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# Southern India grapples with severe water scarcity

## ■ Reservoir levels further plunge to 15 pc: CWC

New Delhi, May 11: With the southern region most hit at just 15 per cent total live storage capacity in reservoirs, the storage capacity this year is below the average of last 10 years during the corresponding period, the Central Water Commission (CWC) data has revealed. The CWC's analysis also indicated a week-on-week decrease in storage levels, affecting not only the southern region but also the nation as a whole.

As of last Thursday, the southern region's reservoir capacity stood at 16 per cent, dropping from 17 per cent the previous week.

The bulletin from the CWC said the southern region has been severely impacted, with reservoirs operating at only 15 per cent of their total live storage capacity. The data from the CWC shows that storage levels this year are lower than both the corresponding period last year and the ten-year average for the same period.

Nationally, out of 150 monitored reservoirs, the total live storage capacity is 178.784 billion cubic metres (BCM), approximately 69.35

per cent of the estimated 257.812 BCM created across the country.

However, the live storage available in these reservoirs currently sits at 27 per cent, down from 36 per cent recorded last year and 32 per cent on average over the past decade.

Compared with historical data, the bulletin highlights that the current live storage is only 79 per cent of last year's levels and 92 per cent of the 10-year average for the corresponding period.

The storage during the current year is lower than that of the corresponding period last year in all of the country while it is below the average storage of the last 10 years during the corresponding period in northern, eastern southern and western.

The southern region, encompassing Andhra Pradesh, Telangana, Karnataka, Kerala, and Tamil Nadu, has a total live storage capacity of 53.334 BCM. According to the reservoir storage bulletin dated May 9, the available live storage in these reservoirs is 7.921 BCM, constituting only 15 per cent of their total

capacity.

In comparison, last year's storage during the corresponding period was 27 per cent, and the 10-year average was 21 per cent of the live storage capacity.

The northern region, which comprises Himachal Pradesh, Punjab, and Rajasthan, has 10 reservoirs under CWC monitoring with a total live storage capacity of 19.663 BCM. The bulletin reports the current live storage available in these reservoirs at 5.759 BCM, representing 29 per cent of the total live storage capacity.

During the corresponding period last year, the storage was 37 per cent, and the 10-year average was 33 per cent of the live storage capacity.

Similarly, the eastern region, including Assam, Jharkhand, Odisha, West Bengal, Tripura, Nagaland, and Bihar, has 23 reservoirs with a total live storage capacity of 20.430 BCM. The live storage available in these reservoirs currently stands at 6.952 BCM, which is 34 per cent of the total live storage capacity.

In contrast, last year's storage during the corre-

sponding period was 31 per cent, while the 10-year average was 34.2 per cent of the live storage capacity.

The western region, covering Gujarat and Maharashtra, has a total live storage capacity of 37.130 BCM. As per the reservoir storage bulletin, the available live storage in these reservoirs is 10.339 BCM, which is 28 per cent of the total live storage capacity.

Compared with last year's storage during the corresponding period (34 per cent) and the 10-year average (29 per cent), the current year's storage is notably lower.

Lastly, the central region, comprising Uttar Pradesh, Uttarakhand, Madhya Pradesh, and Chhattisgarh, has 26 reservoirs under CWC monitoring with a total live storage capacity of 48.227 BCM. The live storage available in these reservoirs is reported at 16.687 BCM, representing 35 per cent of the total live storage capacity.

While this is a decline from last year's 41 per cent, it is an improvement compared to the ten-year average of 33 per cent during the corresponding period. —PTI



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# WHY PENINSULAR INDIA IS REELING UNDER HEAT WAVE AND WATER CRISIS

JITENDRA CHOUHEY @ New Delhi

I saw no difference at all in the sweltering conditions in Delhi and hill stations like Ooty and Coorg," rued Johnson D'Souza, 40, a Gurgaon-based multinational company employee who recently returned from a visit to his native Coorg and Ooty with his family to escape the Delhi scorcher. "I have no memory of such unprecedented heat and water crisis in my scenic native place. In Ooty, hotels and resorts don't have fans and air-conditioning equipment, which made our trip more unpleasant," he shared.

According to the Indian Meteorological Department (IMD), Ooty was at its hottest on April 30. It recorded 29.4°C, its highest maximum temperature since 1901. On April 29-30 in Kodagu, the maximum temperature was 38.6°C, with the minimum at 23.5°C. "Such high temperatures with humidity is unbearable and may impact our tourism business," said 65-year-old Jaiamma who runs a home-stay for tourists in Udagamandalam.

Drought conditions in Kerala this year broke a 40-year record; major reservoir levels plunged to a new low in the Cauvery basin, especially in Karnataka; and villagers are digging wells and tubewells to get some water in the Rayalaseema region of Andhra Pradesh. Major cities such as Bengaluru, Chennai, Coimbatore, Hyderabad and dozens of smaller cities are facing severe drinking water shortage. Almost the whole of peninsular India is reeling under heat waves with temperatures hovering around 40-44°C.

In April, the IMD recorded the second highest minimum and maximum temperatures in peninsular India since 1901—25.8°C and 37.57°C, respectively. "If dry spells continue, water levels in different reservoirs would plummet to an all time low at the end of the month and result in large-scale labour migration to bigger cities, which are already water-stressed," said Ramanjaneyulu G V of Centre of Sustainable Agriculture, Hyderabad.

## Deficit Southwest monsoon

India received 70% of its annual rainfall through the Southwest monsoon between



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June and September. The emergence of the El Nino phenomenon weakened the monsoon. El Nino is the unusual warming of surface waters in the eastern Pacific Ocean, which is synonymous with the weakening of the southwest Indian monsoon. India witnessed a 5.6% deficit in the Southwest monsoon in 2023. It had a bigger impact in the Southern Peninsula, which clocked an overall deficit of 8% across five states.

The deficit situation gets worse if one takes a closer look. For instance, there was a 24% rainfall deficit in Karnataka, which resulted in severe drought in 195 talukas of 23 districts. A 33% rainfall deficit was reported dur-

ing the Southwest monsoon in the Cauvery basin spread across Karnataka, Tamil Nadu and Kerala. It snowballed into a 51% shortfall in cumulative inflows to Karnataka's four major reservoirs monitored by the Central Water Commission. Even Kerala, which is the gateway to the Southwest monsoon, received a 34% deficit.

The rainfall deficit was 46% in the Pennar basin across Karnataka and Andhra Pradesh. Adjoining Pennar and the Cauvery basin, other basins such as Lower Tungbhadra (-50%), Upper Krishna (-42%), Krishna Pennar (-86%), Upper Bhima (-74%) and Lower Bhima (-65%) also had severe deficit.

## Deficit Northeast monsoon

To begin with, the onset of the Northeast monsoon got delayed in October, overstayed till the middle of January and concluded with a shortfall by over 13% in the Southern peninsula and an overall deficit of 8.5% across the country. The Northeast monsoon contributes mostly to Kerala, Tamil Nadu, Puducherry, parts of Karnataka and Rayalaseema. It was patchy too. It recorded deficits of 29% and 38% in Rayalaseema and in Karnataka respectively, but was surplus in Tamil Nadu (+4%) and Kerala (+27%).

## Severe deficit pre-monsoon activities

The IMD recorded a huge deficit in pre-monsoon rainfall activities, which were important to arrest the plunging reservoir levels and bring down the temperatures. The rainfall during April 2024 over South Peninsular India (12.6 mm) was the fifth lowest since 1901 and second lowest since 2001.

According to the IMD, there was a deficit of 66-82% of pre-monsoon rainfall between March and the first week of May this year in all peninsular meteorological stations. In Rayalaseema, the deficit was 82% followed by Tamil Nadu region (-77%), South Interior Karnataka (-70%), Kerala (-66%) and Coastal Andhra Pradesh (-62%).

## Plunging reservoir levels

The deficit of pre-monsoon rainfall led to a severe water crisis in April-May. According to the Central Water Commission's May 9 bulletin, in Karnataka's Krishnaraja Sagar (KR Sagar) and Kabini reservoirs, the live storage fell to a 30-year average low. KR Sagar had 10 TMC last year, which plunged to 7.2 TMC now. Similarly, Kabini had 4.6 TMC average live storage last year. It's down to 3.7 TMC this year. The available live storage of Tamil Nadu's reservoirs Mettur and Bhavanisagar are also lower than their 30-year average.

"If pre-monsoon showers don't get activated in the coming days, water level in KR Sagar will fall to its lowest since its inception," said Venkatesh R L, Chief Engineer Irrigation (South) Zone at the Cauvery Neeravari Nigama. The KR Sagar Dam reached its lowest level on June 13, 2013 to 62.80 ft. Its level as on May 9 was around 79 ft against last year's 85 ft.

## Storage status of 42 important reservoirs in the South as on May 9

State	No. of reservoirs monitored	% departure from normal storage
Andhra Pradesh & Telangana (AP&TG)	2	-31
Andhra Pradesh	4	-81
Telangana	7	0
Karnataka	16	-24
Kerala	6	5
Tamil Nadu	7	-46

Both Karnataka and Tamil Nadu are left with water only for drinking and domestic use till the southwest monsoon sets in. "Even if the Southwest monsoon is normal in June-July because of acute moisture deficit in the soil due to the severe drought, there may not be enough runoff to the catchment of the Cauvery basin," said K E S Mahesha, managing director of the Cauvery Neeravari Nigama.

## Climate change

Experts attribute several climatic factors to the excessive heating of peninsular India, which include weakening of the land-ocean temperature gradient due to global warming. Globally as well, each month is setting a new all-time record. The last 10 months since June 2023 have been the hottest on record because of El Nino. The Indian Ocean has one of the world's fastest-rising sea surface temperatures. "There are several factors involved in the current peninsular drought, including the strengthening of El Nino, which contributed to the above normal temperatures coupled with a long spell of marine heat wave in the Indian Ocean," said Dr Vimal Mishra, Professor, Civil Engineering and Earth Sciences, at Indian Institute of Technology, Gandhinagar.

"Climate change induced the late onset of a strong Southwest monsoon and the change of cropping pattern towards water intensive paddy and cash crops like cotton," said Ramanjaneyulu.