, evaluation and learning plan for the Strategy's implementation which will run for the duration of the 8 years; and
- i. Conduct a baseline assessment against which performance can be measured.
- j. Develop reporting procedures – ie. report progress of intervention every quarter, i.e., narrative, and financial reports.

### Pilot Implementation Phase:

- a. In the first two years (to 2025) begin with the implementation of two projects at regional scale. Priority should be given to cross-cutting projects that enhance regional capacity building project and have transboundary characteristics;
- b. Support Member States to start the implementation of two projects during the first two years. These will be prioritized as per the national climate adaptation priorities per country;
- c. Scale-up implementation of interventions to a wider geographic areas and target groups;
- d. Initiate new programmes on remaining sectors, result areas and strategic interventions; and
- e. Conduct annual reviews and documentation of implementation practices, and lessons.

### Lessons sharing and Scaling Phase:

- a. Develop a monitoring, evaluation and learning framework and share best practices across all areas of the Strategy;
- b. Facilitate best practice exchange visits for South-South cooperation and north-south cooperation;
- c. Conduct mid-term and end-line review of implemented actions and generate ideas for scaling up; and,
- d. Identify new problems/ challenges and recommend actions.



## RESOURCES REQUIREMENTS FOR THE IMPLEMENTATION

Meeting the financial needs of adaptation and resilience building initiatives within this Strategy will require considerable investments in all the IGAD Member States, across all sectors and in a broad range of integrated action priority areas. These needs vary across Member States according to their unique circumstances, climate contexts and the differing ability to cope with the impacts of climate change. While needs vary across countries, it is imperative to invest in areas that have the capacity both to facilitate socio-economic development, as well as to promote adaptation transformation and resilience to climate change.

The Climate Adaptation Strategy identifies key priority areas, suggested actions and cross-cutting issues that are at the heart of a climate-resilient, low emissions, sustainable development agenda of the region. The vast resources required for the implementation of this Strategy in regional and Member States are both technical and financial and will be needed to support and create an enabling environment for enhanced climate action, to promote enhanced coordination, as well as for multi-sector and multi-stakeholder coordination and cooperation.

The budget presented in Table 1 is a high-level overview of the adaptation financing requirements contained in IGAD Member States adaptation costing contained in their NDCs to 2030. About US\$195 807 billion in total investment is estimated to be required (although it must be noted that adaptation is very hard to quantify). However, it must be noted that after the Global Stock take, to be discussed and conducted at COP28 in December 2023 , these figures are

likely to increase as countries revise their new/ revised 2025 NDCs to demonstrate increasing adaptation ambition and support required. In addition, there is a lot of uncertainty about the amount of adaptation finance needed, as much depends on the success of multilateral efforts to reduce overall global GHG emissions and limit negative climate projections and trajectories.

These indicated adaptation needs justify substantial investment in adaptation, costing for adaptation and the need for adaptation feasibility assessment for implementation of Actions associated with the priority areas listed on following page.

There are numerous studies that give an estimate of how much adaptation finance developing countries will need. For example, the UNEP Adaptation Finance GAP Report estimates that adaptation finance needs in developing countries will reach \$140 billion-\$300 billion per year by 2030, and \$280 billion to \$500 billion per year by 2050. However, it is clear there's not enough adaptation finance available to meet countries' needs — and the gap is set to increase as climate change impacts intensify. In addition, research is showing that fragile and highly vulnerable countries are receiving less climate finance than any other countries. Therefore, directing adaptation funding to IGAD countries that are particularly vulnerable to the impacts of climate change, as well as to the most vulnerable people and population groups within recipient countries in a gender-responsive and equitable manner remains an imperative, with grant financing continuing to play a major role.

**Table 1:** Indicated finance needs for adaptation implementation

MEMBER STATE	POLICY	ESTIMATED ADAPTATION FINANCIAL NEED (NDCS, US\$)
<b>Ethiopia</b>	NDC 2021-2030	41.8 billion
<b>Kenya</b>	NDC 2021-2030	43.927 billion
<b>Somalia</b>	NDC 2021-2030	48.5 billion
<b>Uganda</b>	NDC 2021-2030	17.7 billion
<b>Sudan</b>	NDC 2021-2030	3.85 billion
<b>Djibouti</b>	INDC	5.5 billion
<b>South Sudan</b>	NDC 2021-2030	30 billion
<b>Eritrea</b>	NDC 2018	4.53 billion
<b>TOTAL</b>		<b>US\$195.807 Billion</b>

### Potential sources of finance

While 10 per cent of these costs will be mobilised at a national level, through various domestic sources and partnerships, 90 per cent will be requested from external funding sources. Finance to support this Strategy and its actions can be leveraged from a number of sources and sectors. To date, adaptation finance architecture includes the finance flows and mechanisms from private finance, public finance, as well as resources from development finance institutions (DFIs) and increasingly from insurance and risk-pooling mechanisms. To date, the largest funders of adaptation have been the multilateral public climate funds that include, among others, the Adaptation Fund, Climate Investment Fund, Green Climate Fund and Global Environment Facility.

To date, private investment in adaptation (through foundations and financial institutions) has been limited and much work is needed to scale up investments in this area, because public funding alone will not meet the large and growing need for funds. Private companies

finance is important to build and maintain vital infrastructure, supply chains and markets. It is essential that they integrate climate resilience into their investment decisions and explore innovative financial instruments to expand collaboration with the public sector in critical areas. This includes the role of new, non-traditional actors, including pension funds, microfinance institutions, insurance companies, equity funds, and other investors.

In addition, new and additional sources of adaptation financing are urgently needed. Thus far most adaptation finance has been provided in the form of loans rather than grants, and this percentage has been slowly increasing over the last few years. This is problematic, since making debt payments is challenging for most developing countries and adding further debt could exacerbate the situation. New innovative mechanisms are now being developed, including debt-for-nature swaps and debt-for-climate swaps. These tools should be scaled in IGAD Member States.



## MONITORING AND EVALUATION PLAN

A Monitoring and Evaluation Framework must be built into the design of interventions that shall be developed to implement the IGAD Climate Adaptation Strategy. Regional and national targets that are prioritised and proposed for implementation shall be subject to M&E to assess progress towards

achievement. The baseline of the target area and best practices of similar interventions in Africa can be used as benchmarks. Regional and national entities will champion multi-country and cross-border projects and initiatives in close collaboration with other development partners.

This M&E Framework should be co-developed with the participation of all stakeholders and partners for enhanced ownership, better implementation traction, synergy, and value for money. Baselines must be established in a participatory manner during the design of interventions to set realistic targets that can be readily assessed and measured.

The purpose of the M&E Framework is to ensure the successful implementation of activities and lead to the achievement of results of the Strategy. The climate landscape is constantly evolving and as results of research and studies are released, or new evidence comes to light, this Strategy will need to be updated. It is therefore a 'living document' that will undergo a mid-term review.

The overall responsibility for the implementation and reporting on the progress of the Adaptation Strategy lies with the IGAD CEAP. Reports will be received from other specialised units of IGAD, Member

States and other development partners that are implementing climate actions and contributing to the Strategy. Independent consultants may be recruited to carry out external monitoring. Evaluations are preferably undertaken by external experts for independent and impartial assessment. A mid-term review of progress shall be conducted to generate lessons that can be used to improve performance, build on best practices, and design scale-up programmes. The terminal evaluation is recommended for impact assessment to generate lessons of best practices that can be used for scale-up and development of new programmes or projects. To this end, CEAP and partner implementing entities shall develop an appropriate M and E Framework. Different types of indicators shall be developed for the various key priority areas and strategic interventions. Also, an indicative M and E matrix will be developed in the immediate term, following on from the adoption of the Strategy.

PRIORITY AREA	SUGGESTED ACTIONS	RESPONSIBILITY	TIME-FRAME
<b>ACTION 1: Increase risk assessments to determine exposure, vulnerability and adaptation feasibility</b>			
<b>Climate-security nexus</b>	<ul style="list-style-type: none"> <li>Produce policy-relevant evidence on how, where and for whom climate is exacerbating root causes of conflict, at both the national and regional level.</li> </ul>	IGAD CAEP IGAD Member States	2024
<b>Decision making</b>	<ul style="list-style-type: none"> <li>Develop a decision-making support platform at regional level to raise awareness and help policymakers and government in targeting, programming, and investments to mitigate the impact of climate on conflict. CGIAR has recently launched the Climate Security Observatory. An IGAD version of the CSO could be created.</li> <li>Invest in wider and deeper multi-stakeholder collaboration for integrated multi-sectoral climate related risk assessment and analysis, data-sharing, and evidence on successful programming and solutions: This should have a focus on the most vulnerable communities and the intersection of climate impacts and other factors compounding vulnerability.</li> </ul>	IGAD CAEP	2025 -2030
<b>Policy influence</b>	<ul style="list-style-type: none"> <li>Create a technical working group across multiple actors working on the Climate, Peace and Security nexus that will coordinate the collation of evidence across IGAD countries to inform the IGAD Climate Security Coordination Mechanism and Member States programmes and policies decision making processes.</li> </ul>	IGAD CAEP IGAD Member States	2024



PRIORITY AREA	SUGGESTED ACTIONS	RESPONSIBILITY	TIME-FRAME
<b>ACTION 2: Enhance new and innovative financing mechanisms</b>			
<b>Innovative finance</b>	<ul style="list-style-type: none"> <li>Strengthen the technical and institutional capacity of national governments and local actors to absorb, leverage, and allocate finance effectively.</li> </ul>	IGAD CAEP	2024-2030
	<ul style="list-style-type: none"> <li>Prioritise local impact and results, including through providing adequate finance at the local level to respond to local needs and priorities and working effectively with local government and non-government delivery partners.</li> </ul>	IGAD CAEP Member States	2024-2030
	<ul style="list-style-type: none"> <li>Leverage financial and technical support from the private sector and adopt tailored financial instruments to mobilize new sources of financing for national and local responses.</li> </ul>	IGAD CAEP	2024-2028
	<ul style="list-style-type: none"> <li>Facilitate the regional integration of climate finance projects by promoting shared initiatives that have benefits across borders, thus encouraging mutual investment.</li> </ul>	IGAD CAEP	2024-2030
<b>Ecosystem-based adaptation</b>	<ul style="list-style-type: none"> <li>Encourage banks, pension funds, microfinance institutions, insurance companies, equity funds, and other investors to leverage significant private finance for EbA and help address the current funding gap.</li> </ul>	IGAD CAEP	2025-2028
	<ul style="list-style-type: none"> <li>Create green bonds to channel greater levels of private finance towards EbA and generate finance to fund ecosystem-based initiatives (such as mangrove restoration, wetland conservation, or reforestation projects) that can confer adaptation benefits to society.</li> </ul>	IGAD CAEP	2025
	<ul style="list-style-type: none"> <li>Pursue debt relief to offer a financial mechanism for incentivizing action on adaptation. Through “debt for climate” or “debt for nature” swaps, debtor nations can make payments in local currency to finance climate projects or conservation actions. This approach promotes investment in EbA by using debt relief to fund the conservation, restoration, and sustainable management of ecosystems that mitigate climate; and for financing curative loss and damage.</li> </ul>	IGAD CAEP Member States	2025-2030
	<ul style="list-style-type: none"> <li>Multilateral development banks and development agencies can require that infrastructure initiatives consider the use of green and blue infrastructure, and provide loans with better rates to support this approach</li> </ul>	IGAD CAEP	2024-2030
	<ul style="list-style-type: none"> <li>The use of Natural Capital Accounting approaches can help advocate for NbS financing by valuing and monitoring their benefits.</li> </ul>	IGAD CAEP Member States	2027
	<ul style="list-style-type: none"> <li>Scale other innovative municipal financing approaches through which funds are raised from external sources in support of municipal financing for NbS, such as municipal climate bonds, carbon credits, public-public partnerships, blended finance, revolving funds or funding from national COVID-19 stimulus plans.</li> </ul>	Member States	2024-2030
	<ul style="list-style-type: none"> <li>Encourage private funding and public-private partnerships where risks and responsibilities for NbS financing either lie with private actors or are shared between public and private actors, such as land value capture through, for instance, tax increment financing (TIF) or business improvement districts (BID), as well as sponsoring and entrepreneurial activities, crowdfunding and other community-sourced funding or in-kind support strategies.</li> </ul>	IGAD CAEP	2024-2028
	<ul style="list-style-type: none"> <li>Develop incentives programmes and tax schemes which aim at encouraging investments from private actors, such as zoning strategies, including zoning bonuses and transfer of development rights, property taxes abatement, water charges earmarking, stormwater fees schemes, cities labels, green building certifications, or allowing the use of vacant municipal lands for green space or community gardens.</li> </ul>	Member States	2024-2030
	<ul style="list-style-type: none"> <li>Implement requirements which push private investment toward NbS, such as municipal codes on impervious land cover, enforcement of biotope ratio, or green roof regulations</li> </ul>	IGAD CAEP	2026

PRIORITY AREA	SUGGESTED ACTIONS	RESPONSIBILITY	TIME-FRAME
<b>Climate security</b>	<ul style="list-style-type: none"> <li>Prioritize investments in readiness activities such as capacity-building initiatives. These should aim to bolster institutional structures, governance, and technical know-how, ensuring countries, particularly high-risk ones, have the requisite capabilities to manage and effectively use climate finance.</li> </ul>	IGAD CAEP IGAD Member States	2025
	<ul style="list-style-type: none"> <li>To maximize fundraising and leverage complementary expertise between states, IGAD should facilitate the regional integration of climate finance projects. This could be achieved by promoting shared initiatives that have benefits across borders, thus encouraging mutual investment. Such an approach can also ensure a more equitable distribution of funds across the region.</li> </ul>	IGAD CAEP	2024
	<ul style="list-style-type: none"> <li>Actively promote 'Climate for Peace' initiatives, including peacebuilding strategies within climate change mitigation and adaptation efforts, creating a comprehensive approach to the dual challenges of climate change and security.</li> </ul>	IGAD CAEP	2024-2030
	<ul style="list-style-type: none"> <li>Collaborate with the global climate funds to de-risk IGAD Member States by supporting the implementation of the Climate Security Programming Dashboard and guidelines.</li> </ul>	IGAD CAEP Member States	2025-2030
<b>ACTION 3: Adopt an integrated, cross-sectoral, transboundary and long-term planning approach</b>			
<b>Human Mobility</b>	<ul style="list-style-type: none"> <li>Recognize and support mobility as a legitimate Strategy for climate adaptation in local, national, regional, and international policies, including NAPs and NDCs, through actions that support in situ adaptation, movement with dignity, reception in communities, and multilocal and transnational household risk management strategies.</li> </ul>	IGAD CAEP IGAD Member States	2024-2025
	<ul style="list-style-type: none"> <li>Create or reinforce national and local structures for the cooperative governance of shared and transboundary water resources, adopting the river basin as the unit for water- resources management; strengthening river-basin and aquifer management; and creating an enabling environment for cooperation between countries sharing international water basins, including management at the lowest appropriate level and institutional arrangements for full stakeholder participation.</li> </ul>	IGAD CAEP IGAD Member States	2024-2028
	<ul style="list-style-type: none"> <li>Significantly increase funding and financing for climate adaptation in the most vulnerable cities, countries, and regions, and pursue cross-sector alliances to scale up the use of innovative financing instruments, including green and blue bonds, municipal bonds, CAT bonds and parametric insurance, as well as debt-for-climate and nature swaps.</li> </ul>	IGAD CAEP	2024-2030
	<ul style="list-style-type: none"> <li>Produce evidence on how climate security risks affect forced displacement and migration in the IGAD region</li> </ul>	IGAD CAEP	2024
<b>ACTION 4: Improve climate information services to enhance climate literacy, early warning and preparedness</b>			
<b>Mainstreaming climate literacy across the region.</b>	<ul style="list-style-type: none"> <li>Develop and promote climate information sharing services which can reach targeted climate-reliant sectors within the region such as subsistence farmers and small-scale fishers.</li> </ul>	IGAD CAEP IGAD	2025
	<ul style="list-style-type: none"> <li>Develop and promote climate information sharing services for vulnerable portions of the community i.e., women and youth.</li> </ul>	IGAD CAEP IGAD	2025
	<ul style="list-style-type: none"> <li>Address climate illiteracy within key national departments to equip policymakers with a comprehensive understanding of climate change and its impacts.</li> </ul>	IGAD Member States	2024
	<ul style="list-style-type: none"> <li>Train and support expert and policy makers on climate smart practices and technologies and climate smart livelihood options that contribute to peace and stability.</li> </ul>	IGAD CAEP IGAD	2024-2025

PRIORITY AREA	SUGGESTED ACTIONS	RESPONSIBILITY	TIME-FRAME
<b>Improving the availability and dissemination of regional weather and climate data.</b>	<ul style="list-style-type: none"> <li>Invest and develop in more robust and updated early warning systems to improve the reliability of climate data.</li> </ul>	IGAD CAEP IGAD Member States	2024-2030
	<ul style="list-style-type: none"> <li>Boosting regional data collection, analysis and forecasting capacity to facilitate the creation of a reliable climate information system.</li> </ul>	IGAD CAEP IGAD	2024
	<ul style="list-style-type: none"> <li>Dissemination of climate information to migrant and displaced populations through accessible and updated climate information systems.</li> </ul>	IGAD CAEP IGAD	2024-2025
<b>Increase the peace potential of climate information services</b>	<ul style="list-style-type: none"> <li>Enhance the climate security sensitivity of agriculture extension services and promote gender-sensitive climate smart agriculture practices.</li> <li>Design Socio-Technical Innovation Bundles (STIBs) combining Climate Smart Agricultural Practices, best-fit system management approaches, and technologies to build and sustain climate smart agriculture with social inclusion approaches.</li> <li>Develop disaster risk reduction and natural resource management strategies and plans (land, forests, water, etc.) (e.g., Forest Landscape Management Plan around settlements, land use strategies, etc.) through collective action strategies that consciously account for conflict risks and peacebuilding opportunities.</li> <li>Create and strengthen climate information centres providing agrometeorological services, advisory and forecasting, community-based (CB) early warning and response systems and serving as hubs for knowledge sharing, peace-building activities, and climate change awareness campaigns.</li> <li>Create climate-sensitive community-based peace committees and bottom-up conflict early warning and response systems that build upon disaster preparedness efforts.</li> <li>Develop climate-sensitive peace-responsive settlements development plans.</li> </ul>	IGAD CAEP IGAD Member States	2025-2030
<b>Promote alternative livelihoods, early warning systems, and sustainable land use practices</b>	<ul style="list-style-type: none"> <li>Develop community based early warning systems on climate, peace and security to reduce vulnerability to climate change, strengthen community-based adaptation and break the vicious cycle of climate and conflict.</li> </ul>	IGAD CAEP IGAD	2025-2030
<b>Human mobility</b>	<ul style="list-style-type: none"> <li>Enhance public understanding of climate risks and threats, including through building climate change literacy, the co-production of actionable climate information services and access to early warnings, to support informed decisions on how to adapt, whether and when to move, and where to settle.</li> </ul>	IGAD CAEP IGAD	2024-2030
	<ul style="list-style-type: none"> <li>Empower women, including those displaced, with climate information, adaptive skills, social and legal protection and through adequate training for livelihood diversification to bolster their agency in decisions on climate adaptation and in human mobility.</li> </ul>	IGAD CAEP IGAD Member States	2025-2030
	<ul style="list-style-type: none"> <li>Ensure nationally and locally owned disaster and climate risk early warning mechanisms and response protocols that account for the needs of internally displaced people, migrants, refugees and other cross-border displaced people, as well as other potentially marginalised populations such as the poor, less-educated, children, women, and ethno-linguistic minorities.</li> </ul>	IGAD CAEP IGAD	2025-2030

PRIORITY AREA	SUGGESTED ACTIONS	RESPONSIBILITY	TIME-FRAME
<b>Human mobility CONT.</b>	<ul style="list-style-type: none"> <li>Ensure nationally and locally owned disaster and climate risk early warning mechanisms and response protocols that account for the needs of internally displaced people, migrants, refugees and other cross-border displaced people, as well as other potentially marginalised populations such as the poor, less-educated, children, women, and ethno-linguistic minorities.</li> </ul>	IGAD CAEP IGAD	2025-2030
	<ul style="list-style-type: none"> <li>Promote the incorporation of multiple channels of communication such as radio, television, mobile phones, and community-based networks for displaced communities and their hosts.</li> </ul>	IGAD CAEP IGAD	2024
	<ul style="list-style-type: none"> <li>Promote the incorporation of multiple channels of communication such as radio, television, mobile phones, and community-based networks for displaced communities and their hosts.</li> </ul>	IGAD CAEP IGAD Member States	2025-2030
	<ul style="list-style-type: none"> <li>Enhance protection-centred anticipatory/early action, preparedness and response to support protection and solutions for people at risk of displacement by weather related hazards, already displaced communities and their hosts, and communities that are trapped. Human rights-based safeguards and conflict-sensitivity must be mainstreamed.</li> </ul>	IGAD CAEP	2025-2030
<b>Climate-security proofing existing infrastructure</b>	<ul style="list-style-type: none"> <li>Pilot and demonstrate innovative evidence-based climate security smart practices and technologies (crop, livestock including feed production and soil and water) and climate smart livelihood options by combination of indigenous knowledge and scientific studies particularly for forcibly displaced persons and host communities including promoting water conservation and harvesting.</li> </ul>	IGAD CAEP Member States	2024-2026
	<ul style="list-style-type: none"> <li>Produce and disseminate the catalogue of best climate security smart agriculture practices and techniques as validated with local and national stakeholders.</li> </ul>	IGAD CAEP Member States	2024-2030
<b>ACTION 5: Strengthen coordination and collaboration between Member States</b>			
<b>Scale-up of contributions to existing and future Humanitarian Response Plans (HRP)</b>	<ul style="list-style-type: none"> <li>Mapping of vulnerability and priority across the Member States.</li> <li>Pooling of resources for targeted responses among the Members States.</li> <li>Raising of additional funding.</li> <li>Forward planning on regional disasters such as climate shocks using regional climate centres.</li> </ul>	IGAD CAEP Member States	2025-2027
<b>Collaborative action by all actors</b>	<ul style="list-style-type: none"> <li>Safeguard the lives and livelihoods of communities through prioritized area of action and targeted resources.</li> <li>Sharing of information on such events like effects of the drought.</li> <li>Building longer-term resilience for the regional through collaborative efforts.</li> </ul>	IGAD CAEP Member States	2025-2030
<b>Early Warning and Response Mechanism</b>	<ul style="list-style-type: none"> <li>Development of synchronized system for early warning across the various section.</li> <li>Coordinated and targeted system for response to climate change effects.</li> <li>Early mobilization of resources for response mechanism.</li> </ul>	IGAD CAEP Member States	2025-2030
<b>Programme and initiatives connection</b>	<ul style="list-style-type: none"> <li>Connect country programmes and initiatives to a longer term vision and outcomes.</li> <li>Harmonisation and creation of synergies to avoid duplication of efforts.</li> </ul>	Member States	2024
<b>Regional climate centres (RCC)</b>	<ul style="list-style-type: none"> <li>Ensure that RCC hold annual or bi-annual meeting to share information and lessons towards regional adaptation agenda.</li> <li>Sharing of programmes by RCC on activities focus.</li> <li>Publication of progress on Strategy.</li> </ul>	IGAD CAEP	2024
<b>Development partners</b>	<ul style="list-style-type: none"> <li>Create platform for development Partners to discuss regional priority interventions.</li> <li>Mainstreaming of development partners' programmes and initiatives into regional development frameworks.</li> </ul>	IGAD CAEP	2025



PRIORITY AREA	SUGGESTED ACTIONS	RESPONSIBILITY	TIME-FRAME
<b>ACTION 6: Implement nature-based solutions and ecosystem-based adaptation</b>			
<b>Nature-based solutions and ecosystem-based adaptation</b>	<ul style="list-style-type: none"> <li>Urban EbA practices can provide essential ecosystem services like cleaner air and water, recreation areas, reliable food sources, and economic opportunities in urban green areas. For instance, an interesting approach to accelerate action on EbA is to integrate the use of "green" and "blue" infrastructure (e.g., ecosystems such as forests, parks, wetlands, and mangroves) in future infrastructure investments.</li> </ul>	IGAD CAEP	2024-2030
	<ul style="list-style-type: none"> <li>Green spaces and natural corridors in cities also offer physical and mental health benefits, biodiversity support, community engagement, and ownership.</li> </ul>	IGAD CAEP	2024-2030
	<ul style="list-style-type: none"> <li>Governments with existing green procurement procedures could review and update their technical standards and procedures to ensure that EbA options are always included as potential options in the assessment of new infrastructure or development projects (e.g., roads, energy infrastructure, coastal development, agricultural infrastructure).</li> </ul>	IGAD CAEP	2024-2025
<b>Climate resilient infrastructure</b>	<ul style="list-style-type: none"> <li>Implementing rainwater harvesting and recharge systems and plant trees and vegetation to recharge groundwater and reduce flooding risks.</li> </ul>	IGAD CAEP Member States	2025
	<ul style="list-style-type: none"> <li>Create urban forests and green spaces and incorporating structural designs for heat reduction, such as Trombe walls, green roofs, and reflective surfaces.</li> </ul>	IGAD CAEP Member States	2025-2030
	<ul style="list-style-type: none"> <li>Use innovative designs for coastal flooding, sea-level rise, cyclones, and strong winds resilience, such as the construct of flood-resistant houses on pillars or elevated buildings.</li> </ul>		
<b>Financing Mechanisms</b>	<ul style="list-style-type: none"> <li>Multilateral development banks and development agencies can require that infrastructure initiatives consider the use of green and blue infrastructure, and provide loans with better rates to support this approach.</li> </ul>	IGAD CAEP	2024-2030
	<ul style="list-style-type: none"> <li>The use of Natural Capital Accounting (NCA) approaches can help advocate for NbS financing by valuing and monitoring their benefits.</li> </ul>		2024-2030
	<ul style="list-style-type: none"> <li>Uptake of other innovative municipal financing approaches through which funds are raised from external sources in support of municipal financing for NbS, such as municipal climate bonds, carbon credits, public-public partnerships, blended finance, revolving funds or funding from national COVID-19 stimulus plans.</li> </ul>		2024-2030
	<ul style="list-style-type: none"> <li>Private funding and public-private partnerships where risks and responsibilities for NbS financing either lie with private actors or are shared between public and private actors, such as land value capture through, for instance, tax increment financing or business improvement districts, as well as sponsoring and entrepreneurial activities, crowdfunding and other community-sourced funding or in-kind support strategies.</li> </ul>		2025-2030
	<ul style="list-style-type: none"> <li>Incentives programmes and tax schemes which aim at encouraging investments from private actors, such as zoning strategies, including zoning bonuses and transfer of development rights, property taxes abatement, water charges earmarking, stormwater fees schemes, cities labels, green building certifications, or allowing the use of vacant municipal lands for green space or community gardens.</li> </ul>		2024-2028
	<ul style="list-style-type: none"> <li>Mandatory requirements which push private investment toward NbS, such as municipal codes on impervious land cover, enforcement of biotope ratio, or green roof regulations.</li> </ul>		2024-2026

PRIORITY AREA	SUGGESTED ACTIONS	RESPONSIBILITY	TIME-FRAME
<b>Cross-sectoral, transboundary, and long-term planning</b>	<ul style="list-style-type: none"> <li>National and local governments can promote the use of green and blue infrastructure by including it in infrastructure standards, regulations, and procurement policies, by requiring that key service providers (such as water utilities, stormwater departments, flood management agencies, and power companies) consider its application, and by integrating its use into local and regional planning initiatives.</li> </ul>	IGAD CAEP Member States	2025-2030
	<ul style="list-style-type: none"> <li>Building codes and zoning regulations should consider climate risks and mandate the evaluation of ecosystem-based adaptation options for infrastructure. Land and coastal zoning regulations should be revised to protect vulnerable ecosystems critical for adaptation, prohibiting development in floodplains and coastal areas. These measures enhance climate resilience and ecosystem conservation.</li> </ul>	IGAD CAEP Member States	2025-2030
<b>Research, Data Sharing, and Dissemination</b>	<ul style="list-style-type: none"> <li>Address key information gaps by collecting data and evidence to support actions to decarbonize and improve the efficiency of buildings. The focus should be placed on the information needed for integrated and spatial urban planning policies and activities, data collection activities, the participation of the informal sector, building component labelling, building envelopes, the adoption of space cooling systems and heat recovery, the use of life-cycle assessment, material labelling, and environmental standards, risk mapping and resilience actions, decentralized renewables deployment, and subsidies. Putting in place systems to capture this information will allow for greater certainty around the impacts that policies and markets are having.</li> </ul>	IGAD CAEP	2024-2025
	<ul style="list-style-type: none"> <li>More information needs to be made available to governments and populations in terms of climate change projections, information on stakeholder vulnerability, adaptation, and the extent of ecosystems, or information on the costs, benefits, and effectiveness of different urban EbA measures, including with conventional engineering approaches.</li> </ul>		2025
	<ul style="list-style-type: none"> <li>Better access to knowledge and possible EbA/NbS solutions.</li> </ul>		2024-2025
	<ul style="list-style-type: none"> <li>Manage land, water, and other shared natural resources cooperatively and sustainably to support agricultural and ecosystem-based livelihoods and boost productivity, while reducing environmental impact and harnessing ecosystems and biodiversity protection for economic development and climate resilience.</li> </ul>		2028-2030
	<ul style="list-style-type: none"> <li>Invest in ecosystem protection and restoration, conservation agriculture practices, sustainable land management, and integrated catchment management.</li> </ul>		2026
	<ul style="list-style-type: none"> <li>Roll out Sustainable Land and Water Management Practices for agriculture and food security across the continent by promoting systematic data collection, monitoring and evaluation of practices, knowledge-sharing and peer-learning among farmers, and capacity-building for the communities and institutions managing land and water resources.</li> </ul>		2026
<b>ACTION 7: Scale climate-resilient infrastructure</b>			
<b>Climate-Resilient Infrastructure</b>	<ul style="list-style-type: none"> <li>Invest in climate-resilient infrastructure, sustainable housing, waste management and access to clean energy and clean cooking in refugee camps and settlements to enhance protection and climate resilience while protecting the environment.</li> </ul>	IGAD CAEP Member States	2024-2030
	<ul style="list-style-type: none"> <li>Invest in technology to detect deep-aquifers to address water scarcity in drought-affected areas. For example, UNHCR, Aarhus University, and Water Mission have piloted an innovative electromagnetic resonance technology to locate new water sources at a depth of one hundred meters in East Ethiopia.</li> </ul>	IGAD CAEP Member States	2024-2027

PRIORITY AREA	SUGGESTED ACTIONS	RESPONSIBILITY	TIME-FRAME
<b>Climate-resilient coastal cities and infrastructure</b>	<ul style="list-style-type: none"> <li>Undertake vulnerability assessments to identify key risks and opportunities related to climate resilient coastal infrastructure.</li> </ul>	IGAD CAEP	2024-2026
	<ul style="list-style-type: none"> <li>Develop and scale financing for climate resilient coastal infrastructure.</li> </ul>	IGAD CAEP	2024-2027
	<ul style="list-style-type: none"> <li>Ensure that efforts to enhance the climate resilience of coastal cities and infrastructure attend to the needs of vulnerable sectors of society, who often live in areas most exposed to climate hazards and have low levels of adaptive capacity.</li> </ul>	IGAD CAEP	2024-2030
<b>Ecosystem-based adaptation</b>	<ul style="list-style-type: none"> <li>Integrate ecosystem-based adaptation and or hybrid solutions into climate, Blue Economy and urban development planning.</li> </ul>	IGAD CAEP IGAD Member States	2024-2030
	<ul style="list-style-type: none"> <li>Improve access to finance for ecosystem-based adaptation solutions in support of climate resilient coastal cities and infrastructure.</li> </ul>	IGAD CAEP IGAD Member States	2024-2030
	<ul style="list-style-type: none"> <li>Strengthen regional collaboration and lesson sharing to support the scaling and effective implementation of ecosystem-based adaptation responses in support of a climate-resilient Blue Economy.</li> </ul>	IGAD CAEP IGAD Member States	2024-2030
<b>Research and policy</b>	<ul style="list-style-type: none"> <li>Strengthen capacity and collaboration between research institutions (including agencies such as KMFRI and universities) to undertake research on climate impacts and response measures related to the Blue Economy.</li> </ul>	IGAD CAEP IGAD	2025-2026
	<ul style="list-style-type: none"> <li>Support integrated governance mechanisms and policy alignment at national and regional levels.</li> </ul>	IGAD CAEP	2027
	<ul style="list-style-type: none"> <li>Enhance the climate resilience of key Blue Economy sectors, with a particular focus on the most vulnerable, for example, small scale fisheries.</li> </ul>	IGAD CAEP IGAD	2024-2027
	<ul style="list-style-type: none"> <li>Enable cities with the actionable data, financial and technical resources — and the political agency needed to facilitate planned, resilient and inclusive urban growth, social inclusion and social protection — while building stronger ties across cities, and between cities and rural areas and economies.</li> </ul>	IGAD CAEP IGAD	2028-2030
	<ul style="list-style-type: none"> <li>Support receiving communities of both internal and cross-border climate mobility through anticipatory planning, community engagement, and by aligning humanitarian and development assistance to advance locally led strategies for strengthening public infrastructure and services, promoting labour market inclusion of newcomers, and pursuing social cohesion.</li> </ul>	IGAD CAEP	2024-2030
	<ul style="list-style-type: none"> <li>Plan for greater urban growth, particularly for smaller cities, and density by overhauling outdated zoning laws and codes to match contemporary urban needs and realities and by designating and equipping areas of prospective settlement with basic infrastructure and transportation links to economic opportunities.</li> </ul>	IGAD CAEP	2028
<b>ACTION 8: Strengthen adaptation capacity</b>			
<b>Ecosystem-based adaptation</b>	<ul style="list-style-type: none"> <li>Conserve, restore and rehabilitate degraded ecosystems such as rangelands, drylands, mangroves, wetlands, forests, watersheds and riverbeds in priority areas of terrestrial and coastal zones.</li> </ul>	IGAD CAEP IGAD Member States	2024-2030
	<ul style="list-style-type: none"> <li>Integrate EbA interventions into national and regional climate adaptation planning policies and processes.</li> </ul>		2024-2028
	<ul style="list-style-type: none"> <li>Promote the development of alternative sustainable livelihoods alongside the implementation of EbA-related interventions.</li> </ul>		2024-2027
	<ul style="list-style-type: none"> <li>Ensure indigenous communities are accounted for in climate change adaptation planning through the promotion of community-based natural resource management models.</li> </ul>		2024-2025

PRIORITY AREA	SUGGESTED ACTIONS	RESPONSIBILITY	TIME-FRAME
<b>Capacity building for sustainable biodiversity management</b>	<ul style="list-style-type: none"> <li>Enhance the capacity of IGAD Member States to conserve, restore and rehabilitate degraded ecosystems through the promotion of biodiversity management plans.</li> </ul>	IGAD CAEP Member States	2024
	<ul style="list-style-type: none"> <li>Implement targeted trainings for accessing finance for biodiversity-related climate change; interventions both nationally and regionally.</li> </ul>	IGAD CAEP Member States	2025
<b>Research and development</b>	<ul style="list-style-type: none"> <li>Strengthen biodiversity and management institutions to accurately track, monitor and assess the impact on biodiversity due to climate change.</li> </ul>	IGAD CAEP Member States	2026
	<ul style="list-style-type: none"> <li>Create platforms for cross-country learnings and best-practice sharing on biodiversity and climate change related interventions that can be replicated and upscaled.</li> </ul>	IGAD CAEP Member States	2027
	<ul style="list-style-type: none"> <li>Promote inclusive governance and public consultations on biodiversity-related climate issues which can be incorporated into policy and planning.</li> </ul>	IGAD CAEP Member States	2025
<b>ACTION 9: Promote research, data sharing and dissemination</b>			
<b>Climate Security</b>	<ul style="list-style-type: none"> <li>Generate state-of-the-art evidence on how, where and for who climate is exacerbating root causes of fragility and conflict.</li> </ul>	IGAD CAEP Member States	2025
	<ul style="list-style-type: none"> <li>Assess the peace potential of common adaptation approaches. Review practices, approaches and innovations that are traditionally implemented to increase resilience and identify gaps to align climate resilience and peacebuilding objectives.</li> </ul>	IGAD CAEP Member States	2025
	<ul style="list-style-type: none"> <li>Capacity building of regional, national, and local government on how to assess and mitigate climate security risks.</li> </ul>	IGAD CAEP IGAD Member States	2025
<b>Human Mobility</b>	<ul style="list-style-type: none"> <li>Use forecasting methods and shared analysis to identify potential climate mobility hotspots and start early consultations with local populations on anticipatory actions for risk mitigation, including contingency planning for evacuations and protocols between neighbouring countries and communities. Such effort should also consider long-term planning for relocations where the limits of local adaptation may be reached, taking account of emerging lessons and good practices from around the world.</li> </ul>	IGAD CAEP	2024
	<ul style="list-style-type: none"> <li>Increase the availability of African-owned, localised, and timely weather and climate data through improved data collection, analysis, and forecasting capabilities.</li> </ul>	IGAD CAEP	2024-2030
	<ul style="list-style-type: none"> <li>Build research and development capacity in the agricultural sector in Africa to ensure better alignment between R&amp;D and the needs and conditions of African countries and communities and improve adoption rates of climate resilient agricultural practices and technologies.</li> </ul>	IGAD CAEP	2024-2028
<b>ACTION 10: Enhance climate change adaptation law and governance</b>			
<b>Governance</b>	<ul style="list-style-type: none"> <li>Review the legal frameworks of Member States to ensure that gaps on addressing climate change response Strategy is evaluated and updated.</li> </ul>	IGAD CAEP Member States	2024
	<ul style="list-style-type: none"> <li>Create awareness among IGAD regional stakeholders on the legal framework and where action is required.</li> </ul>	IGAD CAEP	2024-2025
	<ul style="list-style-type: none"> <li>Prepare illustrated and domesticated awareness material on legal education.</li> </ul>	IGAD CAEP	2024-2025
	<ul style="list-style-type: none"> <li>Explore and promote regional good governance models through training and the continuous monitoring of governance systems.</li> </ul>	IGAD CAEP	2025-2026



PRIORITY AREA	SUGGESTED ACTIONS	RESPONSIBILITY	TIME-FRAME
<b>Human Mobility</b>	<ul style="list-style-type: none"> <li>Create a coherent regional protection framework on human mobility for addressing and protecting migrants and displaced populations, as well as a sufficient and consistent application of the frameworks that are in place in highly complex environments where different forms of mobility simultaneously prevail and intersect. A human rights-based approach should be utilised.</li> </ul>	IGAD CAEP IGAD	2027-2030
	<ul style="list-style-type: none"> <li>On the national and regional level, facilitate the inclusion of actionable, explicit provisions on displacement and meaningful engagement of local and Indigenous communities in adaptation planning including NDCs and NAPs, other climate action policy frameworks, disaster risk reduction frameworks, development planning, preparedness, early warning and early action and response systems.</li> </ul>	IGAD CAEP Member States	2024-2026
	<ul style="list-style-type: none"> <li>Establish community feedback mechanisms during the implementation process of projects, policies and strategies.</li> </ul>	IGAD CAEP Member States	2025
<b>ACTION 11: Increase monitoring, evaluation and learning</b>			
<b>M&amp;E</b>	<ul style="list-style-type: none"> <li>Formulate a data capture framework across various actions to ensure clear and transparent way of tracking climate change Strategy response.</li> </ul>	IGAD CAEP	2024
	<ul style="list-style-type: none"> <li>Train the duty bearer data capture on the importance and value of data capture. These should include state and non-state actors in climate action in order to inform decision making.</li> </ul>		2024
	<ul style="list-style-type: none"> <li>Build a database that collates and stores data in an easily retrievable manner.</li> </ul>		2024
	<ul style="list-style-type: none"> <li>Agree and co-design a data capture format and frequency from various units across the region.</li> </ul>		2024



## CONCLUSION

The effectiveness and efficiency of The IGAD Climate Adaptation Strategy (2023-2030) implementation will heavily depend on the coordination role of the IGAD climate sensitive sectors, national implementing agencies, climate finance, technology transfer, and contextual feasibility of effective adaptation options. This will call upon a very close communication and cooperation among all sectors when implementing regional and national sub-actions on climate adaptation, given that climate impacts are experienced across all the sectors. Climate impact assessment, management and communication will be a shared responsibility of all stakeholders within the impacted sectors. This will be particularly important in building the knowledge base on adaptation costs, effectiveness and feasibility for IGAD. A plausible mechanism is building a robust and active coordination network of regional and national and sub-national actors on climate adaptation to effectively implement the regional and national and sub-national action plans on climate adaptation, with participatory involvement of all key actors in the IGAD region.

The developed actions will go a long way in enhancing coordination at the sub-national, national, regional and international levels for ensuring climate adaptation, taking into

account the impact of climate on the people, their livelihoods and the broader ecosystem in the IGAD region. IGAD Climate Adaptation Strategy will support various regional resilience building objectives, including a) the development and implementation of Member States climate adaptation frameworks and policies b) the strengthening of adaptation capacity of vulnerable populations, c) the increase in climate adaptation knowledge management and capacity development, and d) the promotion of harmonised and coherent adaptation policies, cooperation, peaceful co-existence and sustainable development.

The above ten actions take into consideration the principles of the African union climate change and resilient development Strategy and action plan (2022 to 2032). In tandem with the African leaders Nairobi declaration on climate change and call to action (2023), the ICAS charts out substantial actions aimed at enhancing climate adaptation in the IGAD region. It provides a robust all-inclusive approach to building resilience to climate change in line with the African Agenda 2063 and the Sustainable Development Goals.

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# ANNEX 1

## ADAPTATION POLICIES RELEVANT TO IGAD MEMBER STATES

### THE UNFCCC PARIS AGREEMENT, 2015

The Paris Agreement recognises the fundamental priority of safeguarding food security and ending hunger, and the particular vulnerabilities of food production systems to the adverse impacts of climate change. Article 7.1 establishes the global goal on adaptation of enhancing adaptive capacity, strengthening resilience, and reducing vulnerability to climate change, with a view to contributing to sustainable development and ensuring an adequate adaptation response in the context of the temperature goal.

Parties to the Agreement recognised that adaptation is a global challenge faced by all

with local, subnational, national, regional, and international dimensions, and that it is a key component of and contributes to the long-term global response to climate change. This is consistent with the approach taken by this IGAD Adaptation Strategy that prioritizes actions and interventions of a regional nature that catalyse and enhance ability of regional Member States to enhance resilience and adaptive capacity in a manner that protects people, livelihoods, and ecosystems. This is in harmony with the Paris Agreement's call on Parties to strengthen their cooperation on enhancing action on adaptation.

### AGENDA 2030 AND THE SUSTAINABLE DEVELOPMENT GOALS

The Sustainable Development Goals (SDGs) are core to the 2030 Global Agenda for Sustainable Development. They are integrated and indivisible, global in nature and universally applicable, taking into account different national realities, capacities and levels of development and respecting national policies and priorities. SDG 13 calls on Nations to take urgent action to combat climate change and its impacts including through strengthening resilience and adaptive capacity to climate-related hazards and natural disasters in all countries. Countries are also urged to

integrate climate change measures into national policies, strategies, and planning. While SDG 13 is more specific on climate action, strengthening resilience and adaptive capacity as well as mainstreaming climate actions into policies, there are SDGs whose realization will impact the ability of IGAD nations to realization adaptation goals. These include ending poverty in all its forms everywhere (SDG 1); ending hunger, achieve food security and improved nutrition and promote sustainable agriculture (SDG 2); achieving gender equality and empower all

women and girls (SDG 5); ensuring availability and sustainable management of water and sanitation for all (SDG 6); conserving and sustainably using the oceans, seas and marine resources for sustainable development (SDG 14); and protecting, restoring and promoting sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse

land degradation and halt biodiversity loss (SDG 15). Analysis on the impacts of climate risks in sectors pertinent to these SDGs has been undertaken in preceding sections of this Adaptation strategies, showing the current realities, challenges and opportunities, and framing priority areas and interventions to enhance coordinated regional adaptation efforts.

## AFRICAN UNION AGENDA 2063

The African Union's Agenda 2063 is the continental strategic framework that aims to deliver on its goal for inclusive and sustainable development. Goal 7 of the agenda recognises the need to achieve environmentally sustainable and climate resilience economies and communities. This is to be achieved through various priority areas, that are consistent with those selected for

this Adaptation Strategy, including sustainable natural resource management and Biodiversity conservation; sustainable consumption and production patterns; achieving water security; and climate resilience and natural disasters preparedness and prevention. It is important to note that Goal 7 and the underlying priority areas are consistent with SDG 7, 13 and 15.

## AFRICAN UNION CLIMATE CHANGE AND RESILIENT DEVELOPMENT STRATEGY AND ACTION PLAN (2022-2032)

The Strategy recognises that climate change poses unprecedented challenges to the survival of humans, animals, plant life and ecosystems on the continent. It argues that 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. The goal of the Strategy is 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. 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.



## EAST AFRICAN COMMUNITY CLIMATE CHANGE POLICY FRAMEWORK

The EAC's climate change policy framework comprises the East African Community (EAC) Climate Change Policy, and Master Plan. The EAC regional Climate Change Master Plan (2011-2031) is the blueprint to guide regional climate change response measures over the long term for the Partner States (Kenya, Uganda, Tanzania, Burundi, Rwanda, DRC, South Sudan). Some of the EAC Partner States IGAD members States and are therefore impacted by this Adaptation Strategy. The EAC policy guides Partner States and other stakeholders on the preparation and implementation of collective measures to

address Climate Change in the region, while ensuring sustainable social and economic development. It prescribes statements and actions to guide Climate Change adaptation and mitigation to reduce the vulnerability of the region and enhance adaptive capacity and build socioeconomic resilience of vulnerable populations and ecosystems. Adaptation to Climate Change is of priority to the EAC region in view of the high vulnerability of the region to the impacts of Climate Change, with the emerging associated challenges, especially food security.

## IGAD REGIONAL CLIMATE CHANGE STRATEGY AND ACTION PLAN (2023-2030)

The 2023-2030 IGAD Regional Climate Change Strategy and Action Plan (IRCCS) aims to improve livelihoods and well-being, strengthen the resilience and adaptive capacity of communities, and promote climate smart and low-emission economic development in the IGAD region. The IRCCS seeks to implement and support some identified priorities and measures in NDCs and other existing climate policies in the Member States. It is also intended to support Member States' compliance with obligations under the UNFCCC. IGAD Member

States share common vulnerabilities to climate change, and therefore this presents an opportunity for a regional approach to addressing adaptation challenges. The IRCCS identifies eleven (11) priority areas where a regional approach to climate action is necessary. This Adaptation Strategy builds on the assessment and prioritization undertaken in the IRCCS and carries further evaluation on exposure to vulnerability through the lens of sectors most significantly affected by climate risks in the IGAD region.



# ANNEX 2

## MEMBER STATES ADAPTATION FRAMEWORKS AND POLICIES



### DJIBOUTI

#### **National Adaptation Programme of Action (NAPA), 2006**

The options identified in the NAPA are focused on an adaptation Strategy with the objective of reducing the perverse effects of climate change in order to enhance the sustainable development of the country. The main interventions are identified in the following sectors: water resources; agriculture; breeding; forests; and coastal areas. These are supported by enabling actions.

#### **Nationally Determined Contribution, 2016**

The first NDC, submitted in 2016 recognised that the country continues to face shrinkage

in available arable land and biodiversity due to rapid desertification, which will only be exacerbated with rising temperatures. Likewise, with respect of marine ecosystems, more than half the coral cover is likely to disappear in the years to come. The NDC identified national adaptation priorities, Broken down into multiple strategies, including:

- reducing vulnerability to drought;
- protecting against rising sea levels;
- improving access to water;
- protecting biodiversity,
- reinforcing the resilience of rural populations.



### ETHIOPIA

#### **Updated Nationally Determined Contributions, 2021**

The revised and updated NDC recognises the importance of adaptation due to Ethiopia's high levels of vulnerability and low adaptive capacity. The updated NDC recognises the vulnerability of the country, and less adaptive capacity to absorb external shocks resulting from the devastating effects of climate change including hazards such as droughts and floods. For this reason, the government of Ethiopia has made adaptation a priority, to ensure the effective

and efficient utilization. For this reason, the country's adaptation commitments are in the sectors of agriculture, land use and forestry with additional adaptation contributions in water, health, energy, transport and urban settlements. The updated NDC has identified 40 adaptation interventions.

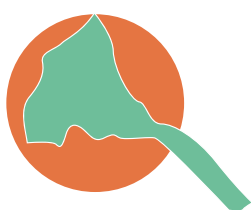
#### **National Adaptation Plan, 2017**

NAP-ETH focuses on the sectors that have been identified as most vulnerable, namely: agriculture, forestry, health, transport, power,

industry, water and urban. Within these sectors, 18 adaptation options have been identified for implementation at all levels and across different development sectors, recognizing the considerable diversity in context and vulnerability across Ethiopia's regions and social groups.

These options include enhancing food security by improving agricultural productivity in a climate-smart manner; Improving soil and water harvesting and water retention mechanisms; improving ecosystem resilience through conserving biodiversity; building social protection and livelihood options of vulnerable people; strengthening

drought, livestock & crop mechanisms; and improving early warning systems. In order to achieve this, five strategic priorities have been identified by the NAP-ETH, as follows: Mainstreaming climate change adaptation into development policies, plans and strategies.; Building long-term capacities of institutional structures involved in NAP-ETH; Implementing effective and sustainable funding mechanisms; Advancing adaptation research and development in the area of climate change adaptation, and improving the knowledge management system for NAP-ETH. The NAP is clear that realization of these strategic priorities is critical to enable effective implementation of the options identified above.



## ERITREA

### **National Adaptation Programme of Actions (NAPA), 2007**

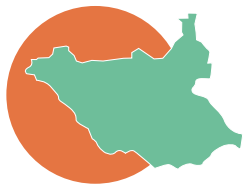
The NAPA recognises that unless negative impacts of climate shocks are addressed, Eritrea is likely to become increasingly susceptible to impacts from climate variability and climate change. The NAPA therefore identifies a list of highest ranked sectoral adaptation projects which aim to support and improve livelihoods in Eritrea relative to the identified vulnerabilities, particularly among those living in rural communities. These priorities projects are in agriculture and livestock (rated 1 and 2 respectively in terms

of priority), followed by forestry and water resources sectors. The country is yet to submit a National Adaptation Plan (NAP).

### **Nationally Determined Contributions (NDC), 2018**

Eritrea submitted its first NDC in 2018. The NDC has set out the country's key adaptation commitments that include enhancing Climate Smart Agriculture in 5% of the cultivable land; introducing energy saving cooking stoves for rural households; expanding area under irrigation by 170, 000 ha; and afforestation expansion covering over 36,000 ha.





## SOUTH SUDAN

### **National Adaptation Programme of Actions (NAPA), 2016**

South Sudan's National Adaptation Programme of Actions (NAPA) to Climate Change is a cross-cutting national policy with the overarching objective to communicate to the international community priority activities that will address South Sudan's urgent and immediate needs for adapting to the adverse impacts of climate change. South Sudan's NAPA specifies five (5) Priority Adaptation Projects in the environment; water resources, agriculture, disaster risk reduction and policy/institutional framework sectors.

### **First National Adaptation Plan (NAP) for Climate Change, 2021**

Building on the NAPA, the vision of the NAP is to mainstream adaptation planning within South Sudan's development planning across different government line ministries and climate resilient communities. The mandate of the NAP is to build leadership and ensure stakeholder participation to fulfil South Sudan's commitment to the UNFCCC and to operationalize climate change adaptation at all levels. The NAP will provide a roadmap of the steps needed to mainstream climate change adaptation into planning and budgeting at national, state and local levels. It identifies nine (9) priority sectors (Agriculture livestock and fisheries; Disaster risk reduction; Energy; Environment, ecosystems and biodiversity conservation; Health; Human settlements; Tourism and recreation; Industry, infrastructure and transportation and Water resources. Adaptation actions are thus framed in line with the priority areas

to serve as a basis of all climate change adaptation projects advanced by domestic stakeholders as well as international development partners.

### **South Sudan Second Nationally Determined Contribution, 2021**

The updated NDC recognises that agriculture is highly vulnerable to the impacts of climate change with the majority of the population in South Sudan dependent on agriculture and livestock for their livelihoods, yet agricultural productivity remains low in the country. It recognises that a large proportion of the population of South Sudan is food insecure and with changes in the climatic pattern, this problem is likely to intensify. Therefore, growth of the agriculture sector and enhancing food security are key priority areas for both climate-related and development policies of South Sudan. For this reason, agriculture is considered to be a priority from both the climate change mitigation and adaptation standpoints. The NDC also recognises that food insecurity is deepened by climate change, which frequently gives rise to droughts and floods, impacting the food production capability of the region. Importantly, the NDC recognises that South Sudan faces a high risk of floods (more than 1 in 100 people are at risk) and a medium risk of droughts with about 78 percent of households (primarily rural communities) reliant on crop farming (mostly rain-fed) and animal husbandry as their main sources of livelihood.



## UGANDA

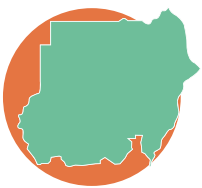
### **National Adaptation Programme of Action (NAPA), 2007**

The 2007 NAPA identified important areas of intervention, and this was undertaken in a participatory, community-based approach across the country. As a result, nine (9) priority projects were identified, linked to the country's Vision 2040. These priority areas were Community Tree Growing Project; Land Degradation Project; Strengthening Meteorological Services; Community Water and Sanitation Project; Water for Production Project Drought Adaptation Project; Vectors, Pests and Disease Control Project; Indigenous Knowledge and Natural Resources Management Project; and Climate Change and Development Planning Project.

### **Updated Nationally Determined Contribution, 2022**

The updated NDC recognises that climate risks pose serious threats to Uganda's key

economic sectors, such as agriculture, water resources, fisheries, tourism, and health, which are dependent and sensitive to climate variability and change. The NDC notes that the priority sectors for adaptation in Uganda remain ecosystems, water, agriculture, and forestry but there is significant risk in other sectors, particularly the Fisheries sub-sector, Manufacturing and Mining, the Cities and Built environment, Transport, and Health. With a high dependency on hydropower, the Energy sector is also at risk due to climate variability and change in rainfall and water availability. Disaster risk management is identified as a significant cross-cutting issue that is also identified as an adaptation priority. The NDC notes that Uganda's adaptation effort faces several challenges, including but not limited to inadequate local level climate adaptation financing, inadequate individual and institutional capacity, limited access to international climate finance, and support for technology and capacity-building.



## SUDAN

### **National Adaptation Plan, 2016**

The NAP takes a to reduce vulnerability by integrating information about emerging climate change risks into current development planning systems and arrangements. It aims to provide a strategic plan as well as a platform for policy dialogue around adaptation to climate. Its goals are threefold. The NAP seeks to build capacity among Sudanese institutions in order to promote the development of climate change institutional arrangements for effective implementation of adaptation programmes and activities. It

also aims to broaden the response to climate change to encompass institutional, economic, planning, and analytical dimensions of climate risk management in order to facilitate the integration of climate change adaptation into new and existing policies, programmes and activities, within all relevant sectors and at different levels. The NAP further continues and enhances existing efforts to identify and prioritize potential adaptation initiatives at the regional level, as initially launched during the previous National Adaptation Plan of Action (NAPA) process.

## Updated Nationally Determined Contribution (NDC), 2021

This updated NDC addresses adaptation through the identification of high-priority adaptation and resilient building interventions targeting the most vulnerable sectors and disaster-prone areas. It recognises that Sudan is already experiencing the impacts of climate change. Notably, over the past three decades, climate change has led to crop failures in traditional rain-fed farming, the backbone of the Sudanese economy; and



## National Adaptation Plan, 2015 - 2030

The NAP recognises that Kenya faces a number of risks from climate variability and change, including droughts, floods and sea level rise. It therefore proposes adaptation related actions, which were selected on the basis of a criteria: urgency and ease of implementation in the short-term; compatibility with the NCCAP adaptation actions; compatibility with the MTP actions; and low-regrets option if implemented. Since the NAP was developed, priority adaptation actions have been further reviewed and refined through the National Climate Change Action Plan (NCCAP) process which is prepared every five years as required by the Climate Change Act.

## Updated Nationally Determined Contributions, 2020

Kenya submitted the first NDC in 2015, and an updated NDC in December 2020. The updated NDC recognises that all sectors of the Kenyan economy are vulnerable to climate change and that the country's GDP

relies on sectors that are sensitive to climate impacts. For this reason, the NDC is clear that adaptation is the highest priority for Kenya, not only through preventing further losses and damage, but underpinning infrastructure and economic development while safeguard lives, livelihoods and social development in line with Kenya Vision 2030, Medium Term Plan (MTPs) for implementing Kenya Vision 2030, the NCCAP, and the NAP. To this end, the NDC aims to ensure that Kenya achieves a climate resilient society through mainstreaming climate change adaptation into the MTPs, and County Integrated Development Plans (CIDP), which are legally required to guide development priorities in Kenya's devolved units of government. In order to achieve NDC adaptation priorities, Kenya aims to mobilize domestic resources to cater for 10% of the adaptation cost, while 90% of the cost will require international support in the form of finance, technology development and transfer, and capacity building.



## SOMALIA

### National Adaptation Plan

The federal government of Somalia has integrated climate change into its National Development Plan for the period of 2020-2024 and has developed a number of other climate-change-related programs and policies, such as the National Adaptation Programme of Action (NAPA) 2013 and the National Climate Change Policy (2020). The country has also initiated its National Adaptation Plan (NAP, 2022) process through the implementation of Green Climate Fund (GCF)-financed NAP Readiness Project, with which it hopes to strengthen capacities and coordination for climate change adaptation planning and implementation in Somalia.

The overall goal of the Somalia NAP process is to reduce national and local vulnerabilities to the impacts of climate change and build resilience of the country and its communities. Specifically, the NAP process will aim to:

- Define medium- and long-term climate adaptation actions and initiatives for implementation;
- Facilitate the integration of climate change adaptation, in a coherent manner, into development planning processes and strategies;
- Enhance coordination; and
- Promote the mobilization of resources to respond to climate change adaptation needs of Somalia.

### Updated Nationally Determined Contributions, 2021

Somalia submitted its first NDC in November 2015 and remains committed to achieve the targets despite its challenges and national circumstances. Sustainable development, peace building and adaptation to climate change remain the highest priority for Somalia. Somalia has remained susceptible to climate change and resultant shocks due to its geographical setting with over 80% of the country considered Arid and Semi-Arid Lands. Much of the brunt has been felt in the agriculture and livestock sector which together account for more than 70% of livelihood base for majority of the population. Somalia's current GHG emissions are relatively low estimated at an estimated 53.70 MtCO<sub>2</sub>eq, representing less than 0.03 percent of total global emissions. However, it is expected that the sustained stability and peace will demand reconstruction and development on a larger scale leading to increased GHG emissions (estimated to double) under business as usual scenario.





# ANNEX 3

## GLOSSARY

### **2030 Agenda for Sustainable Development**

A UN resolution in September 2015 adopting a plan of action for people, planet and prosperity in a new global development framework anchored in 17 Sustainable Development Goals (SDGs).

### **Adaptation**

Process of adjustment to actual or expected climate change and its effects. In human systems, adaptation seeks to moderate or avoid harm, or to exploit beneficial opportunities. In some natural systems, human intervention may facilitate adjustment to expected climate change and its effects.

### **Adaptive capacity**

Ability of systems, institutions, humans, and other organisms to adjust to potential damage, take advantage of opportunities, and respond to consequences of climate change impacts.

### **Aridity**

The state of a long-term climatic feature characterised by low average precipitation or available water in a region.

### **Behavioural change**

In this report, behavioural change refers to alteration of human decisions and actions in ways that mitigate climate change and/or reduce negative consequences of climate change impacts.

### **Biodiversity**

Variety of plant and animal life in the world or in a particular habitat or ecosystem.

### **Biome**

Large naturally-occurring community of flora and fauna occupying a major habitat (for example, forest or savannah).

### **Capacity building**

The practice of enhancing the strengths and attributes of, and resources available to, an individual, community, society or organisation to respond to change.

### **Climate**

In a narrow sense, climate is usually defined as the average weather — or more rigorously, as the statistical description in terms of the mean and variability of relevant quantities — over a period of time ranging from months to thousands or millions of years. The classical period for averaging these variables is 30 years, as defined by the World Meteorological Organisation (WMO).

### **Climate change**

A change in the state of the climate that can be identified by changes in the mean and/or the variability of its properties, and that persists for an extended period, typically decades or longer. It refers to any change in climate over time, whether due to natural variability or as a result of human activity.



## **Climate finance**

There is no agreed definition of climate finance. The term climate finance is applied to the financial resources devoted to addressing climate change by all public and private actors from global to local scales, including international financial flows to developing countries to assist them in addressing climate change. Climate finance aims to reduce net greenhouse gas emissions and/or to enhance adaptation and increase resilience to the impacts of current and projected climate change. Finance can come from private and public sources, channelled by various intermediaries, and is delivered by a range of instruments, including grants, concessional and non-concessional debt, and internal budget reallocations.

## **Climate information**

Information about the past, current or future state of the climate system that is relevant for mitigation, adaptation and risk management. It may be tailored or 'co-produced' for specific contexts, taking into account users' needs and values.

## **Climate literacy**

Climate literacy encompasses being aware of climate change, its anthropogenic causes and implications (Minimal definition as measured by Afrobarometer).

## **Climate mobility hotspot**

For the purposes of this study, climate mobility hotspots are areas that will see significant differences in population across multiple scenarios that take into account climate change impacts relative to population projections that do not take climate change impacts into account. Areas with multiple scenarios showing

high positive differences are likely to be climate mobility destination areas, and those with negative differences are likely to be climate mobility source areas. To qualify as a high confidence hotspot 3 or 4 out of 4 scenarios need to show population differences in the top 5th percentile of the distribution of differences, both at high (positive) and low (negative) ends. Medium confidence hotspots are those in which 2 out of 4 scenarios meet this criteria.

## **Climate model**

A qualitative or quantitative representation of the climate system based on the physical, chemical and biological properties of its components, their interactions and feedback processes and accounting for some of its known properties.

## **Climate prediction**

A climate prediction or climate forecast is the result of an attempt to produce (starting from a particular state of the climate system) an estimate of the actual evolution of the climate in the future, for example, at seasonal, interannual or decadal time scales. Because the future evolution of the climate system may be highly sensitive to initial conditions, such predictions are usually probabilistic in nature.

## **Climate projection**

Simulated response of the climate system to a scenario of future emissions or concentrations of greenhouse gases (GHGs) and aerosols and changes in land use, generally derived using climate models. Climate projections depend on an emission/concentration/ radiative forcing scenario, which is in turn based on assumptions concerning, for example, future socioeconomic and technological developments that may or may not be realised.

### **Climate risk**

Potential for consequences from climate variability and change where something of value is at stake and the outcome is uncertain. Often represented as the probability that a hazardous event or trend occurs multiplied by the expected impact. Risk results from the interaction of vulnerability, exposure, and hazard, as well as responses to climate change failing to achieve their goals.

### **Climate services**

Climate services involve the provision of climate information in such a way as to assist decision-making. The service includes appropriate engagement from users and providers, is based on scientifically credible information and expertise, has an effective access mechanism and responds to user needs.

### **Climate variability**

Deviations of some climate variables from a given mean state (including the occurrence of extremes, etc.) at all spatial and temporal scales beyond that of individual weather events. Variability may be intrinsic, due to fluctuations of processes internal to the climate system (internal variability), or extrinsic, due to variations in natural or anthropogenic external forcing (forced variability).

### **Climate-resilient development**

In line with the IPCC, climate resilient development refers to the process of implementing greenhouse gas mitigation and adaptation measures to support sustainable development for all.

### **Coastal erosion**

Erosion of coastal landforms that results from wave action, exacerbated by storm surge and sea-level rise.

### **Coastal zone**

In this report, the coastal zone is land area within 50 kilometres of the coastline.

### **Coping**

The use of available skills, resources and opportunities to address, manage and overcome adverse conditions, with the aim of achieving basic functioning of people, institutions, organisations and systems in the short to medium term.

### **Coping capacity**

The ability of people, institutions, organisations and systems, using available skills, values, beliefs, resources and opportunities, to address, manage and overcome adverse conditions in the short to medium term.

### **Coupled Model Intercomparison Project (CMIP)**

A climate modelling activity from the World Climate Research Programme (WCRP) which coordinates and archives climate model simulations based on shared model inputs by modelling groups from around the world. The CMIP3 multi-model data set includes projections using Special Report on Emissions Scenarios (SRES) scenarios. The CMIP5 data set (used in this report) includes projections using the Representative Concentration Pathways (RCP).



## **Crop productivity**

The crop sector model outputs in this report represent crop yield in tons per hectare on an annual time step.

## **Cultural impacts**

Impacts on material and ecological aspects of culture and the lived experience of culture, including dimensions such as identity, community cohesion and belonging, sense of place, worldview, values, perceptions and tradition. Cultural impacts are closely related to ecological impacts, especially for iconic and representational dimensions of species and landscapes. Culture and cultural practices frame the importance and value of the impacts of change, shape the feasibility and acceptability of adaptation options, and provide the skills and practices that enable adaptation.

## **Disaster**

A 'serious disruption of the functioning of a community or a society at any scale due to hazardous events interacting with conditions of exposure, vulnerability and capacity, leading to one or more of the following: human, material, economic and environmental losses and impacts.'

## **Disaster management**

Social processes for designing, implementing and evaluating strategies, policies and measures that promote and improve disaster preparedness, response and recovery practices at different organisational and societal levels.

## **Disaster risk**

The likelihood over a specified time period of severe alterations in the normal functioning of a community or a society due to hazardous physical events interacting with vulnerable social conditions, leading to widespread adverse human, material, economic or environmental effects that require immediate emergency response to satisfy critical human needs and that may require external support for recovery.

## **Displacement**

The movement of persons who have been forced or obliged to flee or to leave their homes or places of habitual residence, in particular as a result of or in order to avoid the effects of armed conflict, situations of generalised violence, violations of human rights or natural or human-made disasters.

## **Early warning systems**

The set of technical and institutional capacities to forecast, predict and communicate timely and meaningful warning information to enable individuals, communities, managed ecosystems and organisations threatened by a hazard to prepare to act promptly and appropriately to reduce the possibility of harm or loss. Dependent upon context, EWS may draw upon scientific and/or indigenous knowledge, and other knowledge types.

## **Ecosystem**

A functional unit consisting of living organisms, their non-living environment and the interactions within and between them.

### **Ecosystem-based adaptation (EBA)**

The use of ecosystem management activities to increase the resilience and reduce the vulnerability of people and ecosystems to climate change.

### **Emissions (Anthropogenic)**

Emissions of greenhouse gases (GHGs), precursors of GHGs and aerosols caused by human activities. These activities include the burning of fossil fuels, deforestation, land use and land-use changes, livestock production, fertilisation, waste management and industrial processes.

### **Emissions (Fossil-fuel)**

Emissions of greenhouse gases (in particular, carbon dioxide), other trace gases and aerosols resulting from the combustion of fuels from fossil carbon deposits such as oil, gas and coal.

### **Emission scenario**

A plausible representation of the future development of emissions of substances that are radiatively active (e.g., greenhouse gases (GHGs) or aerosols) based on a coherent and internally consistent set of assumptions about driving forces (such as demographic and socio-economic development, technological change, energy and land use) and their key relationships.

### **Equality**

A principle that ascribes equal worth to all human beings, including equal opportunities, rights and obligations, irrespective of origins.

### **Exposure**

The presence of people; livelihoods; species or ecosystems; environmental functions, services, and resources; infrastructure; or economic, social, or cultural assets in places and settings that could be adversely affected.

### **Extreme weather event**

Event that is rare at a particular place and time of year. Definitions of rare vary, but an extreme weather event would normally fall in the 10th or 90th percentile of a probability density function estimated from observations. The characteristics of extreme weather vary from place to place in an absolute sense. When a pattern of extreme weather persists for some time, such as a season, it may be classified as an extreme climate event, especially if it yields an average or total that is itself extreme (for example, drought or heavy rainfall over a season).

### **Extreme sea level (ESL)**

The occurrence of an exceptionally low or high local sea surface height, arising from (a combination of) short-term phenomena (e.g., storm surges, tides and waves). Relative sea level changes affect extreme sea levels directly by shifting the mean water levels and indirectly by modulating the propagation of tides, waves and/or surges due to increased water depth. In addition, extreme sea levels can be influenced by changes in the frequency, tracks or strength of weather systems and storms, or due to anthropogenically induced changes such as the modification of coastlines or dredging. In turn, changes in any or all of the contributions to extreme sea levels may lead to long-term relative sea level changes. Alternate expressions for ESL may be used depending on the processes resolved.

## **Facilitated migration**

Regular migration that has been encouraged or supported by State policies and practices or by the direct assistance of international organisations to make the act of migration and residence easier, more transparent and more convenient.

## **Food security**

A situation that exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life. The four pillars of food security are availability, access, utilisation and stability.

## **Forced migration**

A migratory movement which, although the drivers can be diverse, involves force, compulsion, or coercion.

## **Fossil fuels**

Carbon-based fuels from fossil hydrocarbon deposits, including coal, oil and natural gas.

## **Gender**

The socially constructed roles and relationships, personality traits, attitudes, behaviours, values, relative power and influence that society ascribes to males and females on a differential basis. Gender is relational and refers not simply to women or men, but to the relationship between them.

## **GEPIIC**

The GIS-based Environmental Policy Integrated Climate crop model (see African Shifts Appendix B).

## **Global warming**

Global warming refers to the increase in global surface temperature relative to a baseline reference period, averaging over a period sufficient to remove interannual variations (e.g., 20 or 30 years). A common choice for the baseline is 1850–1900 (the earliest period of reliable observations with sufficient geographic coverage), with more modern baselines used depending upon the application.

## **Governance**

The structures, processes and actions through which private and public actors interact to address societal goals. This includes formal and informal institutions and the associated norms, rules, laws and procedures for deciding, managing, implementing and monitoring policies and measures at any geographic or political scale, from global to local.

## **Governance capacity**

The ability of governance institutions, leaders and non-state and civil society to plan, coordinate, fund, implement, evaluate and adjust policies and measures over the short, medium and long term, adjusting for uncertainty, rapid change and wide-ranging impacts and multiple actors and demands.

## **Greenhouse gases (GHG)**

Gaseous constituents of the atmosphere, both natural and anthropogenic, that absorb and emit radiation at specific wavelengths within the spectrum of radiation emitted by the Earth's ocean and land surface, by the atmosphere itself and by clouds. This property causes the greenhouse effect. Water vapour (H<sub>2</sub>O), carbon dioxide (CO<sub>2</sub>), nitrous oxide (N<sub>2</sub>O), methane (CH<sub>4</sub>) and ozone (O<sub>3</sub>) are the primary GHGs

in the Earth's atmosphere. Human-made GHGs include sulphur hexafluoride (SF<sub>6</sub>), hydrofluorocarbons (HFCs), chlorofluorocarbons (CFCs) and perfluorocarbons (PFCs); several of these are also O<sub>3</sub>-depleting (and are regulated under the Montreal Protocol).

### **Hazard**

The potential occurrence of a natural or human-induced physical event or trend or physical impact that may cause loss of life, injury, or other health impacts, as well as damage and loss to property, infrastructure, livelihoods, service provision, ecosystems and environmental resources.

### **Heat stress**

A range of conditions in, for example, terrestrial or aquatic organisms when the body absorbs excess heat during overexposure to high air or water temperatures or thermal radiation. In aquatic water-breathing animals, hypoxia and acidification can exacerbate vulnerability to heat.

### **Heatwave**

A period of abnormally hot weather, often defined with reference to a relative temperature threshold, lasting from two days to months. Heatwaves and warm spells have various and, in some cases, overlapping definitions.

### **High Road scenario**

ACMI climate scenario blending SSP1 with RCP6.0 where emissions remain high, and the planet heats by at least 2°C by mid-century; Africa adopts inclusive development, has low population growth, high urbanisation, medium GDP, and high education.

### **Human mobility**

A generic term covering all the different forms of movements of persons, including temporary or long-term, short- or long-distance, internal or international, voluntary or forced, and seasonal or permanent, as well as planned relocation. Human mobility in the context of climate change is used to describe such movements for reasons related to climate change impacts.

### **Human rights**

Rights that are inherent to all human beings, universal, inalienable and indivisible, typically expressed and guaranteed by law. They include the right to life, economic, social and cultural rights, and the right to development and self-determination.

### **Human security**

A condition that is met when the vital core of human lives is protected, and when people have the freedom and capacity to live with dignity. In the context of climate change, the vital core of human lives includes the universal and culturally specific, material and non-material elements necessary for people to act on behalf of their interests and to live with dignity.

### **Immobility**

Inability to move or choice not to move away from a place of risk.

### **Impacts**

The consequences of realised risks on natural and human systems, where risks result from the interactions of climate-related hazards (including extreme weather/climate events), exposure, and vulnerability. Impacts generally refer to effects on lives, livelihoods, health and well-being,



ecosystems and species, economic, social and cultural assets, services (including ecosystem services) and infrastructure. Impacts may be referred to as consequences or outcomes, and can be adverse or beneficial.

### **Indigenous knowledge**

The understandings, skills and philosophies developed by societies with long histories of interaction with their natural surroundings. For many indigenous peoples, IK informs decision-making about fundamental aspects of life, from day-to-day activities to longer-term actions. This knowledge is integral to cultural complexes, which also encompass language, systems of classification, resource-use practices, social interactions, values, ritual and spirituality. These distinctive ways of knowing are important facets of the world's cultural diversity.

### **Inequality**

Uneven opportunities and social positions, and processes of discrimination within a group or society, based on gender, class, ethnicity, age and (dis)ability, often produced by uneven development. Income inequality refers to gaps between the highest and lowest income earners within a country and between countries.

### **Informal settlement**

A term given to settlements or residential areas that, by at least one criterion, fall outside official rules and regulations. Most informal settlements have poor housing (with widespread use of temporary materials) and are developed on land that is occupied illegally with high levels of overcrowding. In most such settlements, provision for safe water, sanitation, drainage, paved roads and basic services is inadequate or

lacking. The term 'slum' is often used for informal settlements, although it is misleading as many informal settlements develop into good-quality residential areas, especially where governments support such development.

### **Internal migration or mobility**

The movement of people within a State involving the establishment of a new temporary or permanent residence.

### **Internally displaced persons**

Persons or groups of persons who have been forced or obliged to flee or to leave their homes or places of habitual residence, in particular as a result of, or in order to avoid, the effects of armed conflict, situations of generalised violence, violations of human rights or natural or human-made disasters, and who have not crossed an internationally recognised state border.

### **International migration**

The movement of persons away from their place of usual residence and across an international border to a country of which they are not nationals.

### **Land degradation**

The deterioration or decline of the biological or economic productive capacity of the land.

### **Landscape approach**

A framework that advances multiple land uses and management to ensure equitable and sustainable use of land.

## **Loss and Damage, and losses and damages**

Loss and Damage (capitalised letters) to refer to political debate under the United Nations Framework Convention on Climate Change (UNFCCC) following the establishment of the Warsaw Mechanism on Loss and Damage in 2013, which is to 'address loss and damage associated with impacts of climate change, including extreme events and slow onset events, in developing countries that are particularly vulnerable to the adverse effects of climate change.' Lowercase letters (losses and damages) have been taken to refer broadly to harm from (observed) impacts and (projected) risks and can be economic or non-economic.

## **Maladaptive actions (Maladaptation)**

Actions that may lead to increased risk of adverse climate-related outcomes, including via increased greenhouse gas (GHG) emissions, increased or shifted vulnerability to climate change, more inequitable outcomes, or diminished welfare, now or in the future. Most often, maladaptation is an unintended consequence.

## **Migrant**

Any person who is moving or has moved across an international border or within a state away from his/her habitual place of residence, regardless of (1) the person's legal status, (2) whether the movement is voluntary or involuntary, (3) what the causes for the movement are and (4) what the length of the stay is.

## **Migration**

The movement of persons away from their place of usual residence, either across an international border or within a State.

## **Migration cycle**

Stages of the migration process encompassing departure from, and in some cases transit through one or more cities or States, settlement in a place or State of destination and return.

## **Migration governance**

The combined frameworks of legal norms, laws and regulations, policies and traditions as well as organisational structures (subnational, national, regional and international) and the relevant processes that shape and regulate States' approaches with regard to migration in all its forms, addressing rights and responsibilities and promoting international cooperation.

## **Mitigation (of climate change)**

Human intervention to reduce the sources or enhance the sinks of greenhouse gases.

## **Nationally Determined Contributions**

The non-binding national plans by each country to reduce national greenhouse gas emissions and adapt to the impacts of climate change enshrined in the Paris Agreement.

### Planned relocation

In the context of disasters or environmental degradation, including when due to the effects of climate change, a planned process in which persons or groups of persons move or are assisted to move away from their homes or place of temporary residence, are settled in a new location, and provided with the conditions for rebuilding their lives.

## **Poverty**

A complex concept with several definitions stemming from different schools of thought. It can refer to material circumstances (such as need, pattern of deprivation or limited resources), economic conditions (such as standard of living, inequality or economic position) and/or social relationships (such as social class, dependency, exclusion, lack of basic security or lack of entitlement).

## **Poverty trap**

Poverty trap is understood differently across disciplines. In the social sciences, the concept, primarily employed at the individual, household or community level, describes a situation in which escaping poverty becomes impossible due to unproductive or inflexible resources. A poverty trap can also be seen as a critical minimum asset threshold, below which families are unable to successfully educate their children, build up their productive assets and get out of poverty. Extreme poverty is itself a poverty trap since poor persons lack the means to participate meaningfully in society. In economics, the term poverty trap is often used at national scales, referring to a self-perpetuating condition where an economy, caught in a vicious cycle, suffers from persistent underdevelopment. Many proposed models of poverty traps are found in the literature.

## **Projection**

A potential future evolution of a quantity or set of quantities, often computed with the aid of a model. Unlike predictions, projections are conditional on assumptions concerning, for example, future socio-economic and technological developments that may or may not be realised.

## **Protection**

All activities aimed at obtaining full respect for the rights of the individual in accordance with the letter and the spirit of the relevant bodies of law (i.e. Human Rights law, International Humanitarian Law, Refugee law).

## **Protracted displacement**

A situation in which refugees, internally displaced persons (IDPs) and/ or other displaced persons have been unable to return to their habitual residence for three years or more, and where the process for finding durable solutions, such as repatriation, integration in host communities, settlement in third locations or other mobility opportunities, has stalled.

## **Rain-fed agriculture**

Agricultural practice relying almost entirely on rainfall as its source of water.

## **Rapid-onset event**

Event such as cyclones and floods which take place in days or weeks (in contrast to slow-onset climate change that occurs over long periods of time).

## **Representative Concentration Pathway (RCP)**

Trajectory of greenhouse gas concentration resulting from human activity corresponding to a specific level of radiative forcing in 2100. The low greenhouse gas concentration RCP2.6 and the high greenhouse gas concentration RCP6.0 employed in this report imply futures in which radiative forcing of 2.6 and 6.0 watts per square meter, respectively, are achieved by the end of the century.

## **Resilience**

Capacity of interconnected social, economic, and environmental systems to cope with a hazardous event, trend, or disturbance by responding or reorganising in ways that maintain their essential function, identity, and structure while maintaining the capacity for adaptation, learning, and transformation.

## **Risk**

The potential for adverse consequences for human or ecological systems, recognising the diversity of values and objectives associated with such systems. In the context of climate change, risks can arise from potential impacts of climate change as well as human responses to climate change.

## **Risk perception**

The subjective judgement that people make about the characteristics and severity of a risk.

## **Rocky Road scenario**

ACMI climate scenario blending SSP3 with RCP6.0 emissions remain high, and the planet heats by at least 2°C by mid-century; Africa sees low development progress, with low levels of cooperation, high population growth, low urbanisation, low GDP, and low education.

## **Scenario**

A plausible description of how the future may develop based on a coherent and internally consistent set of assumptions about key driving forces (e.g., rate of technological change, prices) and relationships. Note that scenarios are neither predictions nor forecasts, but are used to provide a view of the implications of developments and actions.

## **Sea-level rise**

Increases in the height of the sea with respect to a specific point on land. Eustatic sea level rise is an increase in global average sea level brought about by an increase in the volume of the ocean as a result of the melting of land-based glaciers and ice sheets. Steric sea-level rise is an increase in the height of the sea induced by changes in water density as a result of the heating of the ocean. Density changes induced by temperature changes only are called thermosteric; density changes induced by salinity changes are called halosteric.

## **Settlements**

Places of concentrated human habitation. Settlements can range from isolated rural villages to urban regions with significant global influence. They can include formally planned and informal or illegal habitation and related infrastructure.

## **Shared Socioeconomic Pathway (SSP)**

Scenarios, or plausible future worlds, that underpin climate change research and permits the integrated analysis of future climate change impacts, vulnerabilities, adaptation, and mitigation. SSPs can be categorised by the degree to which they represent challenges to mitigation (greenhouse gas emissions reductions) and societal adaptation to climate change. This report uses SSP1 'sustainability' and SSP3 'inequitable' growth.'

## **Social inclusion**

The process of improving the terms of participation in society, particularly for people who are disadvantaged, through enhancing opportunities, access to resources and respect for rights.



## **Social protection**

In the context of development aid and climate policy, social protection usually describes public and private initiatives that provide income or consumption transfers to the poor, protect the vulnerable against livelihood risks and enhance the social status and rights of the marginalised, with the overall objective of reducing the economic and social vulnerability of poor, vulnerable and marginalised groups. In other contexts, social protection may be used synonymously with social policy and can be described as all public and private initiatives that provide access to services, such as health, education or housing, or income and consumption transfers to people. Social protection policies protect the poor and vulnerable against livelihood risks and enhance the social status and rights of the marginalised, as well as prevent vulnerable people from falling into poverty.

## **Socio-economic scenario**

A scenario that describes a possible future in terms of population, gross domestic product (GDP), and other socio-economic factors relevant to understanding the implications of climate change.

## **Slow-onset climate change**

Changes in climate parameters — such as temperature, precipitation, and associated impacts, such as water availability and crop productivity changes — that occur over long periods of time (in contrast to rapid-onset events, such as cyclones and floods, which take place in days or weeks).

## **Storm surge**

The rise in seawater level during a storm, measured according to the height of the water above the normal predicted astronomical tide.

## **Sustainable Development Goals (SDGs)**

The 17 global goals for development for all countries established by the United Nations through a participatory process and elaborated in the 2030 Agenda for Sustainable Development, including ending poverty and hunger; ensuring health and well-being, education, gender equality, clean water and energy, and decent work; building and ensuring resilient and sustainable infrastructure, cities and consumption; reducing inequalities; protecting land and water ecosystems; promoting peace, justice and partnerships; and taking urgent action on climate change. See also Development pathways and Sustainable development.

## **Sustainable livelihood**

Livelihood that endures over time and is resilient to the impacts of various types of shocks including climatic and economic.

## **Sustainability**

Involves ensuring the persistence of natural and human systems, implying the continuous functioning of ecosystems, the conservation of high biodiversity, the recycling of natural resources and, in the human sector, successful application of justice and equity.

## **Trapped populations**

People unable to move away from locations in which they are extremely vulnerable to environmental shocks and impacts.

## **Tropical cyclone**

The general term for a strong, cyclonic-scale disturbance that originates over tropical oceans. Distinguished from weaker systems (often named tropical disturbances or depressions) by exceeding a threshold wind speed.

## **United Nations Framework Convention on Climate Change (UNFCCC)**

The UNFCCC was adopted in May 1992 and opened for signature at the 1992 Earth Summit in Rio de Janeiro. It entered into force in March 1994 and as of May 2018 had 197 Parties (196 States and the European Union). The Convention's ultimate objective is the 'stabilisation of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system.' The provisions of the Convention are pursued and implemented by two treaties: the Kyoto Protocol and the Paris Agreement.

## **Urban**

The categorisation of areas as 'urban' by government statistical departments is generally based either on population size, population density, economic base, provision of services, or some combination of the above. Urban systems are networks and nodes of intensive interaction and exchange including capital, culture, and material objects. Urban areas exist on a continuum with rural areas and tend to exhibit higher levels of complexity, higher populations and population density, intensity of capital investment, and a preponderance of secondary (processing) and tertiary (service) sector industries. The extent and intensity of these features varies significantly within and between urban areas. Urban places and systems are open, with much movement and exchange between more rural areas as well as other urban regions.

## **Urbanisation**

Urbanisation is a multi-dimensional process that involves at least three simultaneous changes: (1) land-use change: transformation of formerly rural settlements or natural land into urban

settlements, (2) demographic change: a shift in the spatial distribution of a population from rural to urban areas and (3) infrastructure change: an increase in provision of infrastructure services including electricity, sanitation, etc. Urbanisation often includes changes in lifestyle, culture and behaviour, and thus alters the demographic, economic and social structure of both urban and rural areas.

## **Vulnerability**

Propensity or predisposition to be adversely affected. Vulnerability encompasses a variety of concepts and elements including sensitivity or susceptibility to harm and lack of capacity to cope and adapt.

## **Water availability**

The water sector model outputs in this report represent river discharge, measured in cubic meters per second in daily/monthly time increments.

## **waterGAP2**

The Water Global Assessment and Prognosis (WaterGAP) version 2 global water model developed by the University of Kassel in Germany (see Appendix B).

## **Wellbeing**

A state of existence that fulfils various human needs, including material living conditions and quality of life, as well as the ability to pursue one's goals, to thrive and to feel satisfied with one's life. Ecosystem well-being refers to the ability of ecosystems to maintain their diversity and quality.





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