भारत सरकार
जल शक्ति मंत्रालय
जल संसाधन नदी विकास एवं गंगा संरक्षण विभाग
केंद्रीय जल आयोग
जल प्रणाली अभियांत्रिकी निदेशालय

सत्यमेव जयते

Government of India
Ministry of Jal Shakti
Dept. of Water Resources, RD&GR
Central Water Commission
Water System Engineering Directorate

**विषय: समाचार पत्रों की कटिंग का प्रस्तुतीकरण-02-दिसंबर-2020**

जल संसाधन विकास एवं सम्बद्ध विषयों से संबन्धित समाचार पत्रों की कटिंग को केंद्रीय जल आयोग के अध्यक्ष के अवलोकन के लिए संलग्न किया गया है. इसकी साफ्ट कापी केंद्रीय जल आयोग की वेबसाइट पर भी अपलोड की जाएगी.

**संलग्नक:** उपरोक्त

**(-/sd)**

**सहायक निदेशक**

**उप निदेशक(-/sd)**

**निदेशक (-/sd)**

**सेवा में**

अध्यक्ष, केंद्रीय जल आयोग, नई दिल्ली

**जानकारी हेतु:** सभी संबन्धित केंद्रीय जल आयोग की वेबसाइट http://cwc.gov.in/news-clipping परदेखें

Millennum Post 02-December-2020

# Respite from cold in North India

*NCMC reviews situation in parts of South in view of possible heavy to very heavy rains*

OUR CORRESPONDENT

**NEW DELHI:** Parts of North India experienced a little respite from cold as mercury rose by a few notches in some states, with the IMD on Tuesday forecasting dry weather for Jammu and Kashmir and Himachal Pradesh till at least November 6.

Weather remained dry in Himachal Pradesh and it will continue to be dry in the next week till December 7, Shimla Meteorological Centre Director Manmohan Singh said.

Lahaul and Spiti's administrative centre, Keylong, recorded the coldest temperature in the state at minus 2.6 degrees Celsius, he said.

Kinnaur's Kalpa recorded a low of 2.6 degrees Celsius, he added. The minimum temperature in Manali, Kufri and Dalhousie was recorded at 3.4 degrees, 9.5 degrees and 10.4 degrees Celsius respectively, the weatherman said.

Shimla recorded a low of 10.3 degrees Celsius, Singh added. The famous ski-resort of Gulmarg was the only place in Kashmir which experienced a sub-zero night as there was an improvement in the minimum temperature across the valley and the weather is expected to remain dry till December 6, officials said.

Gulmarg, in north Kashmir's Baramulla district, was the only place in the valley where the mercury stayed below the freezing point at a low of minus 1.0 degrees Celsius, the officials said.

They said the mercury in Srinagar, which had recorded minimum temperature of minus 1.3 degrees Celsius on Monday, settled at a low of 1.0 degree Celsius on Tuesday.

Pahalgam tourist resort in south Kashmir's Anantnag district recorded a low of 0.2 degree Celsius.

The officials said the mercury settled at the minimum of 1.4 degree Celsius in Qazigund, 1.0 degrees Celsius in Kupwara and 1.2 degrees Celsius in Kokernag.

The MET Office has forecast mainly dry weather in Jammu and Kashmir till December 6, after which there is a possibility of a spell of rain/snow during December 7-8.

Minimum temperatures increased by two to three notches in parts of Rajasthan and the state's only hill station Mount Abu recorded a low of 4.4 degrees Celsius on Monday night.

The minimum temperature in Churu was 6.5 degrees Celsius. It was 7 degrees Celsius in Sikar, 7.6 degrees Celsius in Pilani, 8.9 degrees Celsius in Bhilwara, 9.5 degrees Celsius in Sriganganagar and 10.2 degrees Celsius in Chittorgarh and Dabok. Minimum temperatures again settled above normal limits in Haryana and Punjab.

Chandigarh, the common capital of the two states, recorded a low of 9 degrees Celsius, up one notch against normal limits, according to the Meteorological Department here. In Haryana, Ambala recorded a low of 8.3 degrees, while Karnal recorded a low of 9 degrees Celsius. Amritsar in Punjab recorded a minimum temperature of 8 degrees Celsius, three notches above normal. Ludhiana and Patiala both recorded a low of 9.2 degrees Celsius.

Meanwhile, the National Crisis Management Committee (NCMC) on Tuesday reviewed the situation evolving in Tamil Nadu, Kerala and Lakshadweep where heavy to very heavy rains are expected in view of a deep depression emerging along the coastline.

At a meeting held here, the NCMC, headed by Cabinet Secretary Rajiv Gauba, also took note of the advisory given to fishermen and deployment of rescue teams.

In view of the deep depression emerging along the southern coast of Tamil Nadu and Kerala, the cabinet secretary chaired the NCMC meeting through video conferencing with the chief secretaries of Tamil Nadu and Kerala, the advisor Lakshadweep and secretaries of different ministries, an official statement said.

Times of India 02-December-2020

# To counter China, India plans to dam Brahmaputra in Arunachal

**New Delhi:** India is considering a plan to build a 10 gigawatts (GW) hydropower project in Arunachal Pradesh, an official said on Tuesday, following reports that China could construct dams on a section of the Brahmaputra river. Indian authorities are concerned that Chinese projects could trigger flash floods or create water scarcity.

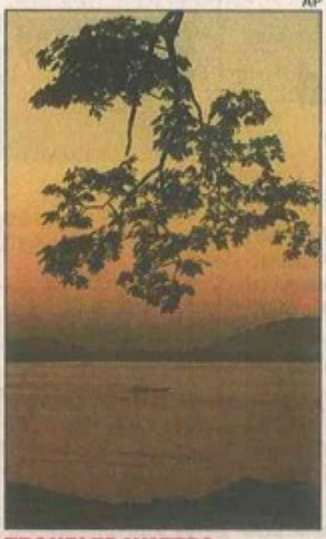
"The need of the hour is to have a big dam in Arunachal Pradesh to mitigate the adverse impact of the Chinese dam projects," T S Mehra, a senior official in the water resources ministry, said.

"Our proposal is under consideration at the highest level in the government," Mehra said, adding the Indian plan would create a large water storage capacity to offset the impact of Chinese dams on flows.

Amid the ongoing faceoff between troops of the two nations along the LAC in Ladakh, some analysts warned that damming the Brahmaputra could potentially develop into another flashpoint, as Beijing's dam-building activities moved closer to the Indian border. "India is facing China's terrestrial aggression in the Himalayas, maritime encroachments on its backyard and, as the latest news is a reminder, even water wars," Brahma Chellaney, a specialist on India-China ties, tweeted.

On Monday, Chinese state media reported the country could build up to 60 GW of hydropower capacity on a section of the Brahmaputra, citing a senior executive. REUTERS

AP



TROUBLED WATERS

Indian Express-02 December 2020

# In tree rings, warning of Brahmaputra floods

EXPRESS NEWS SERVICE
NEW DELHI, DECEMBER 1

EVERY YEAR, the Brahmaputra floods vast areas in India's Northeast, particularly Assam, and continues its trail of destruction in Bangladesh, from where it finally flows into the Bay of Bengal. For years, scientists have been looking with concern at the river's potential for catastrophic flooding in the future, especially as the climate warms. It turns out that this potential has been underestimated so far — even without accounting for a warming climate. This is the conclusion of a new study published in the journal *Nature Communications*.

## What's different

Existing projections of the Brahmaputra flooding are based on observations of rainfall patterns. Discharge records of the river, however, date back only to the 1950s in Bangladesh, which the new study analysed.

The study is based on an examinations of tree rings, which showed rainfall patterns going back seven centuries — long before discharge records were compiled.

The rings showed that the post-1950s period was actually one of the driest since the 1300s. There have been much wetter periods in the past. Projecting from all those periods, the researchers concluded that destructive floods probably will come more frequently than thought.

If one projects from modern discharge records, the researchers said, one would be underestimating the danger by 24% to 38%. "If the instruments say we should expect flooding toward the end of the century to come about every four-and-a-half years, we are saying we should really expect flooding to come about every three years," lead author Mukund Palat Rao said in a statement issued by Columbia University, from where he recently earned his PhD.

## What tree rings show

Tree rings grow wider in years when soil moisture is high. Indirectly, wider rings reflect more rainfall and higher river runoff.

The study looked at rings of ancient trees sampled at 28 sites in Tibet, Myanmar, Nepal and Bhutan, at sites close enough to be affected by the same weather systems as the Brahmaputra watershed. Analysing the rings, the scientists built a 696-year chronology (1309 to 2004).

They then compared the rings with historical records going back to the 1780s, it turned out that the widest rings lined up neatly with known major flood years. Thus, they extrapolated the yearly river discharge in the centuries preceding modern records.

## The findings

From a river-flow gauge in northern Bangladesh, records showed a median discharge some 41,000 cubic metres per second from 1956 to 1986, and 43,000 cu m from 1987 to 2004.

The tree rings, in contrast, showed that 1956–1986 was in only the 13th percentile for river discharge, and 1987–2004 was in the 22nd. The rings did show some other relatively dry times, in the 1400s, 1600s and 1800s. But they also show very wet periods of extreme flooding for which there was no comparable period during 1956–2004. The worst spell lasted from about 1560–1600, 1750–1800, and 1830–1860.

## The takeaways

The researchers said their findings mean that using the discharge record would underestimate future flood hazard by 24-38%, without factoring in climate warming — which would only increase the frequency of future flooding.

Higher temperatures drive more evaporation of ocean waters, and in this region that water ends up as monsoon rainfall. That is why scientists believe that warming climate will intensify the monsoon rains in coming decades, and in turn increase seasonal flooding.

"High discharges will continue to be associated with an increased likelihood of flood hazard in the future," the study authors wrote. They suggested that this could be counteracted to some extent by "potential changes in policy, land use, or infrastructure that may ameliorate flood risk".

As it is, the river, which originates in the Tibetan Himalayas, already floods areas along its course. While flooding in Assam is widely reported every year — no permanent solution has been found yet — low-lying areas of Bangladesh too are hit very hard. In 1998, 70% of Bangladesh went underwater, while serious floods also came in 2007 and 2010, the researchers noted.

Asian Age-02 December 2020

SPACE | RESOURCES **Research may radically change logistics of future missions to the Red Planet and beyond**

# Novel system can extract oxygen, fuel from Mars water

**Washington, Dec. 1:** A team led by an Indian-origin scientist in the US has developed a new system that can extract oxygen and hydrogen fuel from the salty water on Mars, and may radically change the logistics of future missions to the Red Planet and beyond.

The researchers noted that Mars is very cold, and water that is not frozen is almost certainly full of salt from the Martian soil, which lowers its freezing temperature. Using electricity to break the briny water down into oxygen and hydrogen fuel requires removing the salt, which is a cumbersome and a costly endeavour in a harsh, dangerous martian environment, they said.

The team, led by Vijay Ramani, a professor at the Washington University in the US, examined the new system in a simulated Martian atmosphere at minus 36 degrees Celsius. "Our Martian brine electrolyser radically changes the logistical calculus of missions to Mars and beyond. This technology is equally useful on Earth where it opens up the oceans as a viable oxygen and fuel source," said Ramani.

In 2008, NASA's Phoenix Mars Lander "touched and tasted" Martian water, vapours from melted ice dug up by the lander. Since then, the European Space Agency's Mars Express has discovered several underground ponds of water which remain in a liquid state thanks to the presence of magnesium perchlorate salt.

In the journal *Proceedings of the National Academy of Sciences* (PNAS), the researchers noted that in order to live — even temporarily — on Mars, not to mention to return to Earth, astronauts will need to manufacture some of the necessities, including water and fuel, on the Red Planet.

**IN 2008,** NASA's Phoenix Mars Lander "touched and tasted" Martian water. Since then, the European Space Agency's Mars Express has discovered several underground ponds of water which remain in a liquid state thanks to the presence of magnesium perchlorate salt.

NASA's Perseverance rover is en-route to Mars, carrying instruments that will use high-temperature electrolysis. However, the Mars Oxygen In-Situ Resource Utilisation Experiment (MOXIE) will be producing oxygen only, from the carbon dioxide in the air. The system developed in Ramani's lab can produce 25 times more oxygen than MOXIE using the same amount of power, said the researchers, adding it also produces hydrogen, which could be used to fuel astronauts' trip home.

"Our novel brine electrolyser incorporates a lead ruthenate pyrochlore anode developed by our team in conjunction with a platinum on carbon cathode" Ramani said. "These carefully designed components coupled with the optimal use of traditional electrochemical engineering principles has yielded this high performance," he said. The careful design and unique anode allow the system to function without the need for heating or purifying the water source, the researchers said.

"Paradoxically, the dissolved perchlorate in the water, so-called impurities, actually help in an environment like that of Mars," said Shrihari Sankarasubramanian, a research scientist in Ramani's group and joint first author of the research paper on the study.

— *PTI*

Jansatta-02 December 2020

# भविष्य में ब्रह्मपुत्र नदी में बाढ़ का खतरा कहीं ज्यादा

न्यूयॉर्क, 1 दिसंबर (भाषा)।

एक नवीनतम अध्ययन में दावा किया गया है कि पूर्व के अनुमान के मुकाबले ब्रह्मपुत्र नदी में विनाशकारी बाढ़ कहीं जल्दी-जल्दी आएगी। यह स्थिति तब होगी जब इस आकलन में मानवीय गतिविधियों से जलवायु पर पड़ने वाले प्रभाव शामिल नहीं किए गए हैं। अध्ययन में इस दावे का आधार 700 साल में नदी के बहाव का विश्लेषण है।

जर्नल 'नेचर कम्युनिकेशन' में प्रकाशित अनुसंधान पत्र के मुताबिक तिब्बत, पूर्वोत्तर भारत और बांग्लादेश में अगल-अलग नाम से बहने वाली नदी में दीर्घकालिक न्यूनतम बहाव पूर्व के अनुमान से कहीं अधिक है।

अमेरिका स्थित कोलंबिया यूनिवर्सिटी के वैज्ञानिकों सहित अनुसंधान दल में शामिल वैज्ञानिकों ने कहा कि पहले अनुमान लगाया गया था कि नदी के न्यूनतम बहाव में प्राकृतिक अंतर मुख्यः जल स्तर पर आधारित है जिसकी गणना 1950 से की जा रही है। वैज्ञानिकों ने कहा कि मौजूदा अध्ययन तीन स्तरीय आंकड़ों पर आधारित है। इसके मुताबिक पूर्व का अनुमान नए अनुमान से 40 फीसद कम है।

कोलंबिया यूनिवर्सिटी में कार्यरत और अनुसंधान पत्र के प्रमुख लेखक मुकुंद पी. राव ने कहा, 'चाहे आप जलवायु मॉडल पर विचार करें या प्राकृतिक परिवर्तनशीलता पर, संदेश एक ही है। हमें मौजूदा अनुमानों के विपरीत कहीं जल्दी-जल्दी बाढ़ आने की विभिषिका के लिए तैयार रहना होगा।' अनुसंधानकर्ताओं ने रेखांकित किया कि नदी से लगे इलाकों में करोड़ों लोग निवास करते हैं और नियमित रूप से जुलाई से सितंबर के बीच मानसून के मौसम में बाढ़ का सामना करते हैं। राव और उनके साथियों ने यह पता लगाने की कोशिश की कि भविष्य में और कितने बड़े पैमाने पर बाढ़ आ सकती हैं। इसके लिए उन्होंने उत्तर बांग्लादेश में नदी के औसत बहाव के आंकड़े का विश्लेषण किया जो 1956 से 1986 के बीच बहाव 41 हजार घन मीटर प्रति सेकंड था और 1987 से 2004 के बीच बढ़ कर 43 हजार घन मीटर प्रति सेकंड हो गया।

Punjab Kesari 02-December-2020

# 'जलवायु परिवर्तन की वजह से भविष्य में ब्रह्मपुत्र नदी में आने वाली बाढ़ को कम कर आंका गया: अध्ययन'

न्यूयार्क,1 दिसम्बर (प.स.): एक नवीनतम अध्ययन में दावा किया गया है कि पूर्व के अनुमान के मुकाबले ब्रह्मपुत्र नदी में विनाशकारी बाढ़ कहीं जल्दी-जल्दी आएगी और यह स्थिति तब होगी जब इस आकलन में मानवीय गतिविधियों से जलवायु पर पड़ने वाले प्रभाव शामिल नहीं किए गए हैं। अध्ययन में इस दावे का आधार गत 700 साल में नदी के बहाव का विश्लेषण है।

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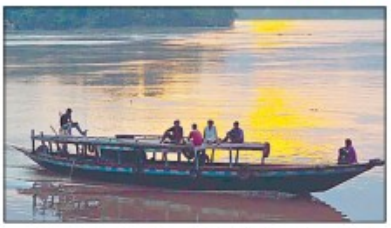

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वैज्ञानिकों ने तिब्बत, म्यांमार, नेपाल और भूटान के 28 स्थानों पर प्राचीन पेड़ों के तने में बनी गांठों का अध्ययन किया जो ब्रह्मपुत्र नदी के जल आधार क्षेत्र में आते हैं क्योंकि मिट्टी में उच्च आर्द्रता होने पर पेड़ों के तने में कहीं बड़ी और स्पष्ट गांठ बनती हैं। इसके आधार पर वैज्ञानिकों ने वर्ष 1309 से 2004 के 694 वर्ष के कालखंड का आकलन किया और पाया कि सबसे बड़ी और स्पष्ट गांठें उन वर्षों में बनीं जब भयानक बाढ़ आई थी।