



# Main climate risks in the Sahel region by the 2050s

## Water security and resources

- Greater stress on water security will result from higher temperatures and temperature extremes both reducing water availability and increasing water demand.
- Water infrastructure and water quality is at risk from flooding associated with heavy rainfall and sea level rise. Urban and coastal areas in Mauritania are of particular concern.
- Climate-related risks to water availability, demand, supply, access and quality in the region will be mediated by transboundary water management dynamics, including both conflict and cooperation. These risks will also be shaped by human factors such as inequality.



## Agriculture and pastoralism

- Farmers and pastoralists are becoming increasingly vulnerable to rising temperatures, including more periods of extreme temperatures, as well as more intense rainfall events and increased flood risk. This may lead to crop loss and damage, soil erosion, and livestock mortality.
- The vulnerability of farmers and pastoralists to climate variability and change will be intensified.
- Surface water availability and groundwater recharge is expected to be adversely affected by increases in rainfall variability and longer dry periods. These will combine with increased evapotranspiration (the combination of evaporation and transpiration) driven by higher temperatures to reduce soil moisture.
- Increased rainfall variability is also expected to have adverse effects on growing seasons and crops, especially for widespread rainfed and flood-recession agriculture, and contribute to increasing water stress and irrigation demand.



## Aquaculture and fisheries

- Temperature increases act to reduce oxygen levels and increase evapotranspiration (the combination of evaporation and transpiration) and temperatures of inland freshwater bodies as well as increasing sea surface temperature, negatively affecting fish stocks.
- Committed sea level rise present risks to coastal fisheries infrastructure, such as ports, harbours, launching and landing sites, and processing facilities.
- Anthropogenic pressures such as agricultural and industrial water use, dam construction, and government regulations and restrictions will interact with climate change and may further increase risks to fisheries and constrain existing adaptive livelihood strategies.



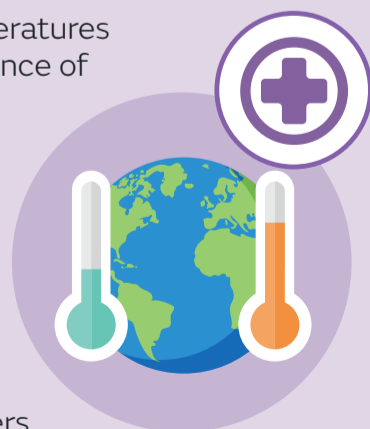
## Settlements and infrastructure

- Higher temperatures, coupled in some locations with declines in rainfall, will combine with population growth and mobility and rapid urbanisation to create increasing demands for water, energy and health services.
- Climate extremes may result in periodic disruption to infrastructure services, particularly where infrastructure is already fragile and overstretched – such as rapidly growing urban centres and informal settlements.
- Increasing flooding presents risks including damage to housing, basic services, transport, power, communications, food, and water infrastructure, amplifying risks associated with complex disasters in urban contexts.



## Human health and mortality

- Increases in the intensity, frequency and duration of heat extremes pose considerable threats to human health and life through dehydration, heatstroke, and interaction with respiratory conditions.
- Changing rainfall patterns and rising temperatures will affect the geographic range and incidence of vector-borne diseases, contamination of water supplies, and damage to medical services, as well as displacement, food insecurity, and psychological impacts.
- The health and mortality impacts of climate-related changes will be especially great for already vulnerable populations, including the elderly, infants, people with existing health conditions, outdoor labourers, residents of informal urban settlements, and poverty-affected populations.



## Biodiversity and ecology

- Biodiversity in terrestrial, aquatic, and mountain ecosystems may be adversely affected by increasing temperatures and increased water stress associated with changes in rainfall variability.
- Coastal and marine ecosystems in Mauritania face risks to biodiversity from rising sea levels, increasing water temperature, and changes in ocean chemistry and circulation.
- Climate-related risks to land and marine ecosystems will combine with human factors and anthropogenic pressures, including pollution, urban development and coastal infrastructure, fishing, and mineral extraction to further threaten biodiversity.
- Care is to be taken over some conservation and restoration programmes as they could potentially also have adverse effects on local livelihoods based on natural resources, in turn intensifying patterns of marginalisation and inequality.

