

Syria Climate Impact Profile

Summary for policymakers

Syria is highly vulnerable to the impacts of climate change, a challenge compounded by protracted conflict and fragile governance. This profile provides an overview of projected climate trends for the near term (2020–39) and medium term (2040–59) under a lower-emissions scenario (SSP1-2.6) and a higher-emissions scenario (SSP3-7.0), together with their impacts on key sectors. Situated in the eastern Mediterranean, Syria's diverse topography ranges from coastal plains and mountain ranges in the west, including the Al Ansariyyah and Anti-Lebanon mountains, across interior plateaus and the agriculturally significant Fertile Crescent along the Euphrates River in the northeast, to the vast arid Badia steppe in the east. Syria's climate is predominantly semi-arid to arid, becoming increasingly continental further inland. However, along the Mediterranean coast conditions are more humid, with a climate characterised by hot, dry summers and cool, wet winters.

Climate Trends



Temperature

Mean annual temperatures are projected to rise across Syria under both SSP1-2.6 and SSP3-7.0 scenarios, with the most extreme heat concentrated in the northeast (Syria's breadbasket) and expanding outward from the Badia. Combined heat risks from hot daytime and warm nighttime temperatures are expected to reach "extreme" and "very high" levels across most of the country, including population centres along the western coast and interior plains, starting in the near term. Under SSP3-7.0, mean temperature is projected to rise nationwide with the highest increase during summer months by a best estimate of 2.46°C (1.77°C to 3.01°C possible) by mid-century. Under SSP1-2.6, summer mean temperature is projected to increase by 1.96°C (1.17°C to 2.43°C possible) across the same timeframe.

although projections remain uncertain. Nevertheless, despite substantial model uncertainty, planning for drier winter, spring and autumn conditions in the near to medium term is prudent. At the same time, increases in rainfall intensity across parts of Syria point to a growing risk of extreme wet events.



Floods and Droughts

Syria faces very high drought and considerable flood risks despite drying trends. Riverine flood risk, already high across much of the country, is projected to further increase along watercourses in northwestern Syria. Annual precipitation intensity – which is projected to increase the most along the Mediterranean coast and in the northeast under SSP1-2.6 – contributes to these projections, although model agreement remains low. Drought risk is projected to intensify significantly by mid-century, with central and southern Syria shifting toward severely or extremely dry conditions under SSP3-7.0. Declining snowpack, upstream water diversions and increasing temperature-driven evapotranspiration compound these pressures, with cross-sectoral implications for agriculture, health, energy, infrastructure and transboundary water governance.



Precipitation

Overall mean precipitation is declining across Syria both annually and seasonally. Under SSP3-7.0, annual precipitation is projected to decrease nationally by 5% (-18% to +6% possible) by mid-century, with the greatest seasonal decreases during winter and spring. Western Syria is projected to experience more severe declines in precipitation than eastern Syria under this scenario. Meanwhile, under SSP1-2.6, annual precipitation changes little nationally by mid-century,



Coastal Zone and Sea-level Change

Syria's 183 km Mediterranean coastline, which is home to 11% of the population, faces increasing risks from sea level rise. Under both SSP1-2.6 and SSP3-7.0, sea levels are projected to rise on average by 11 cm above the 1995–2015 baseline by 2030, reaching 23 cm by mid-century and

67 cm by end-of-century under SSP3-7.0. The latter scenario projects inundation of 18 km² of land and damages amounting to SYP 10 billion by end-of-century, primarily due to the impacts of saltwater intrusion on agriculture. The Akkar coastal plain and Jableh are most vulnerable.

Projected Sectoral Impacts



Human Health

Climate-related health risks – including heat stress, vector-borne and water-borne diseases, and air pollution – are projected to worsen over the near and medium term. Rising temperatures will intensify heat-related illnesses and mortality, particularly in the interior plains, Euphrates River Valley and northeast, with disproportionate impacts on vulnerable groups. Warmer nights enhance leishmaniasis transmission, while droughts and flooding exacerbate risks of cholera and other water-borne diseases. As of 2023, two-thirds of the population lacked reliable access to safe drinking water, compounding existing disease burdens and malnutrition risks. Under hotter and drier conditions, more frequent and intense sand and dust storms also stand to raise cases of chronic respiratory illnesses nationwide.

livestock production have all declined sharply. Reduced upstream snowpack and earlier spring snowmelt will lower Euphrates River flows, a critical source of irrigation water. This is especially concerning given widespread groundwater overextraction and deteriorating water quality. Unpredictable late spring frosts threaten to further reduce fruit, vegetable and cereal crop yields already affected by land degradation and conflict-related pollution.



Human Displacement

Worsening climate-related impacts compound existing displacement pressures, with 7.4 million people internally displaced by the end of the civil war in 2024, more than half of whom were displaced to Aleppo and Idlib. Many internally displaced persons (IDPs) continue to live in inadequate housing and face significant barriers to return. Displacement camps in northwestern Syria have accelerated environmental degradation, heightening future flood, drought and wildfire risks. IDPs face disproportionate exposure to flooding and geological hazards, particularly in greater Damascus and northwestern Syria.



Critical Infrastructure and Economy

Syria's post-conflict economy faces compounding climate risks. Drought episodes alone are projected to cause average GDP losses of up to 0.8% (approximately \$320 million per drought year), while rising energy demand for cooling, geological hazards and infrastructure disruption place further strain on an already fragile economy. Vulnerability in the hydropower sector and conflict-damaged networks amplify these pressures. With reconstruction costs estimated at nearly 10 times Syria's GDP for 2024, climate adaptation and economic diversification are urgent priorities for economic recovery.



Ecosystems

Syria's ecosystems face mounting risks from rising temperatures, drought and wildfire. The country lies within a global biodiversity hotspot, hosting 173 threatened species across 42 key biodiversity sites, none of which are fully protected. Forests cover only 3% of Syria's territory and are retreating upslope, while desertification, wildfire risk and land degradation expand. Marine and freshwater biodiversity face additional pressures from rising sea surface temperatures, invasive species and conflict-related damage.



Food and Agriculture

Rising temperatures, declining precipitation, increasing drought and more than a decade of conflict threaten agricultural livelihoods across Syria. Prior to the Syrian Civil War, agriculture generated one-quarter of exports and sustained 80% of the rural population. However, since 2011, wheat, olive and