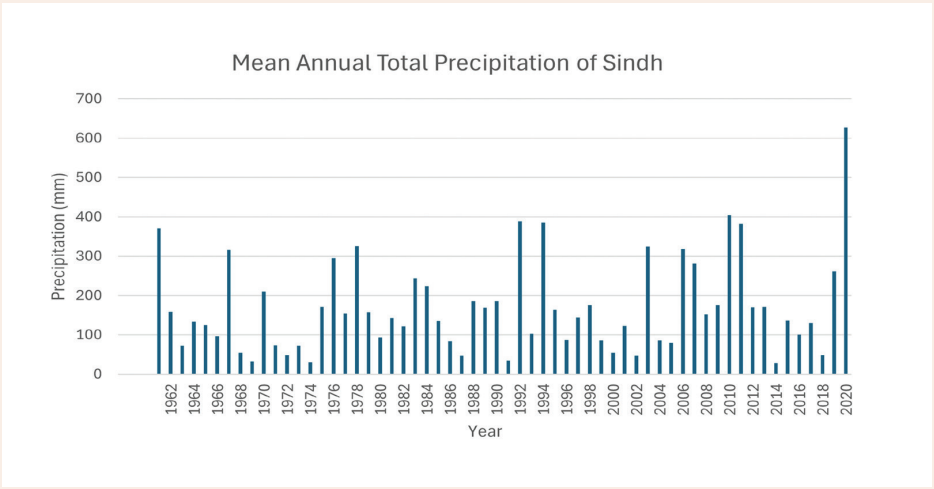
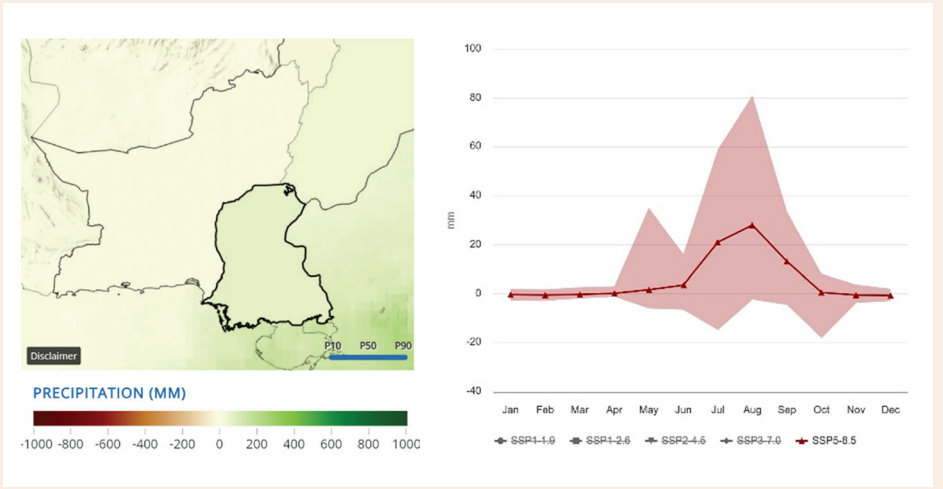
# Climate Dynamics and its Impact

The Sindh Water Policy emphasises the interconnected nature of water-related challenges and underscores the need for international cooperation. It calls for collective action to address the water and climate change crises, recognising water as a fundamental human right and advocating for equitable access and distribution (Sindh Water Policy, 2023). Climate change impact in Sindh has been significant. Among all these risks, the most devastating has been the increased frequency and intensity of droughts and floods. Sindh has experienced six major floods over the past fourteen years, including two catastrophic floods in 2010 and 2022 that devastated nearly the entire province. These events resulted in loss of life, destroyed crops and livestock, and caused extensive damage to people's assets. The frequency of drought occurrences was notably high in Sindh, with years like 1871, 1881, 1899, 1931, 1947, and 1998 marked as the worst drought years. The drought event from 1998 to 2000, declared the worst in Pakistan's history, resulted in dire consequences, including 127 casualties due to water scarcity and dehydration, predominantly in the Tharparkar district of Sindh. Studies carried out by Provincial Disaster Management Authority (PDMA), Sindh shows decadal average temperature indicates a rise in the province's annual temperatures, with a marked increase observed from 1990 onwards. The most significant temperature increases have been recorded in Central and Upper Sindh. Significant change in total precipitation was observed over the period starting from 1981. Impacts of climate change, population growth, along with migration from rural to urban areas of Sindh, are the three primary concerns for water and food security in the province. These factors are creating significant challenges for water resources management.




Total annual Precipitation of Sindh from 1961 through 2020.
(Data Source: Pakistan Meteorological Department, 2020)




Projected Precipitation Anomaly for 2040-2059 (Annual) Sindh, Pakistan;
(Ref. Period: 1995-2014), SSP5-8.5, Multi-Model Ensemble

(Data Source: https://climateknowledgeportal.worldbank.org/