Report from the Seventieth Greater Horn of Africa Climate Outlook Forum (GHACOF 70) for June to September 2025 Season

19 - 20 May 2025, Addis Ababa, Ethiopia

Theme: Climate Services for Closing the Early Warning Gap Together

Table of Contents

List of Acronyms

GHACOF	Greater Horn of Africa Climate Outlook Forum
ICPAC	IGAD Climate Prediction & Applications Centre
NHMS	National Hydro-Meteorological Service
WMO	World Meteorological Organization
MAM	March April May
GHA	Greater Horn of Africa
NGOs	Non-Governmental Organization
ENSO	El-Nino Southern Oscillation
IOD	Indian Ocean Dipole
SSTs	Sea Surface Temperatures
IGAD	Intergovernmental Authority on Development
JJAS	June July August and September
EDF	European Development Fund
AICCRA	Accelerating Impacts of CGIAR Climate Research for Africa
CREWs	Climate Risk and Early Warning Systems
ClimSA	Intra-ACP Climate Services and Related Application Programme
WISER	Weather and Climate Information Services for Africa
FCDO	Foreign, Commonwealth and Development Office
ACACIA	Anticipatory Climate Adaptation for Communities in Africa
SEWAA	Strengthening Early Warning Systems for Anticipatory Action
CSOs	Civil society organizations
ELRP	Emergency Locust Response Project
MJO	Madden Julian Oscillation
TADs	Transboundary animal diseases
GBV	Gender-based violence
RDTs	Rapid diagnostic test kits

PREFACE

The 70th Greater Horn of Africa Climate Outlook Forum (GHACOF70) was held from 19th to 20th May 2025, at the Inter Luxury Hotel in Addis Ababa. It was organized by the IGAD Climate Prediction and Applications Centre (ICPAC) in collaboration with the National Meteorological and Hydrological Services (NMHS), the World Meteorological Organization (WMO), and other partners. The forum took place virtually and in-person and its objectives were to review and document progress and impacts of the March to May (MAM) 2024 season, release the consolidated objective regional climate outlook for the June to September (JJAS) 2025 season, discuss the implications of the MAM 2025 climate forecast, and develop advisories and management strategies for various climate-sensitive socio-economic sectors.

A week-long climate scientists' workshop, known as pre-GHACOF, took place from January 12th to 16th, 2025, at ICPAC in Nairobi, where both regional and national objective seasonal forecasts were developed, with the regional forecast serving as the main input for GHACOF70. The GHA region comprises Burundi, Djibouti, Eritrea, Ethiopia, Kenya, Rwanda, Somalia, South Sudan, Sudan, Tanzania, and Uganda. Climate information users from the relevant sectors, (disaster risk management, agriculture and food security, livestock, water resources, health, conflict, and media), as well as NGOs, humanitarian organizations and development partners, actively participated in the formulation of the mitigation strategies. The forum reviewed the state of the global climate system, including the ENSO conditions, IOD, and SSTs over the Pacific and Indian Oceans, and considered their expected impacts on the GHA during the June to September 2025 rainfall season

GHACOF70 was held within the framework of the IGAD regional strategy for mainstreaming climate information in vital socio-economic sectors for disaster risk reduction and sustainable development, under the theme 'Climate Services for Closing the Early Warning Gap Together'. The event attracted a total of 210 physical participants.

Executive Summary

ICPAC organizes GHACOFs 3 times a year to provide climate outlook for the 3 main rainfall seasons (MAM, JJAS, OND) in the region. The COVID-19 pandemic brought about the shift in how these workshops are held with current formats being hybrid. GHACOF70 workshop adopted different formats of interaction including presentations in plenary and group discussions. The forum was supported by the ClimSA funded by the 11th EDF, AICCRA project funded by the World Bank, WISER Kenya funded by United Kingdom's FCDO, CREWS Horn of Africa, ACACIA project funded by Horizon Europe research and innovation program, PASSAGE funded by CLARE program, Emergency Locust Response Project (ELRP) funded by the World Bank among others.

The forum was held within the framework of the IGAD regional strategy for mainstreaming climate information into key socioeconomic sectors for resilience and sustainable development. It brought together representatives from National Meteorological and Hydrological Services (NMHSs), global climate centers, regional partners, decision-makers, and users from critical socioeconomic sectors. The government of Ethiopia was represented by the director general of Ethiopia Meteorological Institute. The forum provided a structured means for users, researchers, and climate services providers to interact at the regional level to ensure that user needs for the seasonal prediction are met.

1. Introduction

The 70th Greater Horn of Africa Climate Outlook Forum (GHACOF 70) took place from May 19-20, 2025, hosted by the Ethiopia Meteorological Institute. This significant event was organized by the IGAD Climate Prediction and Applications Centre (ICPAC) in collaboration with the National Meteorological and Hydrological Services (NMHSs) of the Greater Horn of Africa (GHA), the World Meteorological Organization (WMO), and other international partners.

GHACOF 70 served multiple critical objectives:

- **Review and Documentation:** Assessing the performance and impacts of the March to May 2025 climate season.
- **Climate Outlook Release:** Issuing the consolidated regional climate outlook for the July-August-September (JJAS) 2025 season.
- **Implication Discussions:** Analyzing the potential consequences of the JJAS 2025 climate forecast.
- **Advisory Development:** Crafting advisories and management strategies for various climate-sensitive socioeconomic sectors.

The GHA region encompasses eleven countries: Burundi, Djibouti, Eritrea, Ethiopia, Kenya, Rwanda, Somalia, South Sudan, Sudan, Tanzania, and Uganda. The forum brought together a diverse group of climate information users from crucial socioeconomic sectors, including disaster risk management, agriculture and food security, livestock, water resources, health, and climate security and peace. Representatives from media, NGOs, and development partners also actively participated. This collaborative co-production process was instrumental in identifying expected impacts and formulating actionable advisories and mitigation strategies.

The forum's agenda was structured to maximize collaboration and impact:

- **Day One:** Dedicated to the co-production process, where key advisories were developed by expert groups from sectors such as Disaster Risk Management (DRM), livestock and rangelands, agriculture and food security, climate security and peace, water resources and energy, and health.
- **Day Two:** Focused on strengthening partnerships to build regional resilience. This included sector-specific reports on the forecast's implications, a panel discussion on climate service frameworks, and the official release of the JJAS 2025 seasonal outlook.

The next sections provide a comprehensive overview of the discussions and outcomes from GHACOF70.

2. How regional frameworks for climate services can reduce the early warning gap

Sebastian Grey summarized the key aspects of his presentation on the regional coordination of climate services, emphasizing the role of the Global Framework for Climate Services (GFCS) and the critical need for effective early warning systems. In terms of Climate Hazards and the State of the Climate, he pointed out the increasing frequency and intensity of climate hazards globally and regionally. He underscored the urgent need for robust climate services to manage the associated risks and opportunities. He stated that Global Framework for Climate Services (GFCS), introduced in 2012 is a crucial initiative aimed at enabling society to better manage the risks and opportunities arising from climate variability and change. They talked about the key priority areas of the framework, which include Agriculture and food security, water resource management, health, disaster risk reduction and energy. A key emphasis was placed on user engagement and stakeholder coordination as fundamental to the success of the GFCS.

In his presentation, Sebastian talked about A Refocused GFCS – 2023 Onwards, which aims to:

- Strengthen climate service capacity and capability, particularly within National Meteorological and Hydrological Services (NMHSs).
- Improve the availability, access to, and use of climate information, providing essential scientific and technical support.
- Establish National Frameworks for Climate Services and National Climate Fora, and critically, link these to regional structures to foster coordination.
- Support climate policy and finance by providing authoritative scientific information. This includes the production of regular reports and advice to support adaptation and mitigation efforts, leveraging IPCC knowledge.
- Provide tools and expertise to facilitate the integration of climate science into practical actions and investments.
- Develop Standards, Quality Management, and Training through the assessment and development of climate service capacities (ranging from basic to advanced) and the production of guidance on standards and competencies via WMO's SERCOM and INFCOM.
- Develop the climate services value chain/cycle, emphasizing the interconnectedness of scientific capability (including observations, data, and the World Climate Research Programme - WCRP), the generation of climate services information, and effective user engagement to ultimately generate value and enable informed actions.
- Improve the visibility and effectiveness of the GFCS and actively promote coordination at global, regional, and national levels, recognizing climate services as essential for society. The GFCS serves as a vital forum for stakeholder communication, knowledge sharing, and collaboration.

While highlighting the Early Warnings for All initiative, he emphasized the critical role of climate services and the key pillars, which include:

- Disaster risk knowledge: Systematically collecting data and undertaking comprehensive risk assessments.
- Detection, observation, monitoring, analysis, and forecasting of hazards: Developing and enhancing hazard monitoring and early warning services.
- Warning dissemination and communication: Effectively communicating risk information and early warnings to all relevant stakeholders in a timely manner.
- Preparedness and response capabilities: Building robust national and community-level response mechanisms

The presentation effectively conveyed the importance of regional coordination in the provision and utilization of climate services. The GFCS, with its refocused strategy, plays a vital role in strengthening national capacities, improving access to climate information, and fostering collaboration across different levels. Ultimately, these efforts are crucial for building resilience to climate hazards and achieving the goals of initiatives like "Early Warnings for All," enabling societies to proactively manage climate risks and leverage emerging opportunities.

3. Opening Ceremony

Speech by Mr. Fetene Teshome, Director General of Ethiopian Meteorological Institute (EMI) at the official opening:

The Director General of the EMI began his speech by welcoming participants to the seventeenth session of the GHACOF. The Director expressed that climate change and seasonal shocks have been increasing and are projected to intensify in the future. This will result in more irregular onsets and cessation of rainy seasons, longer dry spells and excessive rainfall. As a result, the farming systems and other sectors of the economy continue to be vulnerable due to the variability and change. To address these vulnerabilities to weather and climate change, the development and implementation of appropriate strategies is required. The role of climate information in minimizing risks and optimizing opportunities is undeniable, EMI is committed to providing reliable and accessible climate information to support informed decisions.

The Director General informed the GHACOF70 forum that Ethiopian Metrological Institute continues to engage in collaborative efforts with partners and donor organizations. A notable example he said, is its collaboration with IGAD Climate Prediction and Applications Centre (ICPAC) and the DARAJAA project which help reduce the impact of flash floods in urban areas such as in Addis Ababa. Another significant collaboration is in research where EMI has significantly benefited in areas such as forecasting, forecast verification, weather and climate modelling. He thanked ICPAC for its professional and expertise support; called upon Scientists in the Greater Horn of Africa to continue working together and closely with international partners to ensure the application of best practices

in the delivery, provision and evaluation of weather and climate predictions for significant impact. In addition, a well-designed and will-implemented system for weather, seasonal climate prediction and climate watches will ensure timely actions to mitigate the effects of significant climate anomalies such as droughts, floods and heatwaves.

In conclusion, he extended a heartfelt thanks on behalf of the Government of Ethiopia and that of his own to all who took part in organization of the GHACOF70 workshop. He appreciated those who travelled long distances to participate in the conference, delivered presentations and generously shared valuable experience in the field of seasonal climate prediction. The spirit of collaboration and partnership continues to grow and contribute meaningfully to the region's efforts toward poverty eradication and the reduction of disaster risks and vulnerabilities.

Speech by Dr. Abdi Fidar Officer in Charge of ICPAC, at the official opening:

Dr. Abdi Fidar in his opening remarks, welcomed all the 70th Greater Horn of Africa Climate Outlook Forum (GHAC0F70) participants in Addis Ababa. He stated that GHACOF continued to be a leading platform in the region where climate experts, decision-makers and different stakeholders converge to work together to co-produce and share actionable climate information and advisories that are country-specific, shaping preparedness and response strategies at both national and regional levels.

ICPAC, with the support of member states, remained dedicated to providing timely, reliable and actionable climate services to support resilience across the region. He thanked the partners for their continued support in making the GHACOF Forums impactful.

Opening Remarks by H.E. Mr. Mohamed Abdi Ware, Deputy Executive Secretary of IGAD at GHACOF70

His Excellency, Mohamed Ware, begun his remarks by extending IGAD's sincere appreciation to the Government of Federal Republic of Ethiopia for hosting GHACOF70 and all participants who honored the invitation and their commitment in advancing regional climate resilience. H.E. stated that, from devasting droughts and floods to shifting rainfall patterns, all climate-related hazards have far-reaching implications on food security, water availability, infrastructure, health systems, hydropower production, and overall socio-economic development. He stressed that previous years (2022-2024) had witnessed unprecedented droughts and floods across the region, straining already limited natural resources, leaving millions in dire need of humanitarian assistance.

H.E. the Deputy Executive Secretary stated that, IGAD, through its specialized institution, ICPAC, remained firmly committed to providing climate services to the region and supporting Member States amid challenges. In this regard, he reaffirmed the commitment to institutionalizing GHACOFs as a cornerstone of regional climate service delivery mechanism. He expressed that, GHACOFs are more than just forums – and are also platforms for:

- Co-production and co-delivery of climate information.
- Cross-border dialogue and coordination.
- Mutual learning among climate scientists and users.
- Policy engagement and evidence-based planning.
- Fostering partnership among national, regional and international stakeholders.

In his statement, he pointed out that IGAD will continue working to mainstream climate services in regional development strategies and sectoral policies, thereby ensuring that climate risk is embedded in long-term planning and investment decisions. Regarding the Regional Framework for Climate Services (RFCS) for the Greater Horn of Africa, which will enhance coordination and delivery of climate information in support of climate resilient planning and decision-making across key sectors mentioned that; on completion and effective implementation the framework will deliver on four critical objectives highlighted below:

- Institutionalize the GHACOF process and integrate climate services into regional development strategies and policies.
- Address climate-related challenges that require coordinated, regional approaches, particularly in cross-border areas.
- Provide tailored, evidence-based climate information to regional users in key sectors such as agriculture, disaster risk management, energy, transport and water resources and,
- Minimize duplication of efforts and resources between ICPAC and the NMHSs by clearly delineating roles and ensuring efficient implementation of WMO's mandatory and recommended functions for Regional Climate Centers.

In conclusion, H.E. Mohamed Ware, acknowledged the important role played by the youth in advancing climate services and climate action across the IGAD region. H.E. was pleased that GHACOF70 was culminating with an award ceremony that was celebrating young climate champions, and commended ICPAC for leading this significant initiative that recognizes and empowers the next generation of climate leaders.

H.E. appreciated IGAD's partners, development partners, regional economic communities and technical institutions for their continued collaboration and encouraged sustained engagement; called upon stakeholders at the national, regional and global levels to work in unison to enhance the resilience of our societies through robust climate services.

Opening Remarks by The Guest of Honour H.E. Dr. Eng. Habtamu Itefa, Minister of Water and Energy, Federal Democratic Republic of Ethiopia at the GHACOF70

H.E. Dr. Eng. Habatamu Itefa, Minister of Water and Energy, Federal Democratic Republic of Ethiopia warmly welcomed the Participants to Addis Ababa for the seventieth (70th) session of the Greater Horn of Africa Climate Outlook Forum (GHACOF70). Extended gratitude to the IGAD Climate Prediction and Application Centre (ICPAC) and

all collaborating stakeholders for selecting Addis Ababa, Ethiopia, as the host city for the forum – for the second time in 2025. He stated that the forum was convened within the framework of the Intergovernmental Authority on Development (IGAD) regional strategy, aimed at mainstreaming climate information into key socio-economic sectors to support sustainable development.

The Minister went on to point out that the forum's theme, "Climate Services for Bridging the Early Warning Gap Together" is both timely and significant at a time when concerns have reached the highest alarming rate as a result of the extreme droughts that have continued for the past consecutive rainy seasons across the Greater Horn of Africa Countries. He observed that the region had been experiencing increasing trends in frequency, intensity and severity of droughts and occasional floods that have disrupted the lives and livelihoods of millions, resulting in the loss of property in the Greater Horn of Africa. Agriculture and food security, water resources, hydropower, tourism and health are some of the key sectors that are mostly affected by the adverse effects of climate variability and change.

H.E. the Minster stated that, June to September is a key rainy season for some IGAD member states, such as Ethiopia and that there is high anticipation for the seasonal climate outlook that will be released at the end of the forum. The Minister reinforced the need for accurate climate information, saying it is essential for policymakers, planners and disaster risk managers to develop effective short- and medium-term strategies that address potential flood and drought risks. He said that the forum offers a valuable opportunity for national scientists and climate information users to support timely government decisions. Acknowledged and highly praised ICPAC's remarkable progress in strengthening scientific capacity of both those who produce and those who use weather and climate information ICPAC's commitment to delivering reliable, timely and actionable climate information as well as its collaborative work with National Meteorological and Hydrological Services (NMHSs) in developing effective web-based dissemination systems.

Concluding his speech, H.E. the Minister Habatamu Itefa addressed the important role of the capacity-building activities conducted before GHACOFs and its significance and contribution to strengthening the technical expertise of climate scientists in member states. The Minister urged all member states and international partners to support ICPAC's valuable work by investing in and expanding systems capable of generating knowledge-based, user-tailored climate information at both the national and regional levels. These, he said, will be essential in ensuring provision of accurate scientific guidance for policymakers and ensure timely dissemination of weather and climate information, particularly to grassroots communities that are most vulnerable to climate related risks and challenges. With these remarks, he declared the GHACOF70 officially opened.

4. Looking Back: MAM 2025 seasonal performance

4.1 March to May 2025 season climate performance

Mr. Anthony presented the performance of the March to May (1st Dekad) season. He pointed out that most parts of the region reported enhanced rainfall as from second dekad of March 2025. Uganda, northern Somalia, central to eastern Ethiopia, & western South Sudan reported below average rainfall in April, and Kenya & parts of southern Somalia consistently recorded Above Normal rainfall in March & April. The Madden Julian Oscillation (MJO) was the major driver that triggered the rainfall onset. Furthermore, the Co-existence of MJO, with Southwest Indian Ocean Tropical Cyclones, triggered rainfall onset in most regions, and resulted to enhanced rainfall over EA. In terms of temperature, the region was largely warmer than average, with higher-than-normal minimum temperatures and major extreme temperature events were reported in February and March.

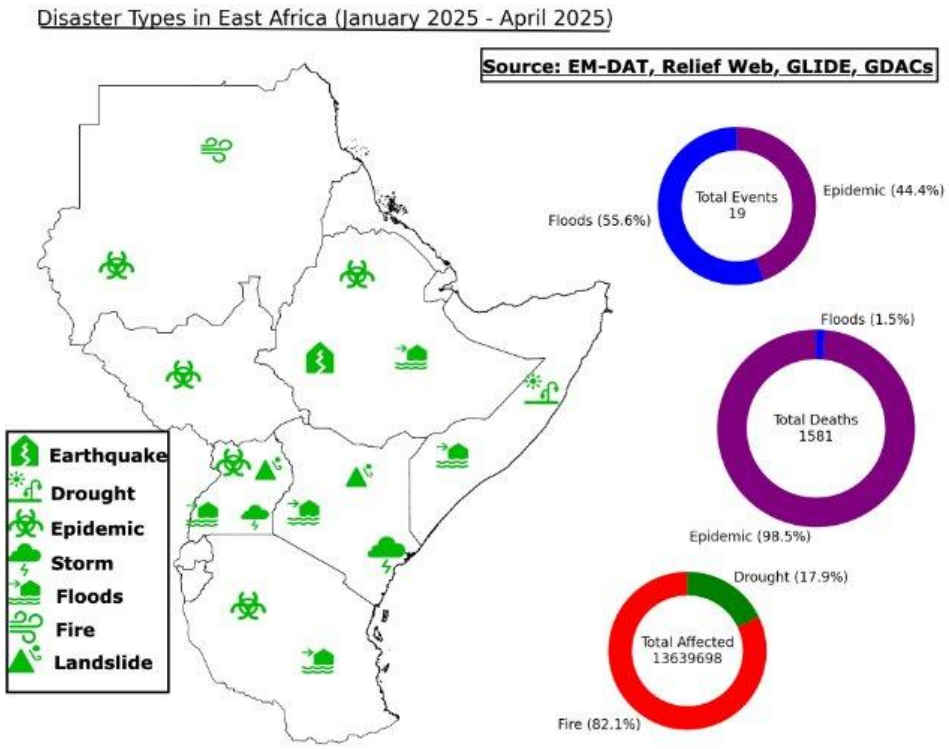
In summary, major climate drivers such as ENSO & IOD do not have significant influence on the March to May season. Tropical cyclones & MJO, though prevailing in the sub-seasonal timescales significantly influence the MAM season. Extreme temperature events were reported across the region especially in South Sudan, Uganda, Ethiopia, & Kenya. Some extreme rainfall events include 124.6 mm & 122.0mm in Kiatineni & Isiolo (Kenya) on the 19/04/2025. Considering the performance so far, the MAM will likely have Above Normal (AN) outcome in Kenya & southern Somalia, but Below Normal (BN) in Uganda, parts of Ethiopia & northern Somalia.

4.2 Sectoral Impact Assessment

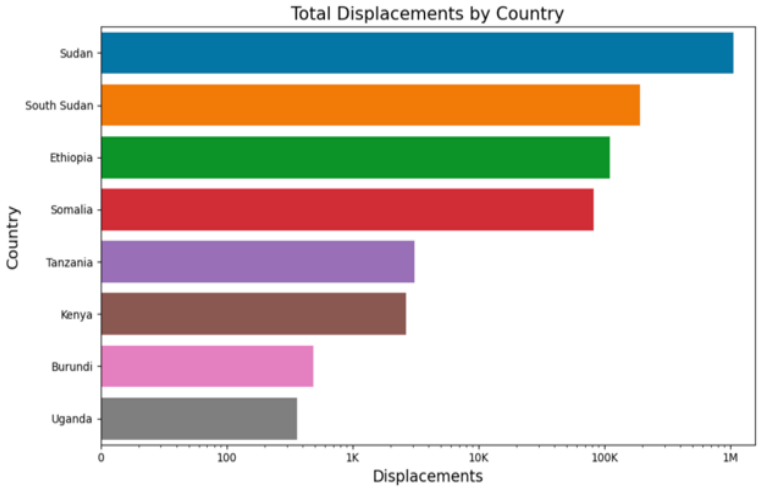
4.2.1 Disaster Risk Management Sector

Impacts

The GHA region recently faced a series of devastating disasters, impacting 13 million lives. While epidemics and floods tragically claimed around 1,581 lives, drought and fire incidents had a broader reach, affecting nearly 13.6 million people. Beyond these environmental challenges, conflict continues to fuel a significant displacement crisis. Sudan recorded the highest number of internally displaced persons, with an estimated 1 million people, followed by South Sudan with over 100,000, both figures directly attributable to ongoing conflicts.



Impact of disasters in East Africa is grouped according to the major hazards which affect the region from January to April 2025.



Displacements recorded in East Africa categorized according to the countries from January to April 2025. Sudan recorded the highest number of displacements due to the ongoing conflicts.

Mitigation Measures

Several preparedness and response actions were implemented to mitigate the impacts during the season. Cluster and sector meetings were activated at the state level to coordinate interventions effectively. The Ministry of Health undertook key mitigation activities, including vaccination campaigns and enhanced disease surveillance to prevent outbreaks. Additionally, the Humanitarian Aid Commission (HAC) issued over 14,000 travel permits, enabling government teams and humanitarian partners to access vulnerable populations.

In Uganda's Elgon sub-region, proactive measures included the relocation of households at high risk of landslides and flooding. Moreover, the World Health Organization (WHO) trained 30 health and nutrition personnel from the State Ministry of Health (SMoH) and international NGOs.

4.2.2 Health Sector

Positive Impacts

Some of the positive impacts observed during this season include reduced water borne diseases in Somalia, Malaria incidences in Ethiopia and Somalia, enhanced access to nutritional services in the Counties at risk in Kenya and improved hygiene in water stressed areas due to good rains in Uganda

Negative Impacts

Several public health concerns emerged across the region due to climatic and environmental factors. In Sudan, there were 688 reported cases of dengue fever, resulting in three deaths, alongside a surge in conjunctivitis cases. Mental health issues are increasingly reported in Kenya, South Sudan, Sudan, and Uganda, largely driven by displacement, conflict, and climate-related stressors. South Sudan has also recorded cases of heat stroke, posing a serious risk to vulnerable populations. In Kenya, there is an increased risk of zoonotic diseases such as leptospirosis, likely linked to flooding and human-animal interactions. Somalia has reported multiple outbreaks of communicable diseases including diphtheria, meningitis, influenza-like illnesses (ILI), neonatal tetanus, whooping cough, and pneumonia among children, highlighting the urgent need for strengthened health surveillance and response mechanisms across the region.

Mitigation measures

Action by Government	Country
Surveillance systems for climate-sensitive diseases	Sudan
Vaccinations: Cholera, Pneumococcal conjugate Vaccine and Rotavirus Vaccine, Measles, Diphtheria	South Sudan (Cholera: 5,392,095 including cross-border pop), Sudan (Cholera: 847,320), Somalia
Clean water and treatment tabs to communities; water tracking	Kenya, South Sudan, Somalia
Early Warning system Disease surveillance	Kenya, South Sudan, Sudan, Somalia
Water/Sanitation Hygiene (IPC/WASH) interventions, vector control, water safety and environmental sanitation campaigns	Kenya, South Sudan, Sudan
Community Engagement and Risk Communication (Cholera, Malaria, Acute watery diarrhea (AWD), Heat Stroke, Zoonotic diseases	Ethiopia, Kenya, South Sudan, Sudan, Somalia
Distribution of insecticide-treated mosquito nets. antimalarials and RDTs	Kenya, South Sudan, Uganda
Nutritional supplementation programs and Food aid distribution to affected communities	Kenya

4.2.3 Water Sector

Positive Impacts

The rainfall received during the season had a positive impact on water resources across several countries in the region. In Burundi and Ethiopia, enhanced groundwater recharge has been observed, while effective rainwater harvesting has been reported in Burundi, Kenya, and Somalia. Hydropower generation and water availability have remained stable in Burundi, Ethiopia, Rwanda, Uganda, and Sudan, contributing to energy and water security. River, lake, and dam water levels have risen in Burundi and Uganda, with Kenya's Masinga Dam notably reaching its Full Supply Level (FSL) on 30th April 2025. In Sudan, water supply for domestic use, irrigation, and livestock has been stable, while in South Sudan, the good quality of water has contributed to lower water treatment costs and minimal issues related to riverine flooding.

Negative Impacts

Several hydrological challenges have been reported across the region. Flash and riverine floods have affected parts of Burundi, Ethiopia, Kenya, South Sudan, Somalia, and Uganda, causing damage and disruptions. In contrast, pastoral areas in Ethiopia and South Sudan are experiencing water scarcity, putting pressure on both communities and livestock. Djibouti has seen a reduction in groundwater levels, coupled with increased evaporation from water bodies; a trend also observed in Somalia. In Kenya, siltation of intake works has disrupted water supply, thus the need for enhanced catchment management and infrastructure maintenance.

Mitigation strategies

Seasonal climate forecasts were disseminated to various stakeholders across Ethiopia, Burundi, Kenya, Somalia, South Sudan, and Uganda, enabling timely preparedness and informed decision-making. In Kenya, Somalia, and Rwanda, the forecasts guided flood control measures in vulnerable towns. Water resource monitoring and flood advisories were implemented in Ethiopia, Burundi, Kenya, Somalia, and Uganda to mitigate risks. In rural areas of Burundi, Djibouti, and Sudan, water treatment and conservation measures were prioritized to ensure safe and sufficient water supply. Kenya also focused on managing hydropower generation to optimize water use. Additionally, early warning alerts for flood risks were issued in Somalia, Rwanda, and Kenya, enhancing community readiness and response.

4.2.4 Agriculture and Food security Sector

Positive Impacts

The timely onset of rains, particularly the Gu rains in early April, facilitated early land preparation and planting across most cropping zones in Somalia, especially in Bay, Lower Shabelle, Hiiran, and Gedo. Similarly, in Ethiopia, favorable rainfall during February and March supported agricultural activities across southern regions, including Bale, Borena, Guji, and West Guji zones of Oromia. Consistent and well-distributed rainfall throughout

April further enhanced early crop development in Somalia. In Sudan, high yields of wheat and beans were reported in Gezira, Kassala, River Nile, and Northern states, indicating a strong agricultural performance during the season.

Negative Impacts

The season experienced a delayed start in parts of eastern Oromia and eastern Amhara in Ethiopia, bimodal areas of South Sudan, and some regions of Burundi. In Somalia, localized flooding in riverine zones such as Shabelle and Hiraan led to the destruction of early-sown crops and damaged infrastructure, disrupting food distribution and access. Additionally, May dry spells affected crop growth in Gedo, Bay, and parts of Bakool. In South Sudan, acute food insecurity (AFI) and acute malnutrition (AMI) conditions are deteriorating further due to ongoing economic crises, conflict, and insecurity. The situation is being compounded by the influx of returnees and refugees fleeing the conflict in Sudan, placing additional pressure on already strained resources.

In Sudan, the agricultural season was challenged by costly and scarce farm labor, largely due to youth migration and women's reluctance to work in the fields stemming from safety concerns. At the same time, non-food prices rose sharply, further burdening households already struggling with weak purchasing power. In Kenya, heavy rains disrupted the timely delivery of subsidized agricultural inputs in some regions, while global conflicts notably between Russia and Ukraine, tensions in the Middle East, and trade constraints in India, Pakistan, and Sudan further hindered fertilizer and export flows, impacting planting and food production. Meanwhile, Rwanda experienced significant crop losses, with 70 hectares damaged by floods and landslides across four districts: Rutsiro, Gasabo, Nyarugenge, and Kayonza between April 10th and 13th.

Mitigation measures

During the MAM 2025 season, the NMHSs through the National Climate Outlook Forums (NCOFs) across the region issued timely seasonal advisories, enhancing preparedness and decision-making. In countries like Somalia and South Sudan, these advisories were effectively disseminated via mobile alerts, radio broadcasts, and extension services in local languages, enabling farmers to align planting activities with climate information. In Djibouti, a key recommendation was made to scale up solar-powered irrigation systems for smallholder farms to improve resilience. In Ethiopia, the use of climate-smart agriculture (CSA) practices, such as irrigation, water harvesting, soil and water conservation, and integrated pest management, helped address production deficits. Additionally, agro-meteorological advisories were disseminated in a timely manner to regions, zones, and Woredas, coupled with capacity-building for extension agents. In Sudan, the UN and partners launched the 2025 Humanitarian Response Plan (HRP), appealing for US$6 billion to address humanitarian needs. In Kenya, measures such as duty-free importation of yellow maize for animal feeds and promotion of agri-financing and crop insurance were introduced to stabilize food systems. Similarly, Uganda strengthened access to agricultural financing and insurance, while in Rwanda, over 1.8

million farmers registered in the Smart Nkuganire System (SNS) to access inputs for the 2025B season.

4.2.5 Conflict Sector

Positive Impacts

In Kenya, the season saw a reduction in conflicts over water and pasture in traditional hotspots such as Samburu, Marsabit, Isiolo, Baringo, Elgeyo Marakwet, and West Pokot, as improved rainfall lessened competition for resources. The availability of pasture and water also led to reduced mobility among pastoral communities, enhancing local stability. Additionally, increased food security was reported in key food basket counties of Trans Nzoia, Uasin Gishu, Kericho, Nandi, and Bomet owing to successful rain-fed agriculture.

In Uganda, recurrent flooding in urban centers, especially Kampala, triggered public demand for greater accountability from authorities regarding unplanned urbanization, weak environmental policies, poor drainage systems, and wetland encroachment. Environmental advocacy intensified, particularly around plastic waste management, as improper disposal was found to harm fish populations in Lakes Albert, Kyoga, and Victoria. The East African Crude Oil Pipeline (EACOP) project committed to planting 150,000 indigenous trees along its route, while various non-state actors supported additional environmental and social interventions. In Karamoja, there was relative peace, with only minimal conflict incidents mainly isolated clashes in Nakapiripirit between Pokot and Pian, marking a notable improvement in security.

In South Sudan, moderate to heavy rainfall was recorded in the eastern and southern regions, and some farmers began adopting irrigation practices to supplement rain-fed farming, signalling a shift toward more climate-resilient agricultural methods.

Negative Impacts

In Kenya, conflict incidents were observed in southern Turkana and border areas with Ethiopia (Todonyang), though these incidents declined as the season progressed. However, livelihood-related conflicts increased among fishermen, farmers, and herders, with tensions spreading beyond traditional hotspots such as Turkana and Marsabit to new areas like Tana River. The nature of these conflicts is also shifting towards restive criminality. Additionally, poor waste disposal practices continue to clog lakes, rivers, and drainage systems, contributing to water contamination and urban flooding. Seasonal floods destroyed crops along the River Nyando, particularly in the Kano plains (Kisumu County) and Budalang'i.

In South Sudan, the country experienced a severe heatwave that caused the deaths of hundreds of elderly people and children, prompting the closure of schools for a month. At the same time, flooding in Juba destroyed homes and infrastructure, causing further fatalities. Conversely, drought persisted in ASAL areas such as Kapoeta, reducing available grazing land and water sources. This forced migrations and triggered conflict over scarce resources.

Mitigation Measures

Efforts to strengthen Alternative Dispute Resolution (ADR) mechanisms such as mediation and arbitration are being promoted, recognizing the potential role of climate services in supporting peaceful resolution of climate-related conflicts. There is also increased collaboration between state and non-state actors in addressing environmental challenges, alongside improved funding for environmental products and services. Notable achievements include the signing of the Mt. Elgon Transboundary Biosphere Reserve Memorandum of Understanding (MoU) between Kenya and Uganda, enhancing cross-border conservation efforts. In Uganda, the CEWERU committee issued advisories on potential floods; however, these triggered unplanned migrations, resulting in conflicts between farmers and herders, particularly in areas like Jur River and Magwi. Climate advisories have proven valuable to farmers, journalists, and traditional forecasters, enabling timely decision-making, while simplified and gender-responsive dissemination has improved access among vulnerable and marginalized groups. Security forces remain active in curbing illegal firearm possession, though Kaabong continues to face challenges. There is ongoing advocacy to prioritize education over cattle herding, and joint security operations in Karamoja are now taking intelligence-led approaches to address insecurity and criminality in the region.

5. Looking Ahead: State of the Climate: June to September 2025 Seasonal forecast

5.1 The current state of the global Climate system

The current state of the global climate was presented by Rosanna Amato, who highlighted several key developments. Globally, March 2025 recorded unprecedented temperatures, ranking as the second warmest March on record after March 2024. Temperatures reached 1.5 °C above the pre-industrial reference period, signaling continued global warming.

Rosanna emphasized the importance of regional differences due to spatial variability. Notably, above-average temperatures were observed across various regions, including Ethiopia, illustrating how global trends manifest differently at the local level.

Several factors were identified as key drivers of seasonal variability, including soil moisture levels, volcanic activity, ocean temperatures, and stratospheric conditions. In the Pacific Ocean, sea surface temperatures (SSTs) are currently near normal, and the present ENSO status is categorized as ENSO Neutral.

Model projections indicate that ENSO-neutral conditions are likely to persist from May through December 2025. However, the lingering effects of the recent La Niña may still influence weather patterns. Specifically, La Niña's residual impact could bring wetter-than-normal conditions during the June to September (JJAS) season, particularly in northern parts of East Africa, where it has historically been associated with increased rainfall.

The Madden-Julian Oscillation (MJO) is expected to play a significant role in shaping seasonal rainfall performance. In a changing climate, MJO is projected to induce more intense convective activity. Although the Indian Ocean Dipole (IOD) also influences rainfall patterns, it is currently forecast to remain in a neutral phase during this season. As a result, IOD is unlikely to have a major influence, especially since it shows little to no correlation with rainfall during the JJA period.

Finally, sub-seasonal drivers like the MJO are becoming increasingly important under changing climate conditions, particularly when major drivers such as ENSO and IOD are in neutral phases. However, MJO's predictability extends only about two weeks ahead, underscoring the importance of closely monitoring its evolution throughout the season.

5.2 June to September 2025 consolidated objective seasonal climate outlook

Dr. Titike Bahaga presented the consolidated objective seasonal climate outlook for June to September (JJAS) 2025. He emphasized that the JJAS season contributes more than 50% of the annual rainfall in the northern parts of the Greater Horn of Africa (GHA), highlighting its critical importance for the region.

Thresholds for categorizing rainfall as below-normal or above-normal across various regions in the GHA were outlined. The forecast was generated using an objective multi-model approach that incorporated six global climate models: GFDL, CCSM4, ECMWF, CMCC, DWD, and JMA. These models were calibrated using three different statistical techniques; ensemble regression, logistic regression, and canonical correlation analysis which account for local, global, and ENSO influences on East African rainfall, respectively. The final seasonal outlook was derived by averaging the results from these three calibration methods.

The three calibration methods produced similar spatial rainfall patterns, indicating a consensus for above-normal rainfall across much of the northern GHA. This includes regions such as western Kenya, Uganda, South Sudan, Sudan, Eritrea, Djibouti, Ethiopia, and the northern coastal area of Somalia.

Dr. Bahaga also introduced an analog forecasting approach as a complementary method. This technique involves comparing current atmospheric and oceanic conditions with those from similar past years to identify potential patterns. The analog years identified for comparison were 2001 and 2006.

Additional forecast products presented included standardized precipitation index (SPI) projections and maps showing the probability of exceeding a 500mm rainfall threshold. These tools help in assessing drought and flood risks.

The forecast also provided information on the expected onset of the rainy season. Normal to early onset was predicted over most of the region, though delayed onset was indicated in localized parts of Ethiopia. However, there was considerable variability among ensemble members regarding the onset date, particularly in Sudan, Eritrea, Djibouti, and eastern Ethiopia.

Dry spell forecasts indicated that the longest post-onset dry periods are expected in areas such as western Kenya, eastern Uganda, and northern Sudan. Most of the region is likely to experience an initial dry spell ranging from 4 to 8 days.

Lastly, the temperature outlook revealed a significantly higher likelihood of above-normal temperatures in southern Ethiopia and Somalia, eastern Kenya, and northern Sudan. Conversely, normal to below-normal temperatures were forecast for northwestern Kenya, northeastern Uganda, southeastern South Sudan, Djibouti, Eritrea, central Sudan, and northeastern Ethiopia.

Discussion

During the JJAS season, temperatures in Djibouti are typically high. Therefore, the forecast indicating below-normal temperatures was seen as unusual. In response, it was clarified that the forecast indicates a 50% probability for below-normal temperatures, alongside a 30% chance for above-normal conditions. This highlights the inherent uncertainty in seasonal climate forecasts, which must always be considered when interpreting results.

A question was raised on how to make Early Warning Information (EWI) more understandable and usable for local communities and humanitarian partners. In response, it was noted that ICPAC disseminates information through various channels, including the East Africa Hazards Watch (EAHW) platform, to increase accessibility and promote understanding.

Regarding the drivers behind the forecasted JJAS season, the discussion emphasized the influence of ENSO conditions, particularly Nino 3.4, on rainfall patterns over the northern parts of the Greater Horn of Africa. It was noted that sea surface temperature (SST) variability plays a key role in shaping seasonal forecasts, and that models used in the process generally exhibit high skill in predicting SST trends, making it a major factor in the seasonal outlook.

5.3 Sector Implications

5.3.1 Health sector

Positive impacts

In regions projected to receive above-normal rainfall, namely Kenya, Ethiopia, Somalia, South Sudan, and Uganda, health outcomes stand to improve. Increased water availability and enhanced food production will bolster nutrition, especially for pregnant women and children under five, while safer water supplies and better hygiene practices will drive down rates of diarrheal disease in Ethiopia, South Sudan, and Uganda. In Djibouti, the wetter conditions will suppress vector-borne illnesses such as malaria and help control other heat-driven pests like flies. Across East Africa, cleaner air because of reduced dust and particulate matter will improve respiratory health in Ethiopia, South Sudan, and Uganda. Conversely, in areas forecast to experience below-normal rainfall, the absence of floods will ensure uninterrupted access to health facilities in South Sudan,

and lower standing-water levels will further diminish malaria transmission in Ethiopia, South Sudan, and Uganda

Negative impacts

Projections for the upcoming season indicate heightened public health risks in the region. Displaced populations in Somalia are anticipated to experience an increase in cases of diphtheria, meningitis, neonatal tetanus, and measles. Concurrently, a continued Chikungunya outbreak is projected for Kenya. Additionally, a combination of overcrowding and inadequate access to safe water within displaced communities is expected to contribute to a rise in various infectious disease outbreaks.

5.3.2 Disaster Risk Management Sector

Impacts

The table below summarizes the anticipated impacts for the region considering the seasonal outlook.

Anticipated hazards	Potential Impacts
Floods (riverine and flash floods)	Loss of lives (human & livestock) Destruction of assets and infrastructure Displacement of vulnerable communities Disruption of mobility and access to essential services
Landslides/mudslides	Displacement of people Destruction of properties and livelihoods Blockage of roads Loss of lives
Cholera Outbreak	Possible death (children, pregnant women and elderly) Low productivity
Livestock diseases	Livestock death Movement of livestock

Malaria Outbreak	Disruption of livelihood and manpower Low productivity and possible deaths
Dry Spell	Increase in livestock migration and displacements Reduced access to water for livestock consumption

Mitigation strategies

Actions	Responsibility	Lead time
Timely early warning information- radio, newspapers, tv, social media that ensure access by all including women, elderly and people living with disabilities	NDRM institutions to lead, NGOs	Immediately (start of season)
Mapping out hotspot areas, alternate routes in flood prone areas and safer areas for relocation	Multi-Sectoral Coordinated by NDRM	Immediately (start of season)
Prepositioning of key supplies (shelter, food, etc.) for emergency response	Ministry of health/ LNGOs/UN/INGOs	2-4 weeks
Establishing effective coordination mechanisms at different levels (national and sub-nationals)	Government NDRM department	1 month
Activation of local and national DRM committees/task forces	Governments, UN INGOs, NGO, CSOs CBOs, Red Cross, and Private sector	3-4 weeks
Provision of medical supplies in hospitals and prepositioning of mobile clinic services	Ministry of Health	3-4 weeks
Awareness creation and early vaccination of livestock	Ministry of Agriculture	3-4 weeks

Awareness creation on WASH related activities at the community levels	Ministry of health/ LNGOs	2-4 weeks
Rapid needs assessments and food provision	DRM & Min. of Agriculture	Immediately (start of season)

5.3.3 Livestock and Rangelands

Positive Impacts

Above-normal rainfall in western and northern Greater Horn of Africa (including western Kenya, Uganda, South Sudan, Sudan, Eritrea, Djibouti, Ethiopia, and northern coastal Somalia) is expected to bring widespread benefits. These include improved pasture and water availability, leading to reduced livestock mobility and workload for women and children. Livestock productivity and reproduction are likely to increase, improving food security, nutrition, and household incomes, especially for women. Enhanced animal body condition may lead to stable or improved market prices. The rainfall will also support complementary livelihoods such as fishing and beekeeping, reduce human-wildlife conflict, and offer a favorable window for vaccination campaigns and water harvesting.

Negative Impacts

The expected above-normal rainfall may lead to floods, landslides, and livestock deaths, particularly in South Sudan, Ethiopia, and Sudan, with possible displacement. There is a heightened risk of waterborne and vector-borne diseases (e.g., Trypanosomiasis, LSD), transboundary animal diseases (TADs), internal parasites, and anthrax outbreaks, especially in Uganda's Elgon sub-region. Infrastructure such as roads and water structures may be damaged, disrupting market access, and lightning strikes could result in livestock fatalities.

Conversely, coastal Somalia, coastal Kenya, northern South Sudan, southern Sudan, and southeastern and southern Ethiopia face high chances of drier-than-normal conditions. These may lead to reduced pasture and water availability, forcing increased livestock mobility. This will raise the burden on women and children, increase community vulnerability, and result in poor animal body condition, declining market prices, reduced income, and lower productivity and reproduction. There is also an increased risk of TADs (CBPP, CCPP, FMD), anthrax, and heightened conflict over scarce pasture and water resources.

Mitigation Strategies

Following the GHACOF, advisories should be shared with end users. In areas where above-normal rainfall is expected, the recommended actions include enhancing disease

surveillance, vaccination, and community awareness to prevent outbreaks. Users should be encouraged to take advantage of the expected rains by planting fodder, presenting animals for vaccination, and harvesting and conserving water and pasture. Strategic sites for water harvesting and storage should be identified, and rangeland management strengthened through grazing plans that ensure safe access, particularly for women and girls. Additionally, promoting the involvement of women and youth in rangeland governance and advocating for anticipatory action, contingency planning, and resource mobilization are key priorities.

In areas where there are high chances of drier-than-normal conditions like coastal Somalia, coastal Kenya, northern South Sudan, southern Sudan, and southeastern and southern Ethiopia, several preparedness and mitigation actions are recommended. These include promoting supplementary animal feeding using crop residues and agro-processed by-products and enhancing disease surveillance and community awareness on transboundary animal diseases (TADs) such as CBPP, CCPP, FMD, and Anthrax. Stakeholders should facilitate dialogues to reduce conflict among pastoralists, farmers, and other rangeland users, while strengthening livestock markets to support competitive trade.

Early livestock offtake should be promoted to avoid losses from declining animal body condition. It is also crucial to rehabilitate and service key water sources to ensure availability during the dry period. Enhanced vaccination and prophylactic treatment of livestock are advised to prevent disease outbreaks. Finally, advocacy for anticipatory action, contingency planning, and mobilization of resources is essential to mitigate the expected impacts and protect livelihoods.

5.3.4 Conflict Sector

Positive Impacts

In the Rift Valley and Western Kenya regions, the expected rainfall will lead to improved pasture and water availability, resulting in reduced pastoral mobility. This is anticipated to ease natural resource-based conflicts in traditional hotspots such as Turkana, Samburu, Baringo, Elgeyo Marakwet, West Pokot, Narok, and Kuria East in Migori County. As mobility decreases, associated risks such as human-wildlife conflict, sexual and gender-based violence, and highway banditry are also expected to decline. Improved access to essential resources will enhance food security in the region.

In Ethiopia, several regions are expected to experience impacts from the rainfall outlook, including South Ethiopia, Southwest Region, Gambella, West Gojjam, Central Gonder, and parts of Oromia (West Hararghe and East Shewa). Other affected areas include Afar (Zones 2 and 5), Somali Region (Sitti Zone), and Tigray (Northwest Zone). These regions may benefit from improved rainfall or, depending on localized conditions, may require enhanced preparedness and early warning actions related to water and pasture availability, disease control, and conflict mitigation.

Negative Impacts

Parts of Kenya such as Turkana (Kalobeyei and Kakuma) may experience flooding that could displace both refugees and host communities, increasing the risk of conflict. Flooding and potential backflow from Lakes Victoria and Turkana may result in widespread displacement, destruction of property, and loss of livelihoods. These impacts are often accompanied by a rise in sexual and gender-based violence (SGBV), particularly in vulnerable and overcrowded settings. Competition over fisheries, especially in flooded areas, may also heighten tensions and trigger conflict among fishing communities.

In the dry season, arid and semi-arid lands (ASALs) face increased pressure on scarce resources, leading to intensified resource-based conflicts, heightened SGBV cases, and the proliferation of small arms. Inter-ethnic and clan-based conflicts may escalate as communities compete for water and pasture. Outbreaks of diseases such as anthrax and cholera are likely to rise, further straining health systems and exacerbating insecurity. Flood-damaged infrastructure, including impassable roads, disrupted health services, and school closures, may contribute to increased tensions, insecurity, and even public demonstrations due to governance challenges and rising cases of resource grabbing.

Mitigation Strategies

To enhance resilience and conflict preparedness in the face of climate-related risks, several strategic actions are recommended. Designing and disseminating gender-responsive climate advisories tailored to community needs will ensure inclusivity and improve the effectiveness of early warning systems. Enhancing early warning mechanisms through digital tools and localized dissemination will support timely action and reduce vulnerabilities. Collaborative efforts between state, non-state actors, and development partners are crucial for the co-creation and co-funding of sustainable climate services.

At the community level, awareness campaigns on conflict resolution should be conducted to promote peaceful coexistence, while cross-border coordination must be strengthened to address transboundary conflicts. Strengthening both national and regional anticipatory action (AA) mechanisms on conflict, alongside robust gender-based violence (GBV) referral and reporting systems, will enhance safety and protection for vulnerable groups. Finally, establishing pooled funding mechanisms at national or IGAD regional levels will ensure sustained financial support for climate services, conflict mitigation, and early warning systems.

5.3.5 Agriculture and Food Security

Positive Impacts

Enhanced soil moisture across Djibouti, Ethiopia, western Kenya, parts of Sudan and South Sudan, and Uganda is expected to support favorable crop production, contributing to improved food security. The forecasted normal to early onset of rains in most regions creates a conducive environment for early planting, increasing the chances of a

successful growing season. In Uganda and Djibouti, the recharge of water resources will further benefit agricultural activities, including irrigation.

These favorable conditions may lead to a reduction in food imports and help stabilize food prices, particularly in Djibouti. In western Kenya, the availability of affordable green produce is expected to boost both household consumption and supply to local markets, enhancing income opportunities and nutritional outcomes for communities.

Negative Impacts

There is a high likelihood of waterlogging and flooding in Djibouti, parts of Ethiopia, western Kenya, Sudan, South Sudan, and Uganda, which could negatively impact agricultural activities. Excessive soil moisture may lead to crop damage through nutrient leaching, root rot, discoloration, and soil erosion. These conditions compromise soil health and reduce crop yields.

Furthermore, distribution of agricultural inputs especially in remote rural areas may become difficult due to impassable roads and flood-affected infrastructure. The wet conditions are also expected to increase the prevalence of crop diseases, pests, and weeds across Djibouti, Ethiopia, Kenya, South Sudan, and Uganda, raising the cost of pest and disease management. In Somalia, the risk of Fall Armyworm outbreaks on late-season maize crops is particularly high, which could further threaten food production.

In parts of eastern Ethiopia particularly Tigray, Afar, and eastern Amhara, a late onset of rainfall is likely to shorten the growing period for long-maturing crops, negatively affecting agricultural productivity. Similarly, in the north coast of Kenya and coastal Somalia, depressed rainfall may lead to crop failure, further increasing the cost and difficulty of accessing food and water. In bimodal areas of South Sudan and Uganda, the risk of postharvest losses is elevated due to excessive moisture and poor storage conditions.

In Sudan, ongoing conflict poses a significant threat to the main agricultural season, potentially disrupting farming activities despite efforts by the agricultural committee to proceed with planting. Additionally, in Uganda, the combined effects of adverse climate conditions and socioeconomic pressures may increase the workload for women and girls, leading to a higher risk of school dropouts. These impacts highlight the need for timely support, targeted interventions, and inclusive planning to protect vulnerable communities and sustain food systems.

Mitigation Strategies

To enhance agricultural resilience and food security in the region, a range of timely and targeted actions are recommended. Key among these is the timely release of early warning information (EWI) and the prepositioning and distribution of appropriate seeds and inputs to ensure farmers are well-prepared for the season. Governments and stakeholders are encouraged to promote access to agricultural loans and subsidies, particularly for women and youth, and to intensify seed multiplication programs at the state level, such as in South Sudan.

Strengthening pest and disease surveillance and control through extension services, better access to pesticides, and training in Integrated Pest Management (IPM) is crucial in countries like Djibouti, Kenya, Ethiopia, and Uganda. In addition, soil and water conservation techniques should be promoted in areas such as Djibouti, Ethiopia, Kenya, Sudan, and Uganda to sustain productivity. Livelihood diversification is also necessary to reduce over-dependence on rain-fed agriculture.

Regions expecting harvests, like parts of western Kenya, Ethiopia's Belg areas, and Uganda, should enhance post-harvest handling through the use of mobile dryers, hermetic bags, and raised drying racks. In Kenya, the upscaling of top-dressing fertilizer subsidies can help improve crop yields, while across the region, surplus forage can be redirected to animal feed to reduce losses from hail or excess growth.

Additional priorities include equal distribution of agricultural tasks and raising awareness to prevent child labor, as well as advancing regional policies that facilitate cross-border trade in staple foods. Continued and scaled-up humanitarian assistance remains vital for food-insecure populations across the Greater Horn of Africa.

6 Partnerships/ Projects / Initiatives for Resilience Building

6.1 Strengthening Trans-boundary Pest Management in the IGAD Region

This segment was presented by Ms. Emily. She noted that the 2019–2021 invasion, which began in Yemen, spread rapidly due to favorable ecological conditions, conflict-related inaccessibility, and delayed responses. Over 2.2 million hectares were affected across the region. In contrast, the 2023 outbreak, triggered by El Niño-induced rainfall in Somalia, caused limited damage as improved surveillance and coordination helped mitigate the spread.

Emily emphasized climate as a major driver, with increasing rainfall, cyclones, and warmer temperatures expanding breeding zones. Political instability, weak institutional responses, and delayed funding had compounded the 2019 crisis; Ethiopia’s unmet $70,000 request ultimately resulted in a $140 million regional cost.

In response, the development of Memoranda of Understanding (MoUs) between high-risk countries, facilitated by IGAD, supported more effective cross-border collaboration. IGAD also established an Inter-Regional Platform for Sustainable Management of Desert Locusts and other Transboundary Pests. This platform, co-chaired by IGAD and the Desert Locust Control Organization for Eastern Africa (DLCO-EA), brought together member states and international partners to align strategies and priorities.

Key recommendations included maintaining year-round surveillance, expanding community monitoring, harmonizing regional data systems, establishing emergency funds, and promoting integrated pest management. Emily concluded that as climate risks grow, regional coordination and readiness are critical for protecting livelihoods in the IGAD region.

6.2 Integrating gender into climate services

Mariane's central message emphasized that the climate crisis is not gender-neutral; climate risks affect men and women differently due to varied social roles, responsibilities, and access to resources. These differences make it crucial to design and deliver climate services that are gender responsive.

Mariane opened her session by explaining the concept of gender mainstreaming, drawing on the 1997 ECOSOC definition. She noted that gender mainstreaming is a strategic approach to ensure that both women's and men's concerns are integral to the development, implementation, monitoring, and evaluation of policies and programs. In the context of climate services, this means integrating gender perspectives throughout the service delivery chain from design to impact assessment to ensure equitable access and to prevent the reinforcement of existing inequalities.

She defined gender-responsive climate services as those that are inclusive, equitable, and accessible to people of all genders. These services are designed with an understanding of the specific needs and circumstances faced by women and men. Despite growing awareness, gender gaps remain persistent in climate service delivery. Women are still underrepresented in consultations and user forums due to social constraints, time burdens, and limited mobility. These challenges call for intentional, structural solutions. Mariane outlined several key entry points for making climate services gender-responsive. These include conducting inclusive needs assessments, engaging women's groups and local associations in the co-production of services, and adopting gender-sensitive communication strategies. Dissemination should occur through trusted, context-appropriate channels such as local radio, markets, water collection points, and women-only spaces. Furthermore, training both male and female intermediaries and collecting sex-disaggregated data were identified as essential for effective monitoring and impact evaluation.

Drawing from her experience in Senegal, she highlighted that gender-responsive climate services lead to greater resilience, food security, and women's empowerment, while supporting global and regional equality goals including SDG 5, the UNFCCC Gender Action Plan, the African Union Gender Strategy, and IGAD's Regional Gender Strategy 2023–2030.

In her closing remarks, Mariane presented a series of recommendations. These included integrating gender at every stage of climate service design and delivery, building partnerships with gender-focused organizations, and tailoring services to women lived experiences. She also emphasized the need for policies that support girls' education in STEM and empower women to assume leadership roles in climate governance.

6.3 TAHMO's innovative approach to tackling Africa's climate data gap

David Mburu presented TAHMO's innovative approach to addressing Africa's climate data gap. Operating in 23 sub-Saharan countries with over 800 weather stations, TAHMO collects more than three million data points daily. David emphasized that beyond

observation, the focus is on analyzing and translating data into actionable insights for decision-makers, communities, and schools.

TAHMO uses affordable, scalable technologies such as soil moisture and temperature sensors, mobile phone-based river monitoring, drones, and ultrasonic water level sensors. These tools, often developed with universities, enhance local environmental monitoring and support improved forecasting. Kenya is currently piloting a cost-effective F-band radar system with support from IGAD and the East African Community.

David also highlighted innovations in atmospheric monitoring, including GNSS technology and long-duration weather balloons, to improve forecast accuracy and support national meteorological services.

Education and citizen science are key pillars of TAHMO's work. The organization partners with schools and universities to integrate climate data into learning, build local capacity, and train the next generation of climate professionals.

Despite progress, challenges persist, including gaps in atmospheric data and the need to ensure information is accessible and usable. David stressed that transparency, inclusivity, and cross-sector collaboration are essential to improving early warning systems and climate services.

He closed by thanking IGAD, the East African Community, and academic partners for their contribution, reaffirming the need for innovation, education, and partnerships to strengthen Africa's climate resilience.

6.4 CLIMSA Opportunities and Challenges

Mr. Atheru presented the progress, challenges, and future potential of the ClimSA programme in the IGAD region. The initiative, funded by the 11th European Development Fund with an €8 million grant, officially began implementation in January 2020, with the aim of strengthening the provision and use of climate services across sectors, with a focus on agriculture, food security, and water in Kenya and Uganda.

Mr. Atheru highlighted the key achievements under ClimSA, including the successful establishment and strengthening of Regional and National User Interface Platforms (UIPs), particularly for agriculture/food security, water resources, and media. Notably, Kenya has launched its National Framework for Climate Services (NFCS), while Uganda's framework is under development. National Climate Outlook Forums (NCOFs) and Participatory Scenario Planning (PSP) processes have also been initiated in both countries, contributing to more inclusive and informed climate-related decision-making.

Despite these successes, the programme faced several challenges. The development of a Regional Framework for Climate Services (RFCS) was delayed due to the late release of guidelines from the WMO. Additionally, progress in Uganda has been hindered by administrative restructuring within the Uganda National Meteorological Authority (UNMA). AS well as limited funding to sustain UIPs and NFCSs once the initial setup is complete.

However, Mr. Atheru emphasized several opportunities ahead. These include expanding NFCS and UIP frameworks to additional IGAD member states and mainstreaming them into national development planning processes. He also noted the potential to engage the private sector in scaling up the use of PSPs and to introduce Climsoft and other tools to new regions for a broader impact.

He concluded by underscoring a key challenge: competing political priorities at national levels can delay the implementation of climate-related commitments. Moving forward, he stressed the importance of sustaining momentum, strengthening partnerships, and aligning climate services with development goals to maximize regional resilience.

Key Discussion Points and Recommendations

This section summarizes critical discussions and emerging issues from the forum, categorized by theme.

A. Enhancing Climate Services Capacity (CLIMSA)

- **Participant Training and Nomination Discrepancies:**
    - **Issue:** While Member States are invited to nominate an equal number of participants for training under CLIMSA, some countries consistently nominate fewer than requested.
    - **Discussion Point:** This discrepancy highlights potential underlying challenges within national meteorological and hydrological services (NMHSs) or nominating bodies that may need to be addressed to ensure equitable and effective capacity building.
    - **Recommendation:** Future CLIMSA initiatives should explore the reasons for under-nomination in certain countries and consider flexible nomination processes or targeted support to overcome these barriers.
- **Scaling Up National Frameworks for Climate Services (NFCS):**
    - **Issue:** Currently, only two countries (Tanzania and Ethiopia) have received direct support to establish their National Frameworks for Climate Services (NFCS), with Rwanda in the initial stages. The need for broader implementation across the region was emphasized.
    - **Update:** Resources are available to support the establishment of two additional NFCS under the African Development Bank (AfDB) Climate Action Window (CAW) project, which is currently undergoing appraisal by the AfDB.
    - **Recommendation:** ICPAC and partners should actively pursue the swift approval and implementation of the AfDB CAW project to expand NFCS development. Additionally, strategies for securing further funding to support all GHA countries in establishing robust NFCS are crucial.

B. Gender and Climate Services: Addressing Participation Barriers

- **Education as a Critical Barrier for Women:**
    - **Observation:** A significant barrier to women's participation in both the production of climate services and engagement in relevant climate forums is the prevailing educational disparity.
    - **Analysis:**
        - **STEM Gap:** There are notably fewer girls pursuing Science, Technology, Engineering, and Mathematics (STEM) and climate-related courses, which limits the pool of qualified women for these roles.
        - **Socio-Cultural Factors:** In many patriarchal societies, boys' education is often prioritized over girls', directly limiting women's opportunities to pursue technical careers, including in climate science.
        - **Harmful Traditional Practices:** Cultural practices, such as Female Genital Mutilation (FGM) and early marriage, significantly contribute to high dropout rates among girls, further reducing their access to higher education and professional pathways essential for careers in climate science and related fields.
    - **Recommendation:** Targeted interventions are needed to promote girls' education, particularly in STEM and climate-related disciplines. This includes addressing socio-cultural norms, advocating against harmful practices, and creating supportive environments that encourage women's professional development in climate services.

C. Data Accessibility and Collaboration (TAHMO)

- **Accessibility of TAHMO Data for Regional Climate Centres (RCCs):**
    - **Question:** A key query was whether data collected by Trans-African Hydro-Meteorological Observatory (TAHMO) would be accessible by Regional Climate Centres (RCCs).
    - **TAHMO Response:** Data sharing is a core objective for TAHMO. However, this is primarily facilitated through the National Meteorological and Hydrological Services (NMHSs) as their consent is required for data dissemination.
    - **Recommendation:** To enhance regional climate monitoring and forecasting capabilities, ICPAC and RCCs should continue to foster strong partnerships with NMHSs and TAHMO to streamline data sharing protocols,

ensuring timely and consented access to crucial meteorological and hydrological data.

7 Regional Initiatives for Climate Services

8.1 Frameworks for climate services

Three national experts from Ethiopia, Tanzania and Kenya shared their experiences in the challenges to form and implement the National Framework for Climate Services. ICPAC representatives reflected on the important role of the regional organization (ICPAC) in supporting the IGAD countries, and the WMO expert brought the international dimension of WMO support. The different pillars of the NFCS are as shown below.

The moderator, Linda Ogallo asked the national experts about the key challenges the 3 countries has encountered in the process of establishing their National Framework for Climate Services (NFCS), how they addressed them, and the early achievements. She further asked them to discuss the challenges in the coordination and implementation process and most importantly, the success stories.

Mr. David Adegu, the expert from Kenya, highlighted key challenges facing the sustainability of frequent stakeholder meetings under the NFCS. He noted that while the Secretariat is required to convene monthly, limited financial resources have posed a significant challenge. Support from ICPAC helped sustain these meetings; however, securing ownership across different sectors and maintaining consistency in team composition remain issues, as experts frequently change. He emphasized the need to institutionalize and sustainably fund the user interface component by including it in the national budget.

Despite these challenges, he shared positive developments in Kenya. A well-established government structure, including a steering committee and Secretariat, has enabled smoother coordination. Collaboration with ICPAC, UNDP, WFP, and national organizations has played a vital role in accelerating NFCS implementation.

From Ethiopia, Mr. Tarekegn of the Ethiopian Meteorological Institute (EMI) shared several success stories. Since 2018, EMI has conducted numerous national workshops to engage stakeholders and raise awareness, organizing 55 consultation sessions in total. These efforts promoted partnerships and co-production of climate services. A baseline assessment was developed, along with a 10-year strategic plan and coordination guidelines. Co-production has also been integrated into the National Climate Outlook Forums (COFs). Notably, dedicated funding for NFCS activities was secured from the government and included in the national budget. Additional support has been sourced from external donors.

Ms. Mecklina from the Tanzania Meteorological Authority (TMA) shared experiences from Tanzania, acknowledging that earlier phases especially around 2015 faced challenges due to the limited use of virtual platforms and the high cost of physical meetings. Some

key stakeholders, such as the energy sector, were initially left out of NFCS engagement. Climate services accessibility and limited resources from government, donors, and NGOs also presented difficulties.

However, significant progress has been made. Since the launch of Tanzania's NFCS in 2018, the authority has improved its meteorological services, benefiting from investments in high-performance computing (HPC) and capacity building. Tanzania leveraged existing platforms to enhance service delivery without the need to develop new ones, ensuring sustainability. Ms. Mecklina emphasized the importance of involving diverse user groups such as universities and the Red Cross and highlighted the growing role of AI in climate services. She noted that operating radars remains expensive, further underscoring the need for regional collaboration.

On the regional front, Mr. Calistus from ICPAC addressed the development of the Regional Framework for Climate Services (RFCS). While National Frameworks for Climate Services (NFCS) exist, the RFCS provides a mechanism to coordinate efforts at the regional level. It was officially launched in Addis Ababa following a baseline assessment and extensive stakeholder consultations. He clarified that the RFCS is not intended to duplicate national efforts but rather to complement them. Given that many climate-related hazards transcend borders such as disease outbreaks or droughts, a regional approach enables more coherent forecasting, resource sharing (e.g., HPC), and coordinated response strategies.

The RFCS also supports alignment with broader frameworks such as IGAD protocols, the Paris Agreement, the African Union Climate Strategy, and other relevant regional and international instruments.

8.2 Launch of the East Africa Hazards Watch V2.0 and Reports

Jason provided an overview of the East Africa Hazards Watch (EAHW) platform, emphasizing its role as a central access point or "gateway" to all related digital interfaces. He highlighted that, following stakeholder feedback, ICPAC has successfully upgraded the platform to version 2. The updated version includes several enhancements such as improved data processing performance, a more user-friendly interface, and enhanced interoperability with other systems.

Discussion and Questions Raised

- How can gender-disaggregated data be integrated into the EAHW platform? Jason acknowledged that incorporating gender-disaggregated data remains a challenge. One of the primary limitations is the lack of standardized, gender-specific data collection across IGAD member states. Most national systems collect data based on specific programmatic needs and not systematically across sectors. He noted that in the absence of a unified source of gender-disaggregated data, it becomes difficult to populate the platform with such information. However, he encouraged ongoing collaboration to advocate for and integrate gender-responsive data practices at national and regional levels.

- What is the linkage between the EAHW platform and national-level systems? Jason clarified that the EAHW platform operates through a data aggregation model. Data is first collected and maintained by national entities and then submitted to EAHW where it is consolidated and analyzed at the regional and subsequent continental levels. This ensures that the platform reflects a harmonized view of risks and hazards across the IGAD region, while maintaining country-specific ownership of data sources.
- How is the sustainability of the platform being addressed? Participants emphasized that ensuring the long-term functionality and relevance of the EAHW system requires continuous updates and active monitoring. Jason agreed, stressing the importance of institutionalizing a regular review and maintenance cycle, securing technical and financial resources, and building member states' capacity to contribute data and technical inputs in a timely and consistent manner.

8.3 Climate change reports from UNFCCC & IPCC in the region

Dr. Paulino Omay provided an update on IGAD's engagement in international climate change forums, particularly regarding its contributions to UNFCCC negotiations. He highlighted IGAD's efforts to ensure regional representation in global dialogues and stressed the significance of the Loss and Damage Fund, which provides financial support to countries suffering from the adverse effects of climate change. He noted that for countries to access the fund, they must quantify loss and damage accurately something that remains a technical and institutional challenge for many. In doing so, the role of academia is very crucial by facilitating the process of quantifying and assessing the impacts of climate change.

Discussion and Questions Raised

- How are pastoralist communities accounted for in loss and damage discussions?

Participants noted that pastoralists are among the most severely affected by climate change, particularly through loss of livestock assets, which are central to their livelihoods. The presenter acknowledged this concern, emphasizing the need for localized loss and damage assessments that reflect the specific vulnerabilities of mobile and rural communities. He stressed the importance of integrating indigenous knowledge systems, asset tracking, and pastoralist livelihood indicators into national and regional quantification frameworks.

- How is IGAD coordinating member states to speak with one voice in UNFCC negotiations?

IGAD is facilitating regional coordination mechanisms including technical working groups and pre-negotiation sessions to ensure that member states align their positions and present coherent policy stances in global negotiations. These efforts aim to amplify the region's voice and secure greater recognition and support in global climate finance and policy decisions.

- What plans are in place for capacity building and aligning IGAD's work with member states' initiatives?

IGAD engages member states in various platforms such as Greater Horn of Africa Climate Outlook Forum (GHACOF) which serves as a vital space for dialogue, knowledge exchange, and technical collaboration on climate-related issues. The goal is to ensure that regional efforts are well-aligned with national priorities and that member states are empowered to benefit fully from available resources and platforms.

8 Release of the Seasonal Forecast and Statement

In his closing remarks during the release of the seasonal forecast and statement, Dr. Abdi Fidar, Officer in Charge at ICPAC, extended his appreciation to the delegation for their presence and commitment, acknowledging the challenge of navigating parallel schedules and responsibilities. He emphasized the importance of regional solidarity, noting that the IGAD region is deeply interdependent and what affects one country inevitably impacts the others.

He commended Ethiopia's Ministry of Water Resources and Energy for its ongoing efforts in monitoring and managing its water systems. Their work, he noted, can and should be replicated by other member states.

Dr. Fidar reaffirmed the need to strengthen forecasting capabilities within IGAD member states: "Actually, what we are stating that it is not 100% sure, it's a prediction. The other predictions depend on driving factors that we need to monitor closely, and we urge our member states to closely follow our website and data sources and look at the updates that we are making constantly." He pledged that ICPAC will continue enhancing its communication efforts, ensuring that early warnings and climate predictions reach the member states clearly and effectively, to help bridge the early warning gap.

Mr. Fetene Teshome, director for EMI and WMO representative, presented the June to September (JJAS) 2025 seasonal forecast, stating: "The seasonal forecast is particularly significant for early warning, early action and the planning in sectors such as agriculture and food security, water resources, disaster risk reduction and in other climate sensitive socioeconomic sectors."

Highlighting a 55% probability of above-normal rainfall over central Sudan, eastern South Sudan, parts of Ethiopia, western Kenya, and eastern Uganda. He also noted wetter-than-average conditions in regions including South Sudan, western Uganda, and Djibouti. However, below-average rainfall is expected over coastal areas of Somalia and Kenya, as well as parts of South Sudan and south-eastern Ethiopia.

Temperature forecasts indicated a high likelihood of warmer-than-average conditions across much of the region, particularly in southern Ethiopia, Somalia, and eastern Kenya, while average to below-average temperatures are anticipated in the IGAD-Karamoja cluster and parts of Sudan and Ethiopia.

Mr. Fetene concluded by appreciating all parties involved in generating this vital seasonal forecast, and ICPAC for allowing Addis Ababa to host the mission. Speaking on behalf of the northern Horn of Africa countries, he emphasized the importance of extending meteorological advisory services to both grassroots communities and decision-makers to ensure the forecasts translate into timely, actionable strategies.

Annex: Feedback

1. More time for GHACOF to ensure that all information is shared and understood by the participants. It also ensures that the presenters are not rushed.

2. Ensure to communicate the uncertainty in the forecast to improve trust by the users