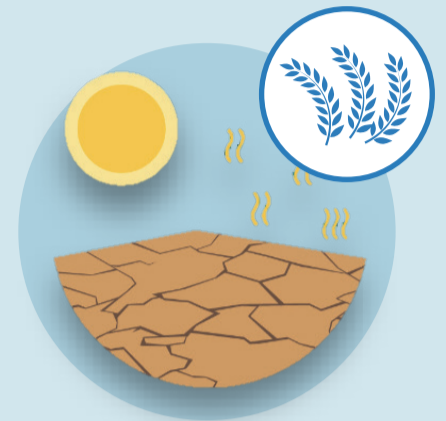


# Main climate risks in the MENA region

## Food security

- Agricultural production across the MENA region is constrained by limited water, high temperatures and the availability of suitable arable land.
- By the 2050s, rising temperatures, increased evapotranspiration and more variable rainfall, will increase crop water stress, drought frequency and intensity, and contribute to greater risk of harvest failures and production shortfalls.
- Shorter growing seasons are expected in many areas. This will be especially acute for vulnerable agricultural systems that experience high temperatures in the present day.
- Greater reliance on food imports, which is already high in the region, will leave food systems increasingly vulnerable to price volatility in global markets, potentially raising food prices.
- Increasing dependence on food imports also increases exposure to climate impacts globally, particularly in major global breadbasket regions where stresses on agricultural systems will also be felt.



## Water security

- Water insecurity is already a major stress on socio-economic systems in much of the MENA region and will be substantially exacerbated by a combination of climate change and human factors.
- Increasing temperatures and changes in rainfall variability, when combined with poor water management and degradation of natural water stores, will reduce water supply.
- Rising temperatures also leads to increased heat stress, and a greater demand for water from humans, animals and irrigated crops.
- Rising temperatures will also mean earlier springtime snowmelt, which feeds many important rivers, potentially decreasing freshwater availability at key times in crop growing seasons.



## Health

- Rising summer temperatures and humidity will increase heat stress, which is already a serious health issue in the region, threatening basic habitability of some areas.
- The most extreme heat events will become more frequent and severe. For some areas, particularly across the Arabian Peninsula and the Levant, temperatures will sometimes exceed human tolerable limits of more than 50°C, making it life-threatening to be outside for any period of time.
- Economic impacts associated with rising temperatures and increased heat stress include reduction in outdoor labour productivity in summer months, particularly where access to artificial cooling is limited.
- Demographic trends in the region, such as an aging population and urban migration, combined with many workers working in unregulated employment, will mean that the poorest and most vulnerable will be disproportionately affected by increased heat stress risk.



## Cities and infrastructure

- Extreme heat events will become both more frequent and more intense, and place significant stress on power generation and transmission, roads, and other critical infrastructure. This will have knock-on consequences for health and economic systems.
- Rising temperatures are expected to increase energy demand required for artificial cooling.
- For the hottest periods of the year, particularly in areas across the Arabian Peninsula and the Levant, temperatures will exceed human tolerable limits at times, making artificial cooling, and the energy to supply it, an essential requirement for habitability.
- Rising temperatures will exacerbate the pressures on both supply and demand of water and sanitation services in urban areas.



## Coasts

- Rising sea levels and increasing sea temperatures will each have adverse impacts on coastal areas in the region.
- Increased coastal flooding, inundation and erosion will present greater risks to cities and infrastructure than at present.
- The risks of salination of agricultural land and degradation of groundwater will increase as rising sea levels increase the frequency and extent of sea water intrusion.
- Rising sea temperatures will have adverse impacts on marine life and present risks to the viability of fisheries and aquaculture.

