

# Main climate risks in the East Africa region by the 2050s

## Agriculture and food security

- Agricultural production in East Africa will be severely impacted by climate change. Many livelihoods across the region are heavily dependent on agriculture and as such food security will be negatively affected, especially for marginal rainfed farming and fragile pastoral livelihoods which are particularly vulnerable.
- Higher temperatures will increase water and heat stress for crops and livestock, lowering the productivity of pastoral livelihoods and negatively impacting the production of important crops such as maize, wheat, cotton, and coffee.
- Increased temperatures and heavy rainfall will result in the growth of pest populations, such as desert locusts which can devastate crops, affecting both agricultural livelihoods and food availability across the region.
- Land degradation and soil erosion will be exacerbated by more intense rainfall events. This will pose risks to the natural resource base, agricultural productivity and subsequently food security, particularly in already degraded areas.



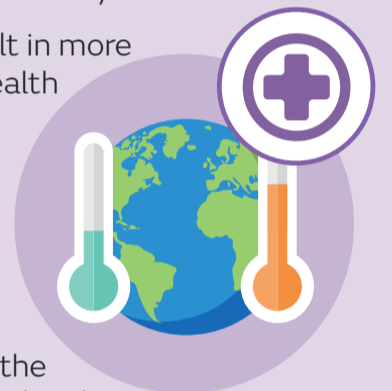
## Water security and resources

- Mobilising and managing water for lives and livelihoods remains a key challenge in East Africa and will likely become more difficult as rainfall variability increases.
- The impacts of climate change on freshwater availability will likely be modest compared with demand-side pressures. Localised 'hot spots' of over-exploitation are likely to grow in number, particularly in and around fast-growing urban centres.
- Greater rainfall variability may challenge hydropower generation across East Africa, with periods of low rainfall and river flow potentially affecting multiple sites across the region with concurrent reductions in electricity production.
- Increasing temperatures and flood-related impacts will adversely impact water quality. This will pose threats to health across both urban and rural areas.



## Health

- Changing rainfall patterns and rising temperatures will affect the geographic range and incidence of vector-borne diseases, increasing incidences of malaria in highland areas that are currently not suitable for transmission, and increased Rift Valley Fever.
- Increasing temperature extremes will result in more days of the year exceeding critical heat-health thresholds. Temperatures above 31°C are related to increased mortality and risks of non-communicable diseases which disproportionately affect children, the elderly, migrant workers, and those working outdoors.
- Higher temperatures are known to impact the nutritional value of crops which is associated with lower nutritional status for children. This increases the disease burden as the under-18 population is projected to increase considerably.
- More flood events that contaminate water sources and longer stretches of higher temperatures that facilitate bacterial growth increase the likely incidence of diarrheal and other water-related diseases.



## Urban and infrastructure

- More intense rainfall events will increase flood risk in both rural and urban areas, with densely populated, low-lying urban areas particularly vulnerable.
- People and businesses in 'informal' settlements and fast-growing towns with poor infrastructure are exposed to multiple threats. These include damage to housing, power, communications and water and sanitation systems.
- More intense flooding events and extreme heat can also damage roads and bridges. This potentially leaves wide areas and large numbers of people without a connection to markets, supply chains and essential services.
- New infrastructure investments needed to unlock growth and reduce poverty that don't account for the changing climate potentially lock-in climate risk, particularly for long-lived investments designed for historical and/or average climate conditions.



## Fisheries and coasts

- Rising sea levels, higher temperatures and more frequent and intense storm surges threaten coastal livelihoods and local economies.
- Rising temperatures and eutrophication (nutrient-induced increase in phytoplankton productivity) pose risks to fish stocks and ecosystem health, compounded further by overfishing.
- Periodic flooding around shorelines and back-flooding into tributary rivers already cause problems and is expected to increase with climate change. This displaces people and disrupts transportation, drinking water, sanitation and power systems.
- In freshwater fisheries, rises in surface water temperature are reducing deep water nutrient upwelling and increasing thermal stratification, diminishing the productivity of pelagic fisheries.

