



KEY POINTS

- Over the next 50 years, the semi-arid regions of East Africa are expected to become hotter, with more wet extremes.
- These climate changes will compound existing developmental pressures.
- Climate changes – including increased frequency and intensity of droughts and floods – are predicted to negatively impact food security, economic growth, infrastructure and human health.

Why focus on the semi-arid regions of East Africa?

The semi-arid regions of East Africa are among the most food insecure regions in the world. Many people rely on the rains for their crops and livestock. Additionally, communal conflict, and the resulting population displacement, is an ongoing challenge to regional security and peace.

Climate change is bringing a new dimension to East Africa's vulnerability. This is partly because the institutional and economic capacity to deal with climate change impacts is often inappropriately allocated and structured.

It is therefore essential to understand how to enhance the ability of communities, local organisations and governments in East Africa to adapt to climate change in a way that minimises vulnerability and promotes long-term resilience.

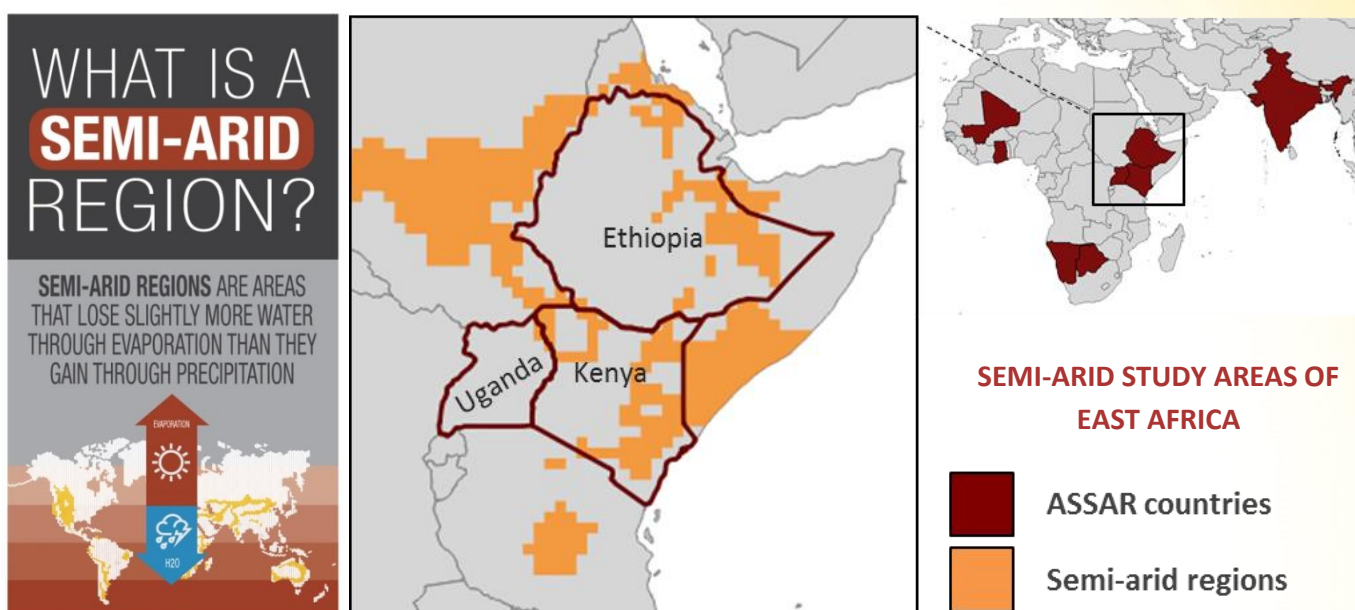
What are the key climate patterns of the past and projected trends for the future?

- ◆ In the past 50 years, the semi-arid areas of East Africa have warmed at a rate five times greater than the rate observed during the last century.
- ◆ This warming trend is set to continue, with the number of very hot days each year projected to almost double by 2045.
- ◆ Projections for rainfall are much more uncertain, and more research needs to be undertaken to understand these trends. However, there are likely to be large increases in wet extremes in the future.

What are the expected impacts of future climate on semi-arid areas?

- ◆ Drought and flood hazards are expected to intensify the demand for food, water and livestock forage.
- ◆ Heat-stress on livestock, crops and infrastructure will be more severe in semi-arid regions than in other areas of East Africa.
- ◆ Different groups and societies will experience and cope with climate-related risks in different ways.
- ◆ Due to their more limited ability to access resources, women, disabled people, the elderly, children, and the poor, are especially vulnerable to climate change impacts.

ASSAR is a research project being undertaken in the semi-arid regions of Africa and Asia, examining the dynamics and drivers of vulnerability, while exploring ways to enhance the resilience of people, local organisations and governments. ASSAR aims to promote climate adaptation policies and practices that are effective, widespread and sustained.



Understanding the past and future climates of semi-arid East Africa

Temperature

- Over the last 50 years, temperatures in semi-arid East Africa have increased by an average of 0.16°C per decade. This is five times higher than annual temperature increases observed during the last century.
- Across East Africa, the warming trend varied spatially. Interestingly, the surrounding areas warmed to a greater extent than the semi-arid regions.
- The warming trend is projected to continue in semi-arid regions and by 2050, the average temperature could increase by up to 4°C. Very hot days are expected to occur 25-30 times more per year in the coming 30 years than they do today.
- The largest temperature increases are projected for central and northern areas of East Africa.

Rainfall

- The rainfall patterns of the last 50 years have been erratic and highly variable across the region.
- In some locations, and for some seasons, rainfall has increased, while in other places rainfall has decreased. For instance, parts of central Ethiopia were unusually wet in the 1970s and unusually dry in the 1980s and 1990s, while other parts of East Africa experienced the opposite pattern.
- Projections of rainfall patterns for the future have this same variability and show both potential increases and decreases across the region. For this reason, there is not yet enough evidence to support statements suggesting a shift to drier or wetter conditions in the future at most locations.
- The water sector in particular is highly vulnerable to climate change. Pressure on this sector will have knock-on effects on other water-dependent sectors, including agriculture, energy and industrial production.

Way Forward

- Through rainfall variability, drought, and flood hazards, climate change presents many risks to human livelihoods and wellbeing in the semi-arid areas of East Africa. These risks include: resource degradation, resource conflict, food insecurity, human health, and plant and animal diseases.
- In order to address these risks, climate change information needs to be better understood by decision makers and appropriately integrated into national and sectoral policies and plans. Greater integration of climate information would help to support more responsive mechanisms, prioritization of financial resources, and strengthening of institutional capacities to effectively implement adaptation frameworks.
- A multi-sectoral approach to addressing climate risks is recommended. Governments are encouraged to engage with the private sector, and other non-state actors, to innovatively address climate risks.
- Best-practice adaptation methods should be investigated to support local communities to adapt to the current and future effects of climate change in semi-arid areas. The needs of the most vulnerable members of society should be identified and prioritised.