Central Water Commission
WSE Dte.,
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West Block II, Wing No-4
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The News Clippings on Water Resources Development and allied subjects are enclosed for perusal of the Chairman, CWC, and Member (WP&P/D&R/RM), Central Water Commission. The soft copies of clippings will be uploaded on the CWC website.

Soniam
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Encl: As stated above.

Deputy Director, WSE Dte.

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Director, WSE Dte. On Leave.

For information to

Chairman CWC, New Delhi

Member (WP&P/D&R/R.M.), CWC and all concerned, uploaded at www.cwc.nic.in

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The Hindu (New Delhi)
Rajasthan Patrika (Hindi)

Deccan Chronicle
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The Times of India (A)
Business standard
The Economic Times

and documented at Bhagirath (English) & Publicity Section, CWC

Needless controversy

India has not attempted to violate the Indus Water Treaty

Water resources minister Nitin Gadkari's statement on stopping India's share of water from going to Pakistan has got blown out of proportion to create a pointless controversy over the Indus Water Treaty (IWT). Though the minister's remarks are unambiguous, it has been clarified through the subsequent official statements that the reference was to the unutilised water of the rivers Satluj, Beas and Ravi that belongs to India and is flowing to Pakistan. This water is now proposed to be gainfully used within the country. Any misinterpretation to project it as a threat of punitive action against Pakistan in the wake of the recent dastardly terror attack on the Indian armed forces' convoy in Pulwama in Jammu and Kashmir is wholly uncalled for. In fact, an indication of this move had come soon after the Uri attack in 2016 when Prime Minister Narendra Modi had said, "Blood and water cannot flow together".

What needs to be realised is that the IWT, brokered by the World Bank and signed in 1960, is one of the world's most successful international water accords that has withstood the test of time and even three full-fledged wars between the two neighbours. India, behaving as a responsible upper riparian, has seldom threatened to abrogate the treaty or curtail Pakistan's share of the water. This is despite the fact that the Jammu and Kashmir Assembly passed unanimous resolutions twice, in 2003 and 2016, seeking revocation or revision of the IWT to safeguard the state's interests.

Indeed, the noteworthy point is that the IWT is principally flawed as it divides the rivers between the two countries rather than apportioning their water to them. The three east-flowing rivers — Beas, Ravi and Satluj — having a mean water flow of 33 million acre-feet (MAF) have been allotted to India while the remaining three west-flowing rivers — Indus, Chenab and Jhelum — with a much larger water flow of 80 MAF have been given to Pakistan. India has, no doubt, been allowed a limited use of the western rivers, but this is mostly for non-consumptive purposes. To make it worse, such use has been subjected to strict regulations, thus, providing Pakistan enough leverage to impede implementation of water projects by raising objections and calling for adjudication. It has made full use of it to inordinately delay projects such as Tulbul, Baglihar, Ratle, Kishanganga and others, most of which involved only the non-consumptive use of the waters of western rivers.

Unfortunately, India has also failed to create adequate infrastructure to fully tap the water of the rivers over which it has been granted unrestricted control. Consequently, nearly 5 per cent of India's water, including about 2 MAF of water from the Ravi, continues to drift across the border. It is only now that India has launched three projects — the Shahpurkandi dam on the Ravi, the second Ravi-Beas link in Punjab, and the Ujh dam on the river Ujh in Jammu and Kashmir — to harness this water. Apart from generating power and additional irrigation potential, these projects will augment water availability in several states, including Jammu and Kashmir, Punjab, Haryana, Uttar Pradesh, Rajasthan and Delhi. Considering the potential gains from this move, the work on these projects needs to be speeded up. Equally important is to amicably resolve some of the lingering inter-state water-sharing disputes that are hindering progress on this front.

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This Feb was coldest and wettest in 5 years

Amit.Bhattacharya
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New Delhi: Delhiites experienced the coolest and wettest February since 2014 with periodic return of chilly conditions that continued till the end of the month, in a weather pattern similar to that seen in January.

The month ended on a particularly chilly note as cold wave conditions developed on Thursday, with the minimum temperature plummeting to 6.8°C, six notches below normal.

Met officials said north India continues to be impacted by aftermath of the polar vortex breaking down in the Arctic, which has led to a large number of intense western disturbances (WDs) hitting the region.

9 RAINY DAYS

22.5°C Mean max temp this month, lowest since 2014

10.4°C Mean minimum this month, again lowest since 2014

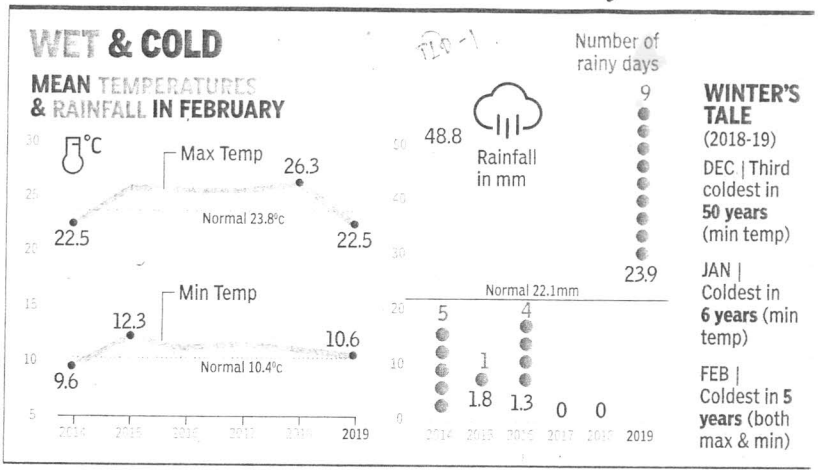
9 Rainy days in Feb against an average of 1.8

Dec-Jan this season had lowest min temp in 13 years

There were seven in February. "While the season has not seen severe cold spells, temperatures continue to drop every time a WD passes, giving the feel of a long winter," an official said.

▶Continued on P 10

Why Feb had so many wet days, but not heavy rain



▶Continued from P1

ust as in January, the month saw a lot of fairly intense western disturbances (WDs) — low-pressure wind systems that come into north India from the Mediterranean region, bringing in wet weather. Seven WDs impacted the region in February, against a normal of five-six, the same as in January. This resulted in an unusually high number of nine rainy days during the month, the highest in at least 15 years for which data was scanned.

None of the wet spells resulted in long episodes of heavy rain. The cumulative rainfall in the month was 23.9mm, just 1.8mm higher than normal but nonetheless the highest seen in February since 2014.

"While a high number of WDs hit the region in February drawing moist winds from Arabian Sea, these did not interact with an easterly wave, which brings in moisture from Bay of Bengal. Thus, we saw a large number of rainy days but not very heavy rainfall," said B P Yadav, head of IMD's regional meteorological centre.

Temperatures fluctuated in accordance with the movement of the weather disturbances. An approaching WD usually raises temperatures as it draws warmer easterly and southerly winds into the region, and cloudiness makes nights warmer. After the WD has passed, cold northerly and northwesterly winds start blowing, bringing in the chill from the Himalayas.

"As there was very less gap between successive WDs this month, we didn't have sustained northerly winds and long cold spells, as seen in the second half of December. So, the city didn't experience very low temperatures," said M Mohapatra, DGM, IMD.

However, both the mean minimum and maximum temperatures in February —22.5 degrees C and 10.6 degrees Celsius, respectively — were the lowest for the month in five years.

Polar vortex still haunts

In late December last year, the anti-clockwise current of air spinning around the Arctic region — called the polar vortex — broke down, sending blasts of freezing cold into northern Europe and north America. Its effects have persisted for north India.

"The temperature gradient between areas closer to the Arctic and the mid-latitudes has increased. This has intensified and diversified the mid-latitudinal jet stream winds in the upper atmosphere. That, in turn, have energised the western disturbances that impact north India," said Mohapatra.

Another WD is set to hit the region, which may bring wet weather over Delhi-NCR over the weekend. This would be the 15th WD since January 1 this year.

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T-1-3

50% of country in grip of drought, say IIT experts

GANDHINAGAR, FEBRUARY 28

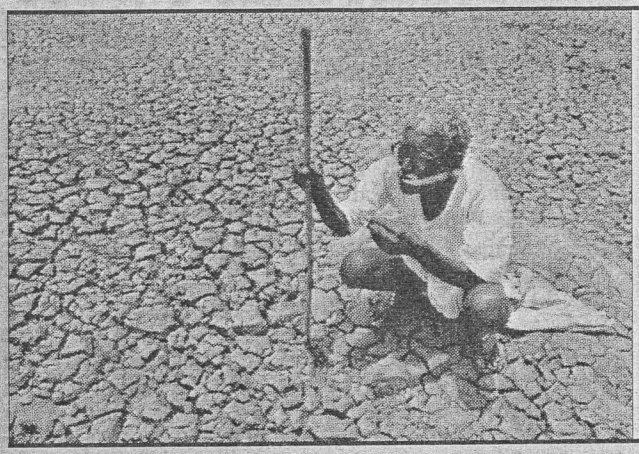
Nearly 50 per cent of the country is currently facing drought with at least 16 per cent falling in the "exceptional" or "extreme" category, according to IIT-Gandhinagar scientists managing India's real-time drought prediction system.

This ongoing drought will pose a lot of challenges in water availability this summer, said Vimal Mishra, associate professor at the Indian Institute of Technology (IIT) here.

The real time monitoring system run by his team, which includes PhD student Amardeep Tiwari, collects weather and precipitation data from the India Meteorological Department (IMD), which is then used to simulate soil moisture and other factors that contribute to drought. The results of the simulations, prepared by the Water and Climate Lab at IIT-Gandhinagar, are available on the IMD website.

"About 47 per cent of the country is facing drought — with 16 per cent facing extreme or exceptional category of drought — which we show from our real time monitoring system that we have developed for the country," said Mishra, who heads the lab.

"Arunachal Pradesh did not get good rain this year, and parts of Jharkhand, southern Andhra Pradesh, Gujarat, and northern part of Tamil Nadu are under drought," Mishra said.



STATES IN CRISIS

- Arunachal Pradesh, parts of Jharkhand, southern Andhra Pradesh, Gujarat, and northern part of Tamil Nadu are facing a severe crisis
- Scientists say at least 16% fall in the "exceptional" or "extreme" category
- They say irresponsible use of groundwater, global warming, climate change to worsen situation

If these areas experience very hot summer before the onset of monsoon, it could lead to a crisis, he warned.

According to him, continuing drought will further burden the already depleting ground water resources of the country. "We are not enhancing groundwater recharge. On the other hand, drought conditions are making us extract more and more water," he said.

While famine-like conditions are not expected, the drought will have a massive impact on the economy. "It can create long-term stress, if not mortality for poor, marginalised farmers," Mishra said.

He said global warming and climate change are likely to exacerbate drought in the coming years. "If our groundwater is not recharged, we could face a very difficult situation in the coming years," Mishra said, adding that groundwater is being used irresponsibly at present. — PTI

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El Niño rising: will it affect Indian monsoon?

IE-1.3

AMITABH SINHA
PUNE, FEBRUARY 28

THE NATIONAL Oceanic and Atmospheric Administration (NOAA) of the United States recently announced the development of a weak El Niño in the equatorial Pacific Ocean that was expected to continue for a few months at least. The status of El Niño at this time of the year is usually the first indication of the kind of rainfall that is to be expected during the monsoon season later in the year.

El Niño is a phenomenon in which surface temperatures in the equatorial Pacific Ocean see an unusual rise. Over the years, it has been found to have a strong bearing on monsoon rainfall in India. While warmer temperatures are known to suppress monsoon rainfall, the opposite phenomenon of La Niña has been found to be helpful in bringing good rainfall.

The outlook

In its announcement on February 14, NOAA said weak El Niño conditions had already built up in January and were likely to continue (with 55% probability) until the spring season in the northern hemisphere (mid-March to mid-June). It said that the probability of El Niño persisting into the summer was "50 per cent or less". The Australian Bureau of Meteorology, meanwhile, said in a February 19 bulletin that the development of El Niño could continue until at least July.

More relevant to the Indian monsoon, the warming in the Niño 3.4 region of the Pacific Ocean, the region whose sea surface temperature is seen as be the best marker for the impact on India's rainfall, has been forecast to remain in excess of 0.5°C above normal.

The likely impact

Dr Arindam Chakraborty of the Centre for Atmospheric and Oceanic Sciences at IISc Bangalore said data for the last 100 years showed that if the SST in Niño 3.4 was over 0.5°C above normal in the four-month monsoon season, rainfall over India gets affected.

"If El Niño 3.4 is greater than 0.5, it is likely to decrease rainfall. But we need to wait for a better prediction at this point because prediction through the northern spring season has higher degree of uncertainty," he said. He also pointed to other evidence to suggest that the impact on the Indian monsoon might not be very large. "Even if we get El Niño in the monsoon months, its impact, statistically speaking, is not as high as when it is preceded by a La Niña in the winter. In this winter, sea surface temperatures were above normal, almost close to El Niño," he said.

However, Raghu Murtugudde of University of Maryland, College Park, said there was a possibility that the El Niño could strengthen beyond spring. "I have myself announced on some groups that I expect the El Niño to grow into the summer which could mean that we may have a drought (in India). Some weather events like winds over the western tropical Pacific can finally determine whether El Niño will grow beyond spring," he said.

More frequent

El Niño events repeat themselves in a two- to seven-year cycle, with a strong El Niño expected every 10-15 years. However, since 2000, five El Niño events have already happened, and this year could witness a sixth one.

New scientific research is pointing to increased frequency of extreme El Niños due to climate change. A paper published in *Nature Climate Change* in July 2017 had suggested that such extreme events could happen twice as often as today if the average annual global temperatures reached 1.5°C above pre-industrial times.

Murtuggude, however, said that the increasing frequency could be because of other reasons as well.

"This cannot yet be claimed to be in response to global warming with great confidence. It is related with the fact that trade winds got stronger and the eastern equatorial Pacific Ocean has remained colder since 1998. That makes El Niño more active. The stronger trade winds are not easily explained by global warming. So the story is much more complicated," he said.