



ICPAC

Key Messages



IGAD region is very vulnerable to climate change; and vulnerability is exacerbated by the structural issues reinforcing poverty, inequality, and deprivation in the society, thus impacting the poor most.



Recognize Climate Services as a Human Right

Champion climate services as a fundamental human right, essential for safety, and poverty reduction, in line with the 2030 Sustainable Development Agenda and African Union Agenda 2063



Prioritize Climate Services in Budgeting

Kenya, investment in climate services is estimated to generate about US\$ 281.6 million annually in revenue gains from smallholder farmers alone when other sectors are not included.



Mainstream Climate Services into Policies

The utilization of Climate Services was linked to improved household food security.

The Socio-Economic Value of Climate Services, Evidence from Kenya and Uganda

Climate change has become a new normal, and both a cause and consequence of underdevelopment, escalating poverty and vulnerability for developing countries. The IGAD region is not exceptional, climate variability, including unpredictable, intense, and at times extreme weather events such as droughts, floods, and landslides, are already threatening ecosystems and livelihoods. Historically, the provision of climate services was associated with enhanced safety and efficiency in various sectors such as land use, sea, aviation, and transport. It has aided communities in preparing for and responding to extreme weather events and has facilitated better decision-making in economic sectors sensitive to weather conditions.

This policy brief focuses on providing evidence on the socio-economic value of climate services in the ClimSA pilot countries (Kenya and Uganda), and where possible applying the results broadly across the region. More specifically, it investigates:

- ICPAC supports the economic value of climate services through the Intra ACP ClimSA project.
- Provides specific impacts of climate change for example in agriculture and water sectors with recommendations for actions towards mainstreaming climate services in decision-making and policies among stakeholders.
- It summarises a more comprehensive technical report prepared to support the future phase of the ClimSA project.

Climate Change and impacts

According to the Intergovernmental Panel on Climate Change (IPCC) Earth data, Kenya and Uganda targeted in this study, lose an average of US\$56.96 million and US\$ 113.86 million annually respectively to natural disasters related damages resulting from droughts, mudslides, and floods among others. In the coming century (2100), Kenya is projected to lose about 7.2% of its GDP (US\$ 18.8 billion), while Uganda 6.3% of GDP (US\$ 9.5 billion) annually to climate disasters.

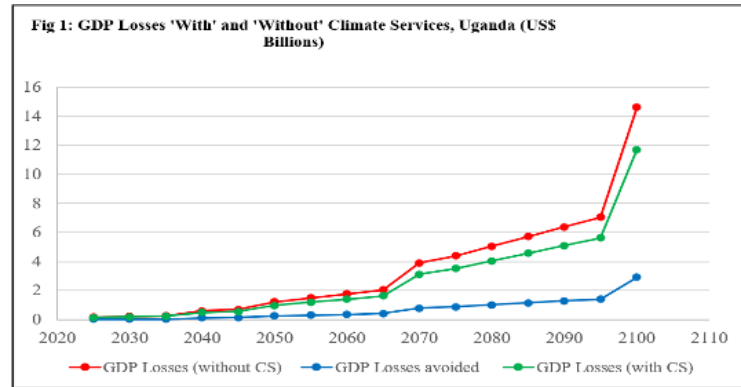
Both countries currently experience increasing annual losses, measured in millions of US dollars, due to climate-related disasters. By 2040, Kenya is projected to surpass the \$1 billion mark annually, while Uganda is expected to reach this threshold by 2050.

These years will signify a significant escalation in disaster damages, transitioning from millions to billions of dollars, unless additional measures, such as strengthening climate services and achieving the targets outlined in the Paris Agreement, are implemented.

Climate services and benefits at national levels

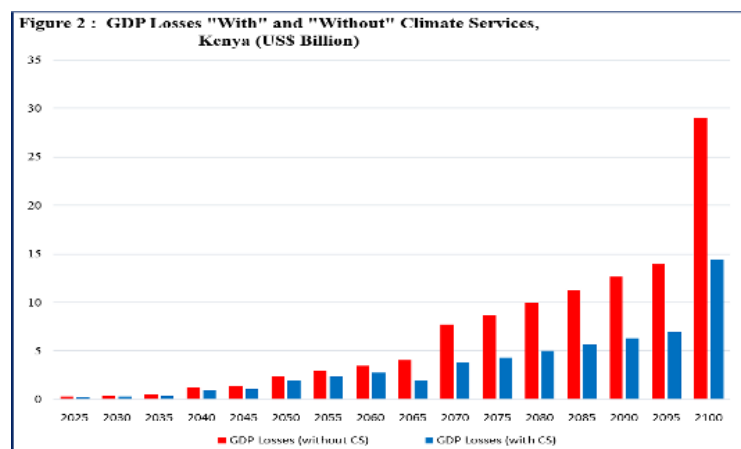
At the national level, enhancing climate services through early warning systems and decision advisories in production systems can substantially mitigate losses across all sectors. For instance, according to the World Bank, upgrading climate services like hydro met development could lead to a 10% reduction in disaster losses for low-income countries like Uganda, a 20% reduction for lower-middle-income countries such as Kenya, a 50% reduction for upper-middle-income countries, and a 100% reduction for high-income OECD countries (World Bank, 2012).

In the short and medium run, Uganda can avoid an estimated US\$11.39 million per year in economic losses from natural disasters by strengthening early warning systems through climate services. This is about 0.028% of its GDP losses avoided per year to climate disasters. These gains are even higher when the systems are upgraded to European (OECD) standards (100%), saving the country almost US\$113.86 million per year in avoided economic losses from available IPCC data.



Source: Earth Data (2023), with author own calculations

Kenya, a lower middle-income country can avoid losses equally estimated at US\$ 11.392 million per year from the provision of climate services. This is about 0.01% of the GDP saved per year. In the same way, the gains are higher if the systems are developed to European standards (100%), saving the country almost US\$113.86 million per year in avoided economic losses from available IPCC data.



Source: Earth Data (2023), with author own calculations

Kenya's investment in climate services is estimated to generate about US\$ 281.6 million annually in revenue gains from smallholder farmers alone when other sectors are not included. This approximates about 0.26% of the country's Gross Domestic Product (GDP) at current prices (US\$ 110.35 billion) in revenue gains per year from smallholder farmers.

Results from Benefit Transfer showed that for smallholder farmers alone in Uganda, the provision of climate services could generate approximately US\$ 143.92 million per year in revenue gains through their payment to climate services in the form of 'willingness to pay'. This is approximately 0.35% of GDP in revenue gains at current GDP of (US\$ 40.53 billion) for Uganda.

These results are remarkable, especially at a time when greater efforts are needed from developing countries to mobilize domestic revenue, particularly to finance their development, to rebuild better and stronger economies while recovering from the socioeconomic impacts of the COVID-19 pandemic, and global crises like the Sudan and Somalia conflicts, Palestine War and Russia-Ukraine war, coupled with already rising macroeconomic fiscal imbalances, declining fiscal space to access international finance and donor fatigue in supporting development finance.

Sector-specific impacts of climate services

Water sector

Climate services in the water sector showed enormous positive outcomes, especially in regulating water level flows in stabilizing hydro-power generation and supply of electricity for the wider economy.

It helps in managing and regulating water levels in dams to maintain a stable supply, preventing disruptions that could lead to breached supply contracts. This reduces reliance on polluting fossil fuels as backup energy sources and mitigates power rationing, which can disrupt economic activities. Additionally, it enhances countries' ability to minimize the impacts of flooding during heavy rains, thus lowering the occurrence of waterborne diseases like malaria, cholera, and dysentery, as well as minimizing loss of life and property.

Agricultural sector

At smallholder levels, the greatest proportion of the study participants knew about climate services as reported by 97.3% in Kenya and 84.8% in Uganda; with more concentration among women compared to men (Kenya women 71.6% against men 28.4%; while Uganda women 61.5% against men 38.5%, explained by women's greater role in agricultural activities in smallholder farming system. Future rural development programs will need to engage more men in agricultural transformation across the two countries.

In Kenya, awareness of Climate Information Services (CIS) was higher in male-headed households (67.8%) compared to female-headed households (32.2%), while in Uganda, it was reported as 81.6% in male-headed households and 18.4% in female-headed households. Education levels also influenced awareness, with higher awareness among those with higher educational attainment, particularly those whose livelihoods depend on agriculture.

On average, smallholders in Kenya have been using Climate Services (CS) for the last 3 years, and for the last 7 years in Uganda. The impact of CS tends to increase with years of use. Farmers noted improvements in outputs and yields in their farming systems due to decision-making based on CS.

The utilization of CS was linked to improved household food security. In Kenya, 44.7% of surveyed households were classified as having a "poor food consumption level," 23.4% were in the "borderline consumption" category, and 31.9% had an "acceptable consumption" level. In Uganda, 17.3% of households were categorized as having "poor food consumption," 34.5% were in the "borderline" category, and 48.2% had an "acceptable food consumption" level.




There was a slight reduction in those living in poor food consumption in households who actively used climate information in their production decisions. This trend was equally true for CS long-term users compared to recent users revealed in the survey.

There was a higher Resilience Capacity Index (RCI), a measure providing “quantitatively, why some individuals/ households cope easily with shocks and stresses; while others do not”, observed among the CS users compared to non-users (users 21.4 versus 6.15). This is more than thrice relative to CS non-users.

Therefore, it’s valid to conclude that CS use improves livelihood resilience among smallholder farmers as the survey tools were applied in fairly the same community, and location, in samples with similar cultures across the two countries piloted.

CS users were more likely to have access to improved seeds and vaccinations for their animals compared to non-CS users, partly due to their higher wealth status, such as owning more livestock and receiving more transfers. Increased years of CS use in production decisions were correlated with enhanced resilience capacity among smallholder farmers and higher household resilience.

Table 1: Examples of benefits of climate services in selected sectors

	Dimension	Benefits
	Economic	<p>Agriculture: Avoidance of crop losses from frost, hail, drought, flood or extreme temperature; timing of crop protection, planning and harvesting; increased farm production and scales; more efficient scheduling of the use of agricultural machinery, and minimization of drought relief costs.</p> <p>Air Transport: By optimizing route planning and scheduling flight arrivals and departures, airlines can reduce fuel consumption, minimize costs associated with aircraft diversions, search and rescue efforts, and airport maintenance. This results in lower emissions, fewer accidents, and savings in passenger time.</p> <p>Road Transport: Climate services improve road transportation by offering essential weather and climate data. This enhances safety, efficiency, and planning for road operators. Accurate forecasts help optimize routes, minimize accidents, manage weather-related disruptions, and create more resilient transportation networks.</p> <p>Maritime Transport: Reduction of accidents and environmental damages, fuel savings, and more efficient rescue operations.</p> <p>Oil Prospecting: Avoidance of unnecessary shutdown of offshore oil and gas operations; more efficient planning of energy production and diversity.</p> <p>Energy: Prediction of power demands, power failure reduction, savings in material and working time (maintenance), and energy savings.</p> <p>Construction: Potential to eliminate serious construction problems a priori (risk control system).</p> <p>Flood Protection: Savings in human lives and property and more efficient rescue operations.</p>
	Social	<p>Protection of Life and Property: Avoidance of loss of life and property from natural disasters</p> <p>Research: Improved information and data to the scientific community</p> <p>Leisure: Contribution to the day-to-day safety, comfort, enjoyment and general convenience of citizens, including recreation, travel/ commuting and other direct and indirect forms of societal benefits.</p>
	Environmental	<p>Air Quality Monitoring and Warning: Reducing adverse health impacts; saving human lives in possible environmental accidents (evacuations); minimizing the release of toxic substances and other pollutants; managing local environmental quality.</p>

Policy Recommendations

Recognize Climate Services as a Human Right

Access to climate services should be recognized as a fundamental human right, essential for life safety and poverty alleviation, aligning with the 2030 Sustainable Development Agenda and the African Union Agenda 2063.

Prioritize Climate Services in Budgeting

Ensure that climate services are given high priority in budget allocation at local, sub-national, and national levels, acknowledging the global normalization of climate change and its impact on existing adaptation measures.

Upscale Resource Mobilization

Encourage stakeholders to intensify efforts in mobilizing resources for climate services, exploring various avenues for climate finance from both public and private sources to enhance the generation, dissemination, and policy support for real-time access to climate information by end-users.

Mainstream Climate Services into Policies

Emphasize the mainstreaming of climate services into policies across all sectors, fostering public-private-donor partnerships to strengthen the capacity of National Meteorological Services (NMS), investing in agricultural extension services for improved communication with farmers, efficient farmer organizations, and social networks.

Address Structural Issues

Address structural issues perpetuating poverty, inequality, and vulnerability among smallholders and urban poor populations by prioritizing strong governance and functional pro-poor institutions, recognizing that effective climate services are contingent on addressing underlying socio-economic challenges.



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