

Capturing the rains

India needs all-weather insurance against vagaries of global climate

For the first time since 2018, India has reported a deficit monsoon. From June to September this year, India received 82 cm of rainfall, nearly 6% lower than the 89 cm that is considered 'normal'. Beginning April, there were enough indications that the monsoon would be subdued with an El Niño on the horizon.

This cyclical warming of the central and eastern Pacific ocean usually corresponds to a decline in rainfall over India, particularly the north-west. Between 2019 and 2022, the Indian monsoon was significantly impacted by the converse phenomenon a cooling La Niña that sometimes is associated with above normal rainfall. By those metrics, the expectations of a normal monsoon in 2023 were muted. However, the experience of the monsoon this year was far from the ordinary. About 9% of the country received 'excess' rainfall with 18% getting 'deficient' and the rest of the country, 'normal' rainfall. While on one hand,

August the second most important monsoon month posted a third less than its normal, several States in north India, which were expecting minimal rainfall, were deluged following multiple episodes of record rainfall. July, for instance, saw exceptionally heavy rainfall in Chandigarh, Haryana and Himachal Pradesh, resulting in floods and landslides. Several cities were left grappling with serious flooding over several days. Cloudbursts were reported in Himachal Pradesh in August. It is worthwhile to note here that these episodes of intense rain was due to so called western disturbances A that are extra tropical storms from the Mediterranean region and normally not expected

to play a major part in the monsoon. Thus, these are fingerprints of the wide-ranging impacts of anthropogenic warming.

At the other end of the spectrum were drought like conditions in Maharashtra. Extreme water stress was also reported out of Chhattisgarh, Bihar and Karnataka, where in the case of Karnataka, matters came to a head with neighbouring Tamil Nadu over the sharing of water from the Cauvery River. The India Meteorological Department has also forecast a 'normal' northeast monsoon from October to December and 'Normal to above normal rainfall' over large parts of north-west India and south peninsular India. The signs are there of increased rains in several parts of south India. The spatial and temporal variance of the monsoon reiterates the need to invest in more resilient infrastructure that can be an all-weather insurance against the increasingly unpredictable vagaries of the global climate. The pattern in recent years is to improve forecast models that are better able to warn of significant changes in weather a week or two ahead than having approaches that fail to capture the dynamics of the Indian monsoon. More money and expertise should be directed towards this.