

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



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

दिनांक: 04.11.2019

विषय - समाचार पत्रों की कटिंग का प्रस्तुतीकरण।

जल संसाधन विकास और संबद्ध विषयों से संबंधित समाचार पत्रों की कटिंग को केंद्रीय जल आयोग के अध्यक्ष और सदस्य (कार्य योजना एवं परियोजना /अभिकल्प एवं अनुसंधान / नदी प्रबंध) के अवलोकन के लिए संलग्न किया गया है। इन समाचारों की कटिंग की मॉफ्ट कॉपी केन्द्रीय जल आयोग की वेबसाइट पर भी अपलोड की जाएगी।

अर्जुन
04.11.2019
वरिष्ठ कलाकार

जल प्रणाली अभियांत्रिकी निदेशालय

संलग्नक: उपरोक्त

उप निदेशक, (ज. प्र. आ.) निदे०

विवेक
04/11/2019

निदेशक, (ज. प्र. आ.) निदे०

सौरभ शाह
04-11-19

सेवा में,

अध्यक्ष, के. ज. आ., नई दिल्ली

जानकारी हेतु - सभी संबंधित केन्द्रीय जल आयोग की वेबसाइट www.cwc.gov.in पर देखें।



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Cyclonic storm 'Maha' to bring heavy rains in Maharashtra

PRESS TRUST OF INDIA
MUMBAI, 3 NOVEMBER

Cyclonic storm "Maha" is likely to bring very heavy rains to parts of Maharashtra during November 6-8, the India Meteorological Department (IMD) said on Sunday.

A release from the state's Disaster Management Cell said areas in north Konkan, north central Maharashtra will experience heavy rains along with thunder and lightning from November 6 till November 8.

Fishermen have been advised not venture into the sea while district collectors have been asked to take measures to reduce the impact of "Maha", it said.

Earlier in the day, the Ahmedabad centre of IMD in neighbouring Gujarat said Maha would make landfall in Gujarat between Dwarka and Diu on the night of November 6 and bring heavy to very heavy rains till the next day there.

It is likely to intensify into a very severe cyclonic storm in the next six hours, the Gujarat Met Centre had said.

Crops over an area of 1.36 lakh hectares has been dam-

'Red Atlas Map' unveiled for flood mitigation in Chennai

PRESS TRUST OF INDIA
CHENNAI, 3 NOVEMBER

Vice-President M Venkaiah Naidu on Sunday unveiled the 'Red Atlas Action Plan Map,' a first of its kind ready reckoner, prepared by the Ministry of Earth Sciences to aid Tamil Nadu government in effective flood mitigation in Chennai which witnessed the worst deluge in 2015.

The atlas, with probable scenarios for different rainfall periods, aims at flood mitigation, preparedness, operations and management aspects, official sources said. The manual provides information, including on corporation wards that are likely to be affected due to flooding, and the areas that may need evacuation in Chennai taking into account all historical datasets.

aged in western Maharashtra due to unseasonal rains over the past few days, said Pune Divisional Commissioner Deepak Mhaisekar.

Pune division consists of Pune, Solapur, Satara, Sangli and Kolhapur districts.

"In Pune region, as per preliminary assessment, crops on at least 1.36 lakh hectares in 51 tehsils have been destroyed due to unseasonal rains," Mhaisekar said.

He said crops like grapes, rice, soyabean and sorghum

have largely been destroyed.

Cong slams Centre for ignoring MP farmers' woes: On the eve of the BJP's statewide 'Kisan Akrosh Andolan' in Madhya Pradesh, the Congress has accused the Centre of turning a blind eye to damages caused to the state by heavy rains.

The BJP's agitation on Monday aims to pin the Kamal Nath government on failure to provide relief to rain-affected farmers.

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Cyclone Maha to make landfall in Guj on Nov 6

Press Trust of India

■ letters@hindustantimes.com

AHMEDABAD: Severe cyclonic storm Maha is likely to make landfall along the Gujarat coast between Dwarka and Diu on the night of November 6 and bring heavy to very heavy rainfall till the next day, the India Meteorological Department (IMD) said on Sunday.

It is likely to intensify into a very severe cyclonic storm in the next six hours before making landfall, it added.

The severe cyclonic storm Maha which was hovering over the east-central Arabian Sea has now moved towards north-westwards with a speed of 14 kmph in the past six hours.

The cyclonic storm is about 520 km south-southwest of Veraval (Gujarat) and 540 km south-southwest of Diu, the weather department said.

"Severe cyclonic storm Maha lay centered at 580 kilometres

south-west of Diu and 550 kilometers south-west of Veraval.

It is most likely to intensify into a very severe cyclonic storm and make landfall between Dwarka and Diu on Wednesday night or early Thursday morning with wind speeds of 120 kilometres per hour," said Jayanta Sarkar, regional director of the India Meteorological Department.

"The storm will cause heavy to very heavy rains in Saurashtra and south Gujarat on November 6-7. It is moving towards Oman but will recurve towards Gujarat coast on Monday," Sarkar informed.

Officials said ports across Saurashtra have been asked to hoist danger signal number two to warn vessels and fishermen have been advised not to venture into the sea.

The organisation has advised fishermen not to venture into central and northeast Arabian Sea for the next couple of days.

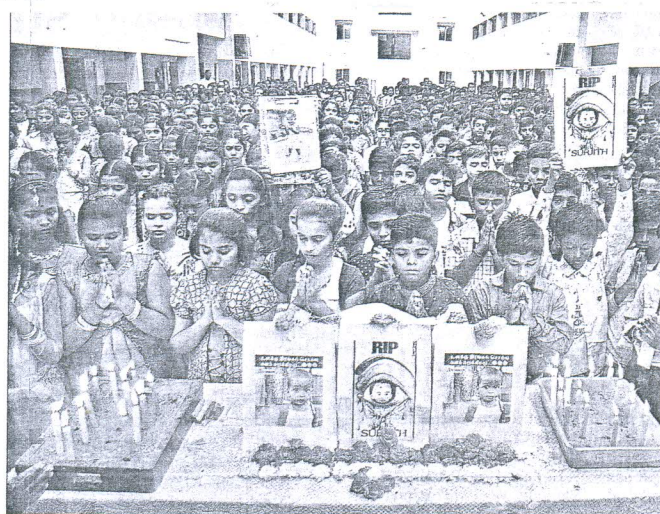
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Two-year-old Sujith Wilson died when he fell into a borewell in Tiruchirappalli, Tamil Nadu. May his unfortunate demise jolt our conscience, and move us into action ANANTHA KRISHNAN

Dear Sujith, we, as a country, are very sorry

Borewell accidents are happening because states have not implemented the SC's rules on borewell monitoring



Borewell: This water and agriculture related infrastructure spells life for many and death to some. The victims of this seemingly harmless infrastructure are small children, too small to understand their use.

It was in July 2006 when its risks first made an impression on the whole nation's consciousness. Four-year-old Prince from Kurukshetra, Haryana, was trapped in a borewell for 48 hours. With a nation praying fervently for the child's safety, the media broadcast his agony round the clock. Thirteen years from that day, today he is in class 10. That another child did not make it out of a borewell alive last week is testimony to the fact that we have not learnt much from Prince's ordeal.

The country's borewell monitoring system is still lax and our attitude is casual. We don't seem to realise that borewells, left unattended, can kill more children than we think. This is why we lost another child last week. Two-year-old Sujith Wilson from Tamil Nadu died after bravely battling the odds for 80 hours after several agencies strived to save him, but failed.

Dear Sujith, we, as a nation, are sorry. But no amount of floral and verbal tributes can suppress our lack of preparedness in tackling the silent menace. My apologies to you because we lost you despite the Supreme Court (SC) issuing clear instructions on borewell monitoring to all state governments in an order on August 6, 2010. We lost you, despite a letter dated August 21, 2019, from the then water resources ministry and the present Jal Shakti ministry to all chief secretaries of the states, drawing attention towards this menace. We lost you, despite the Central Ground Water Board (CGWB) writing to the states after the apex's

court's directions.

The SC didn't just issue instructions; it was the Writ of Mandamus, which means a command from the highest court to the public authority to do its duty. But they failed to discharge their duties. In spite of the Supreme Court's directive to all state governments, borewells continue to claim lives. This is evidence, if any were needed, that public officials have failed, and, as a country, we have failed in our duties.

In its order, the SC laid down comprehensive instructions, such as notifying the competent authority 15 days before drilling borewells, registering all drilling contractors with the district administration, erecting sign boards near the well site, the construction of a platform around the well, barbed wire around the opening of the borewell, mandatory covering of the tubewell, filling abandoned borewells with sand and boulders, and keeping a record of the status of all borewells in a given area.

Most borewells are constructed for agricultural purposes. The borewell in which Sujith slipped and fell into, and in which he finally died an untimely death, was located on his family's farm land. This means that our farming community has to undertake stringent precautions to avoid such mishaps. In our federal structure, water, land and agriculture all come under the jurisdiction of the states. Therefore, the states have to do their duty, and follow the SC instructions in full. At the Union ministry, our task is limited to drawing their attention to the order laid down by the apex court.

Thirteen years ago, when Prince underwent his ordeal, we turned it into a media spectacle and yet failed in doing the obvious. May Sujith's unfortunate demise jolt our conscience and move us into action. Little Sujith, we are sorry once again, but as a nation, we promise you that your death shall serve as a continuous reminder to us. It shall push us to be more conscientious, and in doing so, we will do justice to you and to your memory.

Gajendra Singh Shekhawat is Union Minister for Jal Shakti
The views expressed are personal

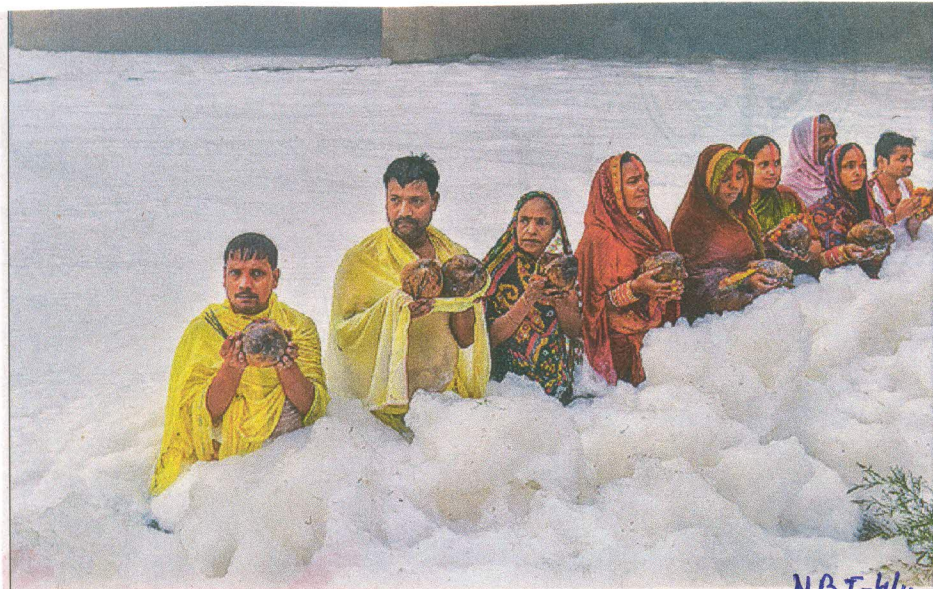
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NBT-4/11

झाग की मोटी परत के बीच यमुना में दिया सूर्य को अर्घ्य

एक्सपर्ट के अनुसार केमिकल की वजह से सर्दियों में बनती है झाग

■ विशेष संवाददाता, नई दिल्ली

वायु प्रदूषण के बीच दिल्ली के लोगों ने यमुना के झाग वाले पानी में छठ पूजा की। एक्सपर्ट के अनुसार यमुना का पानी कई तरह के केमिकल और सीवर के पानी से दूषित हो रही है। ये केमिकल आपस में रिएक्शन करते हैं और झाग बनाते हैं। इस समय यमुना का जलस्तर कम है। ऐसे में झाग की यह मोटी परत यमुना में हर जगह नजर आ रही है। कालिंदी कुंज हो या आईटीओ, या फिर निगम बोधघाट।



यमुना मॉनिटरिंग कमिटी की इसी साल आई एक रिपोर्ट के अनुसार दिल्ली में अब भी 23 नाले यमुना में गिर रहे हैं। हालांकि डीजेबी इनमें से 11 ड्रेन को ट्रेप करने का दावा कर चुकी है। मॉनिटरिंग कमिटी को यह रिपोर्ट दी गई थी, लेकिन मॉनिटरिंग कमिटी की जांच में तीन ड्रेन अब भी सीवेज यमुना में गिरा रही हैं। जबकि चौथी ड्रेन से साफ पानी यमुना में गिर रहा है। इसके अलावा अन्य 6 ड्रेन के खिलाफ डीजेबी ने जो एक्शन लिया, उससे भी यमुना मॉनिटरिंग कमिटी संतुष्ट नहीं थी। इसके अलावा हरियाणा की तरफ से कई तरह के केमिकल वेस्ट यमुना में डाले जा रहे हैं। जबकि वहां लगे कई वॉटर ट्रीटमेंट उपकरण काम ही नहीं कर रहे हैं। एक तथ्य यह है कि दिल्ली में पानी कम होने की वजह से यमुना का प्रवाह कम हो जाता है, ऐसे में यह केमिकल बह नहीं पाते और दिल्ली में यमुना सबसे अधिक प्रदूषित हो जाती है। हालांकि राहत की बात यह है कि इस बार



लोगों ने यमुना के झाग वाले पानी में छठ पूजा की

यमुना में मूर्ति विसर्जन नहीं होने से पिछले साल की तुलना में यमुना कुछ कम प्रदूषित हुई है। लेकिन झाग की एक मोटी परत यमुना में दिख रही है, जो अब भी यमुना में इंडस्ट्रियल वेस्ट के आने का सबूत है। डीपीसीसी की रिपोर्ट में भी दावा किया गया है कि मूर्ति विसर्जन न होने की वजह से इस बार यमुना सितंबर में कम प्रदूषित हुई है।

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नहरबंदी की तैयारी पूरी, 16 से लेंगे बंदी

बीस दिसम्बर तक होने वाली बंदी में सुधारेंगे सरहिंद फीडर की सूरत

हनुमानगढ़ @ पत्रिका. सरहिंद फीडर में मरम्मत कार्य शुरू करने को लेकर 16 नवम्बर से 20 दिसम्बर तक नहरबंदी रहेगी। बंदी के दौरान फीडर की लाइनिंग तथा लाइनिंग के नीचे बेड लेवल में फिल्टर मीडिया लगाने सहित अन्य कार्य करवाए जाएंगे। इसे लेकर पंजाब सरकार ने टेंडर जारी कर दिए हैं। मरम्मत कार्य को नौ पैकेज में पूरा किया जाएगा। इस कार्य पर करीब 80 करोड़ रुपए खर्च होने का अनुमान है। मरम्मत प्रोजेक्ट के तहत सरहिंद फीडर की टेल से अप स्ट्रीम तक करीब बीस किलोमीटर क्षेत्र में लाइनिंग की जाएगी। इसमें आरडी 386 से 447.09 आरडी तक के क्षेत्र को शामिल किया गया है। गौरतलब है कि सरहिंद फीडर और राजस्थान फीडर की मरम्मत को लेकर करीब 1300 करोड़ रुपए का बजट स्वीकृत है।

जल संसाधन विभाग के अधिकारियों के अनुसार सरहिंद फीडर से राजस्थान क्षेत्र की भाखड़ा नहर को पानी मिलता है। इस फीडर की सूरत सुधारने पर भाखड़ा को तय शेयर के अनुसार पानी मिलना संभव

होगा। अभी नहर जगह-जगह से यह क्षतिग्रस्त है। पंजाब और राजस्थान के सीएम की 25 जुलाई 2019 को चंडीगढ़ में हुई बैठक में दोनों प्रदेशों में नहरी तंत्र के सुधार को लेकर काफी चर्चा हुई थी। इसके बाद नहर मरम्मत प्रोजेक्ट को गति मिली है।

11 को होगी बैठक

राजस्थान व पंजाब की नहरों के पुनरोद्धार को लेकर बनाए गए प्रोजेक्ट पर चर्चा करने के लिए 11 नवम्बर को दिल्ली में बैठक होगी। दिल्ली में केंद्रीय जल आयोग के मुख्य कार्यालय में बैठक संभावित है। बताया जा रहा है कि इसमें एनडीबी के प्रतिनिधि भी शामिल होंगे। इस बैठक में नहर मरम्मत के प्रोजेक्ट को लेकर स्थिति साफ होने के आसार हैं।

देख चुके व्यवस्था

केंद्रीय जल आयोग के सदस्यों ने मरम्मत प्रोजेक्ट को लेकर गत दिनों पंजाब का दौरा किया था। इस दौरान सरहिंद फीडर पर मरम्मत की चल रही तैयारियों का जायजा आयोग की टीम ले चुकी है। बताया जा रहा है कि सरहिंद फीडर की पैटर्न पर ही आगे इंदिरा गांधी नहर की लाइनिंग और बेड लेवल सुधारने का काम होगा।

R. P. = 4/11

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Panchayats to fix fee for piped water supply to homes

Dipak.Dash@timesgroup.com

New Delhi: Panchayats will have full freedom to decide monthly user fee for each household under the Jal Jeevan Mission (tap water connection) scheme and it will decide who all could be exempted from paying the charges.

Union drinking water secretary Parameswaran Iyer told **TOI** that the ministry will soon issue guidelines for operation of the scheme under which villagers will have to pay for 10% of the cost of in-village distribution system and this can be in cash or kind (labour). "Our guidelines will provide a lot of flexibility. The thumb rule of one-tenth of the capital expenditure for in-village distribution system coming from villagers is to give them a sense of ownership and accountability to people," he said.

Iyer said managing piped water supply should be done at the lowest appropriate level. If there is adequate quality and quantity of water available in a village, it should be a local scheme. But if the water has to be drawn from a distance, then it will be a multi-village scheme

with higher level structures to manage the system.

Sources said since the government wants to replicate the models adopted for Swachh Bharat Mission to make tap water connection a people's movement, it plans to give a lot of power and responsibility to locals to manage their own affairs. Currently, the household tap water coverage is around 19% and the government has set a

FULL AUTONOMY

target to achieve 100% connection by 2024. Officials said the role of community becomes all the more important in this scheme considering that in nearly 70% cases groundwater will be the source of drinking water.

"Conservation and recharge will be the key. And the third focus area will be more use of recycled grey water. Nearly 70-75% tap water becomes grey water and the focus will be to reuse them after minimum treatment at local level. You can have soak pits or waste stabilisation ponds. NGO will be used for helping communities to run the scheme," Iyer said.

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INTERVIEW WITH DUTCH SPECIAL ENVOY TO THE UN FOR WATER AFFAIRS

'Water can really be a leverage mechanism to help build sustainability & development'

INDIA AND the Netherlands share a similar mindset when it comes to tackling the complexities of water treatment and conservation, says HENK OVINK, Dutch Special Envoy to the United Nations for International Water Affairs. In an interview with PRABHA RAGHAVAN, Ovink says how he sees bilateral collaboration on water progressing and how learnings from the 'Water as Leverage' project in Chennai could be scaled up. Edited excerpts:



Henk Ovink. Cynthia van Elk

How important is water in the overall bilateral collaboration between India and the Netherlands? How has that affected the targets that the two countries have set?

Too much water or too little water hits our economy. The Netherlands is (also) a country where water always is and has been part of the way we develop... Our water authorities are almost 1,000 years old, so we have a water democracy.

Water is one of our biggest challenges in the context of Sustainable Development Goals. Water can really be a leverage mechanism to help build sustainability, development and resiliency.

For this reason, we looked at what to target and with climate change and urbanisation only becoming more extreme, we said let's look across the water agenda — not only at water quality or waste-water treatment, (but also) water provision and how we treat our natural resources like the aquifer (an underground layer of water-bearing permeable rock, rock fractures or unconsolidated materials like gravel, sand, or silt). (We also wanted to) look at agriculture... (as well as) our cities... you can't focus on one (aspect).

That makes the story always a little more complex, but this is what I think the countries of India and the Netherlands share. We're not afraid of that complexity.

What progress have you seen in the targets you have set? Are there any roadblocks you have been faced with?

The focus was on different aspects of treating polluted water, looking at your rivers, solid and waste-water management, looking at resiliency — both on

your coasts as well as in your cities — (and) looking at water supply. We also have developed, in the past year, a programme looking at resilient cities — the capacity of your cities in the context of dealing with climate change. So, there are numerous aspects

It would be very easy to say, let's do 200 cities or 10 river basins as targets and then measure progress. But, as we started, we said, 'Let's turn it around. Let's first start with the opportunities that are there.' Those opportunities were either identified through business-to-business, knowledge-to-knowledge, or a combination of business and knowledge, as well as with the government.

One project is on the Ganges—the cleaning part of that (Namami Gange).

I think the first phase was really more of finding the opportunity so we can build a solid base for our Indian-Netherlands water collaboration... Now we have 12 opportunities.

I don't think we set clear targets yet on the water technology... When I set up 'Water as Leverage', it came out of a bigger research of water, climate and urban vulnerability in South and Southeast Asia. We identified 30-plus hotspots where the needs were biggest (and) also the opportunities... we identified in Chennai a dozen opportunities, and we're building the cases around them.

The Ministry of Jal Shakti asked us, based on the first results, how to scale that up, and we are now working with them and have developed a proposal to scale this up for (more) cities in India.

What technologies from

your projects so far have the potential to be scaled up for other parts of the country?

One is the technology on waste-water treatment. I think the Netherlands and India share the same fascination and culture on innovation. That is also why a lot of the water technology companies that work in the Netherlands find a solid ground here in India.

(On) waste-water treatment, solid waste treatment, a more circular approach to waste, not seeing it as a leftover, but as an asset for production. There are a lot of technology that resonate with these challenges.

You could say the Dutch approach is not only to look at how you can fix (the problem). If you don't go to the source, the problem will only grow. At the same time, if you only look at the source, you'll never clean up your rivers. So you have to look at both— it's source mitigation as well as impact adaptation and mitigation.

This is not only Dutch technology, although we bring a lot of capacity. If we look at the past in Chennai, water was treated naturally. Water was treated as a holy resource and, then, in the middle of the temple tanks, the water again, went back into the aquifer. So it was a very natural system... with nature-based solutions... capturing the water in neighborhoods, in the streets, but also in the tanks, storing that water, using those water tanks as overflow capacity when huge rain events happen, bringing it back into the aquifer, you can start to clean the aquifer, recharge it and then again use it as a natural resource. But the situation will be different everywhere, so a more tailored approach is needed.

Harvesting the water on green roofs mitigates also the risks of heat islands so extreme heat is more easy to deal with. Those solutions help you treat the water, help you treat the waste, turn waste water and waste treatment into a business case and an opportunity for a public private institute to deal with water.

But the situation will be different everywhere, so a more tailored approach is needed. A city like Chennai is not the same as Kochi or Mumbai or Delhi or smaller cities.

Every city... demands a systems analysis.

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Chhath devotees violate NGT directive

People in Kolkata broke through the gates of landmark lake to perform rituals

SPECIAL CORRESPONDENT
KOLKATA

In what can be interpreted as a major violation of law, thousands of devotees broke open the gates to Kolkata's key water body, the Rabindra Sarobar Lake, and performed Chhath Puja.

Under pressure, the police opened the main gate to let them in.

The National Green Tribunal (NGT) has stated that the Puja cannot be performed inside the Rabindra Sarobar because it pollutes the water body.

While the Bharatiya Janata Party leaders blamed the State government for failing to restrict the devotees, Trinamool Congress secretary general Partha Chatterjee said he cannot comment.

Earlier this year the NGT had instructed the Chief Secretary to initiate proper



Under pressure: The NGT had stated that the puja cannot be performed in the Rabindra Sarobar lake. ■ SUBHAM DATTA

measures to prevent violation of its order. A committee was formed and over a dozen other smaller water bodies were identified to perform Chhath Puja.

Despite all the 18 gates of the nearly 200-acre-large lake being manned by private security agencies and few personnel of the Kolkata Police, the devotees broke the locks of at least two gates

and entered the area. The organisers of the puja and devotees had severe altercations with the officials of Kolkata police.

'Lack of arrangements'
"The police knew that this is going to happen as thousands gather at the lake every year to perform Chhath Puja. But they posted only a few dozen personnel to

guard a massive area and naturally they could not stop the devotees when they started coming in thousands," an environmental activist said.

The activist questioned why the custodian of the lake, the Kolkata Municipal Development Authority, did not make "prior arrangement for additional forces."

Environmental concern
Eminent scientist Bikash Sinha condemned the incident.

"When climate change and pollution are becoming big issues everywhere, including Delhi and in China's cities, the NGT's guidelines were publicly violated in Kolkata and nobody did anything. Whether it is Durga Puja or Chhath, such extreme approach to celebrate festivals is unfortunate," he said.

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Pioneer, Delhi

Maha sanctions ₹10,000 crore immediate aid for rain-hit farmers

PTI ■ MUMBAI

The Maharashtra Government on Saturday approved ₹10,000 crore as a special provision to provide immediate assistance to farmers affected by unseasonal rain.

The decision was taken by Chief Minister Devendra Fadnavis at the meeting of a Cabinet sub-committee held at his official residence to discuss the losses. As per initial evaluation, crops on 54.22 lakh hectares spread across 325

talukas in at least half dozen districts have been damaged. The damaged crops include jawar, paddy, cotton and soyabean.

Ministers of the BJP and allies Chandrakant Patil, Girish Mahajan, Subhash Deshmukh, Anil Bonde, Sadabhau Khot, Suresh Khade, Mahadev Jankar were present at the meeting.

Vijay Shitware, the Minister of State for Water Resources and Water Conservation, was the only representative from the Shiv Sena who attended the meet.

In cyclone-prone Odisha dist, women learn to save themselves, others

SAMPAD PATNAIK
CHATTRAPUR, NOVEMBER 2

LET'S ASSUME there is a cyclone, and you later see a man lying on the ground with a fractured leg. How do you move him?" asks trainer Bijay Kumar. Some among the group of women, who sit on chairs facing Kumar, attempt a few answers. "Do not pull him by his legs or arms. I will show you how to make a stretcher and how you can roll him on to it. It's easy... the stretcher can be made using

household items," he continues. Battered by three cyclones in five years — Phailin in 2013, Hudhud in 2014 and Titli in 2018 — south coastal Odisha's Ganjam district is taking the next step in disaster management through Swayamsiddha, a scheme that aims to impart rural women with life-saving skills and information in the event of a natural calamity.

Kumar, a member of the Odisha Disaster Rapid Action Force (ODRAF), is training a batch of 50 women—all of them dressed in Swayamsiddha's spe-

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cial uniform, green coats and caps — who have assembled at the Old Collectorate Building at Chattrapur block in Ganjam. As part of the training session, which roughly coincides with the 20th anniversary of the 1999

Super Cyclone that killed nearly 10,000 people in the state, women are given interactive and intensive training by local ODRAF members, police and the fire and health departments.

"Swayamsiddha means self-sufficiency", says Ganjam Collector Vijay Amrut Kulange, who designed the initiative with other officers of the district administration. "We will be training 5,000 women across 23 blocks in the district. In this district that's vulnerable to disasters, we will try to turn rural women from the rescued to the



At a training programme in Chattrapur, Odisha. Express

rescuers."

The training programme is also focusing on "persuasive evacuation". During the evacuation in Ganjam ahead of May's cyclonic storm Fani, a photograph of Berhampur SP Pinak Mishra had gone viral, in which he was seen persuading people with folded hands to leave their homes. But many had stayed back, claiming they were more worried about possible break-ins if they abandoned their homes than the storm itself.

"Police and district administration had a tough time evacu-

ating people, especially pregnant and older women. There were other problems too — in some cases, women were uncomfortable being carried by men," says Bharati Behera, another district official. "We are training women to evacuate women because as members of the community, they can be more persuasive."

Behera says the training will also focus on how the disabled, the elderly and pregnant women are to be carried. Trainer Bijay calls on two women trainees to carry another from the group — "slide each of her arms around

each of your necks, keep one hand each on her lower waist..." he tells the women.

Officials in the district administration say the programme, which has trained two batches so far, is so popular that not a single woman misses the session. Women attending the training are provided with lunch and take back a colourful 35-page booklet with information printed in Odia.

While the programme has received funds from the Odisha Livelihood Mission, Odisha State

CONTINUED ON PAGE 2

Odisha: Women learn to save themselves, others

Disaster Management Authority and Mission Shakti, ODRAF has decided to impart the training for free. "It is an honour for us to do this. The women look up to us. Anyway, we are free when there is no disaster to battle," says Kumar.

As part of the training exercise, the women are also taught how to start a generator, operate an electric chain saw to cut trees, and use household items such as an old scooter tyre tube to stay afloat. "If trained correctly, people need not depend on the government for everything in the aftermath of a natural calamity," says Kulange.

Through Swayamsiddha, the district health and fire department units are also training women to manage other everyday dangers: dog bites, snakebites, and extinguishing kitchen fires at home. Police are also training women in basic self-defence skills.

"This training has changed our world," says Bobby Behera

at the Old Collectorate Building in Chattrapur. "We can help ourselves and our families rather than weeping when the storms and floods hit us."

According to the state government, around 11 lakh people were evacuated from around eight coastal districts ahead of Fani, which ravaged the coast, especially Puri, in May. According to a government-endorsed report, 64 people died during and immediately after. In Cyclone Titli, the death toll was around 60, while lakhs of people were affected in Gajapati and Ganjam districts. The death toll in Phailin's was around 40. While Hudhud did not claim many lives, it destroyed property in Ganjam and Gajapati.

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Tackling pollution to provide clean drinking water for all

SOLUTION Experts are trying to develop new, innovative techniques to treat water contaminated with arsenic and fluoride

Rhythma Kaul

✉ letters@hindustantimes.com

Not just air, water pollution is also a major concern with most water bodies being used as dumping sites for industrial waste, untreated sewage and even solid waste matter, making water largely unfit for drinking and a health hazard.

Several studies have shown how water pollution remains a global challenge, especially chemical contamination.

A World Bank report, *Quality Unknown: The Invisible Water Crisis*, released in August this year, using a vast database on water quality, showed it would be nearly impossible to meet the global targets set to save the deteriorating environment by 2030. Failure to meet the targets will eventually have an impact on the overall health, economy, education, and so on, of all countries.

The 193 United Nations (UN) member-states agreed on September 25, 2015 to a 15-year target of 17 sustainable development Goals (SDGs), with 169 targets aimed at helping everyone live healthier, more prosperous lives on a cleaner planet.

SDG 6 refers to clean water and sanitation for all, but the UN World Water Development Report found about three out of 10 people - 2.1 billion - did not have access to safely managed drinking water at home in 2015. India was no different, with many parts of the country reporting water contamination due to arsenic, mercury, cadmium and fluoride, among others.

Arsenic contamination, espe-

cially is huge, and was first reported in 1983 from West Bengal. Since then, it has affected at least six other Indian states -- Jharkhand, Bihar and Uttar Pradesh, in the floodplains of the Ganga river; Assam and Manipur in the floodplains of the Brahmaputra and Imphal rivers and Rajnandgaon village in Chhattisgarh, according to the abstract, *Groundwater Arsenic Contamination in India: Vulnerability and Scope for Remedy*, prepared by experts from the National Institute of Hydrology, Roorkee.

Some experts say it is a problem in the floodplains of all rivers originating from the Himalayas and the Barail range in the northeast.

Arsenic poisoning leads to symptoms such as skin diseases, liver toxicity, heart ailments, destruction of red blood cells, and even cancer.

TACKLING WATER CONTAMINATION

Efforts have been made by various agencies and individual experts in devising ways to ensure safe water supply to the affected population.

Robin Dutta, a professor in the chemical sciences department at Tezpur University in Assam, has been working on a technique to remove arsenic and fluoride from water since 2005, and after five years of work, finally the technique became functional in 2010 and first tested in Assam's Jorhat city, one of the severely affected areas in the state.

The technique was patented in 2017.

"While most other contaminants such as lead, mercury etc. are a man-made problem, arsenic and fluoride contamina-



People stand in queues to fill vessels with drinking water in Chennai, which suffered from an acute water shortage caused by drying lakes and depleted groundwater, on June 19, 2019.

AP FILE

tion is due to natural causes and affects vast areas and larger populations. We developed two methods for removal of arsenic and fluoride that are easy to make and very cheap, which makes it useful at the grassroots level," says Dutta.

The techniques have been named Arsiron Nilogon (for removal of arsenic) and Fluoride Nilogon (for fluoride removal).

"Arsiron Nilogon is a technique wherein we create a condition that's similar to underground water that doesn't have arsenic by making use of catalysts such as cooking soda, potassium permanganate and ferric (iron) chloride. These are all commonly available chemicals. As a result of the chemical process that takes place by mixing these compounds together, arsenic settles on coagulated ferric chloride and can be removed through filtration technique," says Dutta.

The basic idea behind the technique was to convert a difficult-to-remove form of arsenic to an easy-to-remove form. The cost of using the technique is as

low as 1 paisa for filtering one litre of water.

The Fluoride Nilogon technique involved treating water with crushed limestone that absorbs fluoride and phosphoric acid. The contaminant in this case can also be filtered out. The cost is even lower than the arsenic removal technique at 0.4 paisa to filter a litre of water.

With support from the department of science and technology for his project, Dutta is already working on expanding the technique to other states such as Bihar and Uttar Pradesh that are also grappling with water contamination.

Dr Kuttanellore Muraleedharan, director of the Council of Scientific and Industrial Research (CSIR)-Central Glass & Ceramic Research Institute (CGCRI), has also worked on filtration techniques that help remove hazardous contaminants from water.

"Be it arsenic, iron or other elements dissolved in water, our ceramic membrane technology is capable of purifying it with good results," he says.

CGCRI experts developed the technology over a decade ago but it picked up only about 5-6 years ago. A filtration plant can be installed at the community level to filter water for as low as 20 paise per litre.

"It can purify everything else apart from the saline contamination for which reverse osmosis (RO) technique is good enough. There have to be slight modifications done before installation based on the type of contaminant in water. The device can stay active for 6-7 years," said Dr Swachchha Majumdar, a researcher at the CGCRI lab who is also part of the team that developed the technology.

The institute has tied up with a manufacturer and takes orders for installation of the plant at its laboratory. "It is our indigenous product and our laboratory takes the orders," he added.

Dr Muraleedharan says, "There is a huge need to come up with innovative techniques for water purification that are affordable for masses at the ground level as water contamination is a major issue in India."



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CENTRE NOD FOR ASI PROJECT

India continues search for Saraswati river

Amrita Madhukalya

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NEWDELHI: For the fourth year in a row, India will look for the fabled Saraswati River, which many believe flows underground and meets the Ganga and Yamuna at Prayagraj.

It has approved a project of the Chandigarh circle of the Archeological Survey of India (ASI) to search for the river along a stretch from Kaithal to Sirsa in Haryana.

According to an internal note of ASI, which has been seen by HT, the site lies "along the dried-up bed of the river Saraswati up to a distance of 5km on both sides of river from District Kaithal to District Sirsa" till the Haryana-Rajasthan border. The project is one of the nine projects of the ASI that the standing committee of the Central Advisory

Board of Archeology (CABA) has approved for the 2019-20 season.

An officer of the Chandigarh circle said on condition of anonymity that the exploration is part of the circle's mandate and will be carried out along its routine activities. "We have explored from Banawali to the Adibadri regions in previous field season periods. We are looking at going downstream this season."

Another excavation project, in Kalibangan in Rajasthan's Hanumangarh district will continue to look for traces of the river. Kalibangan has been excavated earlier.

Every year, the standing committee of CABA decides which exploration or excavation projects will be carried out. The list of nine projects is of those which will be carried out by various offices of ASI.

BR Mani, former director gen-

eral of the National Museum, and a member of the standing committee of CABA, said that all the evidence that the Centre has gathered till now suggests that the Saraswati sites far outnumber the Indus sites. "The Indus Valley civilisation should be renamed Saraswati Valley civilisation because of the 3,000 sites along the area, only 1,200 have been found to be along the Indus. The rest are on the Saraswati river," said Mani.

As DG of the National Museum, Mani spearheaded a year-long excavation along the river bed in Haryana's Fatehabad. "Our findings were of potteries, which were proven to belong to as far back as 6000 BC," said Mani. The ASI first started looking for the river in 2003 under the Vajpayee government.

In the last five years, excavations and explorations have been

carried out at Kunal in Haryana's Fatehabad district, Lohari Ragho and Masudpur in Haryana's Hisar, on the Chautang basin (considered a tributary of the Saraswati) in Haryana, Kalibangan in Rajasthan's Hanumangarh district as well as Binjore in Rajasthan's Ganganagar.

However, noted historian DN Jha said that the government is chasing a myth. "In four years, the findings have been inconclusive. And the efforts go against what the scriptures say," said Jha.

References in the scriptures to the river state that the river flows from Haryana to Allahabad in UP underneath the ground. "The scriptures say the river joins the Ganga and the Yamuna at Triveni Sangam and ends in the Indian Ocean. But these findings would land the river in Arabian Sea instead," he said.

Groundwater extraction: NGT seeks action

TIMES NEWS NETWORK

New Delhi: National Green Tribunal on Friday directed Delhi Jal Board and Delhi Pollution Control Committee to submit a report on a plea alleging illegal extraction of groundwater in north Delhi.

A bench headed by NGT chairperson Justice Adarsh Kumar Goel said depletion of

groundwater is a serious concern and authorities should seriously look into the issue.

"Let DJB and DPCC look into the matter and take appropriate action in accordance with law and furnish a factual and action taken report to this tribunal within one month," the bench said.

DPCC will be the nodal agency for coordination and

compliance, it said.

The tribunal was hearing a plea filed by city resident Pramod Kumar Jha seeking action against illegal extraction of groundwater for sale through tankers in village Jagatpur near Yamuna Biodiversity Park.

The petitioner also alleged that charcoal drums were being burnt in open, causing air pollution.

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After drought, Marathwada's farmers hit by untimely rain

KAVITHA IYER & PARTHA SARATHI BISWAS
MUMBAI, PUNE, NOVEMBER 1

EXACTLY A year since the Maharashtra government declared an early drought in 151 talukas after a poor monsoon, torrential rain over nearly two weeks before Diwali has damaged standing crop on 54.22 lakh hectares of farmland across the state. Almost the entire state is affected, with officials in 325 talukas now receiving urgent requests to assess the crop damage so as to announce relief measures.

Marathwada's eight districts, which bore the brunt of acute water scarcity through the first seven months of 2019, are now worst affected by the latest floods, with lakhs of acres of standing crop, including soyabean, cotton and bajra, washed out.

"There is nobody in our village and nearby areas who is not affected. Every single farmer has suffered damage and complete destruction on one or two acres of land," said Shrikant Gadale, a farmer in Beed's Kaij taluka, where moisture stress in August had already led farmers to anticipate only about 50 per cent of average yield for their soyabean and cotton. "Now that too has been destroyed," said Gadale, a resident of Dahiphal Vadamauli village.

Gadale on Thursday wrote an application to the Maharashtra governor seeking to be ap-



Rain over nearly two weeks before Diwali damaged standing crop on 54.22 lakh hectares across the state. File

pointed chief minister until the BJP and Shiv Sena resolve their differences — a letter that went viral. "It's not to be seen as comedy. It is a serious problem. The Sena and BJP have been voted to power. When farmers are in such a delicate condition, they should form the government expeditiously to give us relief," Gadale told The Indian Express. His 2 acres of land witnessed destruction of soyabean and bajra.

In Georai taluka's Chaklamba, where farmers went on relay hunger strike multiple times this year to seek a sub-canal from Jayakwadi, farm animals were in fodder camps, a drought relief measure by the state, for five to six months until early September. "My well stayed dry through the first half of the monsoon; we had tankers supplying

water even in August. Now our fields are flooded," said Satish Patil of Chaklamba.

In Latur, resident deputy collector Anant Gavhane said official panchnamas to assess damage have been slow due to the continuing rain, expected to last till mid-November. "Approximately 1,97,857 hectares of crop in 10 talukas of Latur are damaged, but the number may vary once assessment is complete," he said.

Soyabean, an important cash crop that has become very popular among farmers, suffered extensive damage across the region. Soyabean (18.69 lakh hectare), cotton (19.73 lakh hectare), tur (1.18 lakh hectare), maize (4.89 lakh hectare) are the main affected crops. State government officials estimate that total losses could be more than

Rs 5,000 crore.

In Jalna's Math Pimpalgaon village, Babasaheb Jige said he was preparing to harvest his soyabean when the rains began in mid-October. "It rained for 12 days without a stop, losses are tremendous," he said. In Nanded's Ardhapur, scores of farmers have been lining up outside the taluka's agriculture department office, hoping to get assistance in filling crop insurance claims.

After a delayed start, the southwest monsoon this year picked up pace in July. In Marathwada, with districts such as Beed and Jalna suffering a rain deficit until well into August, thousands of farmers delayed sowing. Sowing picked up later, with some regions receiving just enough rain for crops like soyabean, cotton and tur. Barring a dip in sowing of pulses like urad and moong, which are usually sown early in the season, acreage of other crops reported growth.

The cyclonic disturbances in the Arabian Sea and revival of the monsoon as it withdrew led to rain towards the end of October. Between June to November 1, Maharashtra reported an average of 1,353.11 mm rain as against the normal 1,199.4 mm. The eight districts of Marathwada have reported the maximum crop damage — 22.71 lakh hectare across 6,943 villages. Districts in North Maharashtra and Vidarbha have reported damage on 16.69 lakh hectare and 12.47 lakh hectare, respectively.

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and documented at WSE Dte, CWC.

Rain drowns hopes of Kuttanad farmers

Region is facing loss in the second crop season for the second year in a row

SAM PAUL A.
ALAPPUZHA

The last *puncha* season had delivered a bumper crop to the paddy farmers of Kuttanad. This time, hundreds of farmers who cultivated paddy in the second crop season are staring at huge losses as large tracts of fields with harvest-ready crops remain submerged after incessant rain.

Paddy was cultivated in 10,470 hectares in the additional crop season. Of this, crop in 1,051 ha was destroyed in August following a series of bund breaches. Paddy in another 2,172 ha was washed away in the same period. According to farmers and Agriculture Department officials, the majority of fields that survived the August flood are in no shape to yield harvest after



Big blow: Crops lying flattened in a submerged field in Kerala's Kuttanad district on Friday. ■ SPECIAL CORRESPONDENT

being submerged for several days in the last couple of weeks.

Kuttanad is facing a crop loss in the second crop season for the second year in a row. Last year, back-to-back floods had destroyed the additional crop in its entirety.

Renil Kumar K.K. is

among 152 small farmers to have cultivated paddy in the 200-acre Vavakkad North padashekharam in Kainakary. He says that the rain and a rise in water level have almost destroyed the fully grown crop.

"The harvest of the second crop had begun recent-

ly. Our paddy fields are set to go under the harvester on November 6. But with crops flattened and submerged, there is little hope left. It is also not possible to deploy combined harvester in the present conditions. An amount of around ₹30,000 was spent per acre and the farmers are set to suffer huge losses," said Mr. Kumar, also the secretary of the Padashekharam.

'Loss at ₹107 crore'

Susan Varghese, Deputy Director of Agriculture, told *The Hindu* that the crop loss in Kuttanad was estimated at ₹107 crore. "As on Friday evening, crop in around 7,000 ha remains submerged. We are doing our best to de-water the fields," Ms. Varghese said.

Stand on Polavaram upheld: A.P. Minister

'Work on the project restarted on November 1 as announced by the CM'

SPECIAL CORRESPONDENT
VIJAYAWADA

Andhra Pradesh Minister for Water Resources P. Anil Kumar said the government started the Polavaram project works on Friday with 'bhoomi puja' as announced by Chief Minister Y.S. Jagan Mohan Reddy.

Addressing the media here, Mr. Kumar expressed happiness over the High Court vacating the stay given by a lower court on the project works.

"The government is taking up all the projects in right earnest and with a positive approach. The new agency, Megha Engineering and Infrastructures Limited (MEIL), will execute the works as per schedule," he said.

The High Court's verdict



Re-launching work: MEIL executives performing 'bhoomi puja' at the Polavaram project site on Friday.

was a vindication of the government's stand, he said, and dismissed the aspersions cast by the Opposition on the project as politically motivated.

He said the project would be completed in the stipulated time. All irrigation projects would be taken up with the same vigour, he said, and added that the projects launched by former Chief

Minister Y.S. Rajasekhara Reddy would be also completed.

The TDP government had only boasted of completing the Polavaram project. It had done nothing between 2014 and 2017. The spillway was constructed in the last two years, he said.

The Minister said that 86% of the dams in the State were filled to the brim, thanks to

copious rains in the last three months. The government would take the best available options for completing all the pending projects, he added.

Puja performed

Executives of MEIL performed 'bhoomi puja' for the Polavaram project at the 18th block of the spillway under construction in Polavaram mandal in West Godavari district on Friday. Mr. Reddy had announced on several occasions that the work would be re-launched on November 1.

MEIL DGM A. Venkata Satish, talking to the media after the ceremony, said that work would be executed in the fast-track mode as all the legal and administrative hurdles had been cleared.



SRINIVAS CHOKKAKULA

Call of the river

DE-2

Bill for speedy resolution of water disputes should factor in recent SC verdicts

THE LOK Sabha passed the long awaited amendment to the Interstate River Water Disputes Act 1956 in July. The Bill, yet to be discussed in the Rajya Sabha, proposes a permanent tribunal and several other measures to improve the settlement of interstate river water disputes. It has elements that convey the government's seriousness to look for out of the box solutions. Even then, the proposed piece of legislation makes one wonder if it has enough to fix the longstanding problem.

Policy making is an incremental process. That is particularly so in case of a matter as complex as interstate river water disputes — as enigmatic as the rivers themselves. The American poet Henry Longfellow's tribute to the River Charles captures this, "Half in rest, and half in strife".

The Interstate River Water Disputes Amendment Bill 2019 is a modified version of a piece of legislation that was placed in Parliament in 2017. It was referred to a Standing Committee. Put simply, the bill has three new elements — one, a permanent tribunal with exclusive benches for each dispute instead of separate tribunals in the principal act; two, a Disputes Resolution Committee (DRC) to attempt an ex-ante resolution through mediated negotiations, instead of the Centre's mediation; and three, a provision for appointing a technical agency for a data bank to support dispute resolution. The details of the first two elements have gone through extensive modifications in the Bill.

The rationale of a permanent tribunal mechanism is to reduce the delays in resolving interstate river disputes. It may now take six and a half years at most for the tribunal to arrive at a decision on an interstate river-water dispute. A permanent tribunal could also save costs compared to long-running individual tribunals. It is an opportunity to build a corpus of knowledge on particular approaches to interstate river water disputes resolution in India — and potentially transboundary river water governance in South Asia.

The Bill goes into much detail over the functioning of DRC. It has been given a year and a half to accomplish its task. Its role has been elevated from that of a perfunctory "techno-legal" body to an agency with a proactive role. An officer of secretary rank will head the DRC and the body will have senior officers from the states that are party to a river water dispute, as members. However, there are two concerns: First, is the DRC adequately empowered? We may recall the experience of the Cauvery Supervisory Committee (CSC) which had a similar composition. It did not have much success. Secondly, the DRC aims at a politically negotiated settlement, for river water disputes are deeply political at their core. Its raison d'être is to avoid legal adjudication, not to supplement it. Can the DRC — as conceived now — meet this expectation?

Further, the devil is in the detail. Will the DRC function as part of the Permanent Tribunal or will it work separately? Each dispute

will need to have a separate DRC. How will their processes be streamlined? How can we make sure that the DRC process is neutral and they ensure meaningful participation by states that are party to a river water dispute? Will it help to locate the agency under the Interstate Council — as Feroze Varun Gandhi suggested in the Lok Sabha debate?

The need for a credible databank has been long-felt. So, the ambiguity in the Bill about the agency performing this function is puzzling. Identifying the institution under this new piece of legislation may give it the necessary heft to engage with states.

The bill has at least three blind spots. One, it is oblivious to the recent landmark decisions of the Supreme Court. A December 2016 ruling effectively established the Court's jurisdiction over interstate river water disputes. The party states can now appeal against the decisions of the tribunal. The Court followed it up with another order in February 2018 where it modified the allocations of the Cauvery Water Disputes Tribunal Final award of 2007. The bill does not address the implications of these decisions. The bill has to resolve this conundrum first. In simple terms, the Supreme Court says it has jurisdiction over interstate river water disputes while the legislature says it doesn't.

The Supreme Court may have to deal with this contradiction next time a dispute escalates and is brought before it. The politicised nature of river water disputes makes the chances of such an escalation rife.

Two, the challenges around implementing the tribunal/Supreme Court's decisions persist. The power to create the mechanism remains with Parliament, as provided by the principal act. The last instance of creating a mechanism was under the Supreme Court's orders when the Centre created the Cauvery Water Management Authority. Will that be the model to replicate, and will such a model work?

Three, one cannot miss the inclusion of a committee to select the tribunal judges. The committee comprises the prime minister or a nominee as the Chairperson, the Minister of Law and Justice, the Minister of Jal Shakti and the Chief Justice of the Supreme Court. There may be good reasons for this, but the likely consequences do not bode well for effective resolution. States often thrive on politicising disputes. This composition will now risk states politicising not just the disputes, but their adjudication by the tribunal. This creates a situation where the dispute could escalate to the Supreme Court. Is the Court ready to do the permanent finisher's job?

Longfellow's tribute continues: *Half in rest, and half in strife/ I have seen thy waters stealing/ Onward, like the stream of life/ Thou hast taught me, Silent River! Many a lesson, deep and long/ Thou hast been a generous giver/ I can give thee but a song.*

The writer is Ministry of Water Resources, River Development and Ganga Rejuvenation Professorial Chair in Water Conflicts and Governance, Centre for Policy Research, Delhi