Central Water Commission
WSE Dte.,
****

West Block II, Wing No-4
R. K. Puram, New Delhi – 66.

Dated 06.05.2019

Subject: Submission of News Clippings.

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.

6/5/2019
Senior Artist
WSE, Dte.,

Encl: As stated above.

O/C

Deputy Director, WSE Dte. 06/05/2019

Director, WSE Dte. 06/05/2019

For information to

Chairman CWC, New Delhi

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

News item/letter/article/editorial Published on 6.05.2019 in the

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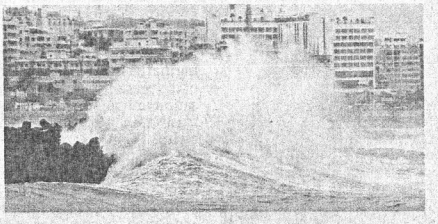
How IMD till its end tracked cyclone *Fani*

IMD & other institutes of Ministry of Earth Sciences ran data through 10 specialised weather models in which its ADG played crucial role

PRESS TRUST OF INDIA
NEW DELHI, 5 MAY



Thirteen days before cyclone 'Fani' hit the Odisha coast, the IMD had an indication that the low pressure in the Bay of Bengal and the Equatorial Indian Ocean could balloon into a massive storm and started preparing for the onslaught, the weatherman said.

On 21 April, based on data from various sources, the India Meteorological Department (IMD) forecast that conditions were conducive for formation of a low-pressure area in the Equatorial Indian Ocean and south Bay of Bengal. A low-pressure area is the initial stage of the formation of a cyclone.

Armed with data from different institutes of the Ministry of Earth Sciences (MoES), the meteorologists deliberated on how low pressure could pan out to be.

The IMD and other institutes of the Ministry of Earth Sciences ran data through 10 specialised weather models.

"We realised all the models suggested that it was going to turn into a cyclone. So, from 25 April we started issuing special bulletins," IMD's Additional Director General (services) Mrityunjay Mohapatra said. Mohapatra, a veteran in tracking cyclones, played a critical role in tracking Fani's progress and accurately predicting its path.

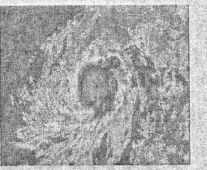
Elaborating on the formation stage of cyclone 'Fani', he said help from other institutes of the MoES played a crucial role in predicting the development of the cyclone.

The National Institute of Ocean Technology (NIOT), Chennai has over 20 buoys in the Bay of Bengal and the Arabian Sea that collected data on rainfall, temperatures below the sea and above, wind speed, Mohaptara said.

Different satellites provided data and images on clouds in oceanic area for monitoring low pressure systems, said IMD's Director General K J Ramesh.

Fani damages several houses in Meghalaya

PRESS TRUST OF INDIA
SHILLONG, 5 MAY



One person was injured and a number of houses were damaged in Meghalaya's East Khasi Hills and South West Khasi Hills districts by cyclone 'Fani' when it was passing through the area, officials said on Sunday.

"One person was injured in the incident in East Khasi Hills district and damages reported to public roads and government buildings. As many as 21 villages were also affected when the cyclone passed through the state in the past 24 hours," State Disaster Management Authority, executive director, I Mawlong said.

She said a number of houses were also damaged in the two districts.

A few landslides were also reported in East Jaintia Hills and in the state capital but there was no report of any fatal injuries, a senior Home department official said.

Heavy rainfall in all part of the state has also rendered the operations to rescue the 14 miners trapped inside a 370 foot-deep coal mine to be stalled for the past 4 days.

"The entire lowland area leading up to the ill-fated coal mine were flooded and rescuers were not able to reach the site," operation spokesperson R Susngi said.

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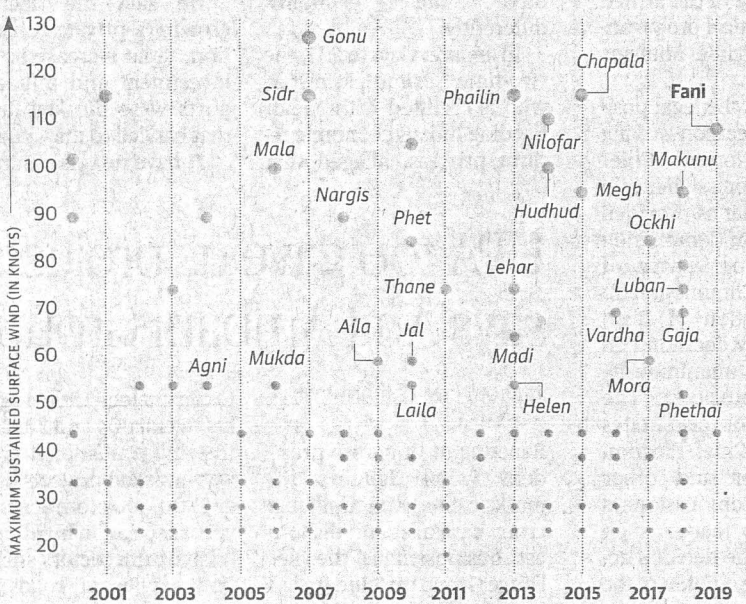
DATA POINT

Fani, an unusual storm

Fani, one of the biggest storms in years to make landfall in India, is a unique cyclone for two reasons. One, April is an unusual month for a cyclone (only 3% of cyclones have occured in this month since 1891 in India). And two, only once before (in 1966) did a super cyclone form over the Bay of Bengal in April and make landfall in India. By **Vignesh Radhakrishnan**

Speeding list

Fani's maximum speed of 108 knots makes it the seventh fastest cyclone to have occurred in the North Indian Ocean since 2000. The chart plots all the 178 depressions (D*)/cyclonic storms (CS)/severe cyclonic storms (SCS) that have been recorded since 2000. The higher-up a storm in the chart, the higher the Maximum Sustained Surface Wind (in knots). Storm Gonu was the strongest (127 knots). It originated in the Arabian Sea and affected Oman, the UAE, Iran and Pakistan



A rarity... | Of the 1,528 D/CS/SCS over the North Indian Ocean since 1891, only 3% occurred in April. The table shows all the recorded storms between 1891 and 2019

Month	D	CS	SCS	Total
Jan.	10	7	2	19
Feb.	5	1	1	7
March	4	3	2	9
April	12	13	20	45
May	39	25	59	123
June	107	43	22	172
July	142	38	9	190
Aug.	190	29	4	223
Sept.	162	34	20	216
Oct.	120	66	51	237
Nov.	61	53	83	197
Dec.	37	27	26	90

... but high on severity | The probability of a depression getting converted into a CS/SCS is high in April. Between 1891 and 2019, 44% of all storms in April were SCS

	D	CS	SCS
Jan.	53%	37%	11%
Feb.	71%	14%	14%
Mar.	44%	33%	22%
Apr.	27%	29%	44%
May	32%	20%	48%
Jun.	62%	25%	13%
Jul.	75%	20%	5%
Aug.	85%	13%	2%
Sept.	75%	16%	9%
Oct.	51%	28%	22%
Nov.	31%	27%	42%
Dec.	41%	30%	29%

The table shows the share of storm types that occured during a month

**Wind speeds D: 17-33 knots; CS: 34-47 knots; SCS: >47 knots*

Source: India Meteorological Department

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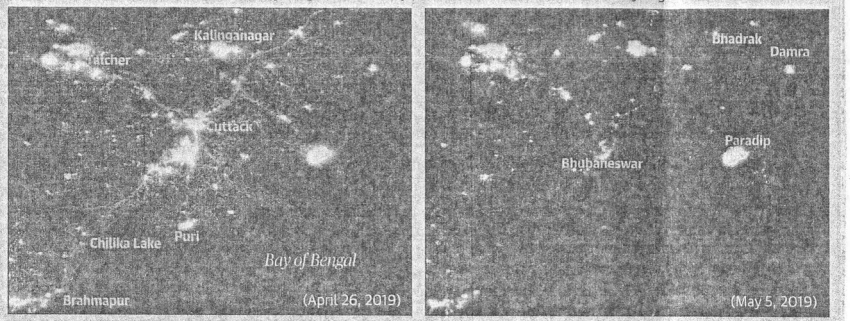
Piecing it together: In a slum in Bhubaneswar, residents on Sunday trying to recover belongings from houses damaged due to the impact of Cyclone Fani. • PTI

Zone of darkness

Satellite images captured before (April 26) and after (May 5) Cyclone Fani made landfall show a distinct lack of lighting at night due to disruption of electricity. The colour white in the map shows luminosity which corresponds to the presence of lights measured at 1 a.m. *Images processed by Raj Bhagat Palanichamy from NASA, NOAA - "VIIRS SNPP Day-Night Band"*



Puri temple precincts damaged

Kalpa Bata tree broken; CM announces relief

PRESS TRUST OF INDIA
BHUBANESHWAR/PURI

Parts of the 12th century Shree Jagannath temple in Puri were damaged as Cyclone Fani ripped through the holy town on Friday, officials said on Sunday.

"The main structure remains unaffected. We will request the ASI to inspect the shrine," P.K. Mohapatra, the chief administrator of Shree Jagannath Temple Administration (SJTA), said.

The impact of the devastation was visible from the Lion's Gate or as 'Jay-Vijay Dwar' – the main entrance of the temple.

"The idol of Jay has been broken," Mr. Mohapatra said, adding that the idol of Vijay was intact.

The *Kalpa Bata* – a huge banyan tree revered as a wish fulfilment tree within the temple premises – has also broken.

Chief Minister Naveen Patnaik, who visited Puri twice since the cyclone struck on May 3, on Sunday visited Penthakata, the fishermen's colony along the coast.

Announcing a relief package, he said all families in Puri and in parts of Khurda that had been "extremely severely affected" in the storm will get 50 kg of rice, ₹2,000 in cash and polythene sheets, if covered under the Food Security Act (FSA).

He also announced an assistance of ₹95,100 for "fully-damaged" houses.

CFTRI sends food supplies

SPECIAL CORRESPONDENT
MYSURU

The Mysuru-based Central Food Technological Research Institute (CFTRI), a premier CSIR food laboratory, on Sunday sent the first consignment of relief food to Odisha, which was hit by Cyclone Fani.

Five tonnes of ready-to-eat food packets as a part of the mission for supplying one lakh meals or 25 tonnes of food to the affected people in the coastal state was despatched to Bengaluru by trucks from the CFTRI premises for airlifting them to Bubhaneshwar, a senior official said.

T.N. gives ₹10 crore to cyclone-hit Odisha

SPECIAL CORRESPONDENT
CHENNAI

Extending a helping hand to cyclone-hit Odisha, the Tamil Nadu government has announced financial assistance of ₹10 crore as an immediate relief contribution.

"On behalf of the State government and the people of Tamil Nadu, I convey my heartfelt condolences to the family members of all those who lost their lives," Chief Minister Edappadi K. Palaniswami said.

The Uttar Pradesh government on Sunday announced ₹10 crore as relief from the Chief Minister's Relief Fund for those affected due to Cyclone Fani in Odisha, while the Gujarat government offered an assistance of ₹5 crore to the cylone-battered State. Maharashtra Chief Minister Devendra Fadnavis on Sunday said his government will contribute ₹10 crore to Odisha for relief and rehabilitation measures post cyclonic storm Fani.

Chhattisgarh Chief Minister Bhupesh Baghel on Sunday announced ₹11 crore to help the State.

(With PTI inputs)

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Mint, Delhi
Monday, 6th May 2019;

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

There is reason to worry about the monsoon this year

DHARMAKIRTI JOSHI & DIPTI DESHPANDE

are, respectively, chief economist and senior economist at CRISIL Ltd

At 96%, the India Meteorological Department (IMD) has predicted a "near-normal" monsoon in 2019. In contrast, private weather forecaster Skymet, citing an El Niño possibility, has a damp prognosis: "Below-normal" rains at 93% of the long-period average (LPA).

It's a "near-normal" season if rainfall is 96-104% of the LPA.

El Niño conditions occur as temperatures rise in the equatorial region of the Pacific Ocean, which impacts global weather. In India, it generally leads to lower rainfall.

The IMD has predicted a near-normal monsoon seven times in the past 10 years, but these calls were correct only on three occasions. Of the balance four, two were below-normal, one deficient, and one saw a deluge.

To be sure, a near-normal forecast is encouraging. However, for agriculture, apart from the quantum, the temporal and spatial distribution of rains are equally important.

A normal, well-distributed monsoon creates upsides to growth and keeps food inflation in check. Unevenly-distributed rains, even if normal, can hurt agricultural production.

El Niño has been hitting rains over and over. The IMD is working on the assumption of weak El Niño conditions in 2019. However, Skymet and several international forecasts predict a slow start to the monsoon because of El Niño. April and May are crucial to any change in these conditions. But in the past, El Niño conditions have had unpredictable and uneven impact on monsoon, with even a year of weak intensity wreaking havoc.

Of the past three droughts that India had faced, two (2002 and 2009) had seen moderate El Niño conditions, whereas one (2006) was a weak El Niño year.

What's worth noting is that El Niño is impacting the Indian monsoon more than before. Since 1991, six of the nine times that El Niño occurred, the Indian monsoon was affected. Mathematically, that's tantamount to an impact probability of over 65%.

A closer look also reveals two interesting developments: One, the frequency of El Niño has increased—it has occurred six times since 2000. Two, Indian monsoons suffered in all but one of these years, taking the probability of impact to over 86% in recent times. This is the reason why the upcoming monsoon deserves a close watch.

There are regional as well as temporal dimensions to it. Agriculture needs timely and well-distributed, as well as the right amount of precipitation, for a healthy output because of inadequate irrigation.

> Not only has the frequency of El Niño risen, this global phenomenon is also impacting rains more often

Incidentally, three of the past 10 years that saw near-normal rains also recorded good distribution, which is also what the IMD expects for 2019. Good distribution is critical this year because the past two seasons didn't just see below-normal rains (95% of LPA in 2017 and 91% in 2018), but also skewed distribution. In 2017, the temporal dimension was affected as rains weakened in August. However, in 2018, regional rains were skewed, with 33% sub-divisions facing deficiency.

During fiscal years 2017-18 and 2018-19, the steepest declines in nominal growth in agriculture—a proxy for farm prices—were in Madhya Pradesh, Maharashtra, Odisha, Bihar, Telangana, Punjab and Karnataka. However, their real gross value added (GVA) growth also declined, indicating overall loss of income.

Severe rainfall deficiency in some states and sub-regions affected agricultural output. It was a double whammy for farmers because in some of these states, crop prices also fell rapidly, weighed down by a supply glut at the all-India level, reducing their incomes.

Insufficient water reservoir storage levels is another challenge in some of these states, and well-distributed rains are necessary to mitigate this. The Central Water Commission's latest data on water storage suggests all-India levels are 10% higher than average. But masking this are conditions in Gujarat, Maharashtra, Andhra Pradesh and Telangana, where storage levels have dipped to 70-85% below normal.

Yet, the problem is not so much in states such as Bihar and Punjab, which have good irrigation cover, better procurement of foodgrain, and lesser dependence on reservoirs. The worry is in regions where irrigation coverage is low and several sub-regions have experienced not one but consecutive years of rainfall shortage.

So, what does this mean for the economy? Over fiscals 2017-18 and 2018-19, growth in real GVA of agriculture rose at an average 1.7%, or twice as fast as the preceding three fiscals. This culled food prices. So, despite higher real growth, nominal growth in agriculture GVA fell to 7.6% from 10%, indicating a fall in farm prices and, as a result, farmer margins. Naturally, food inflation mirrored this, sliding to 2.1% during fiscals 2017-19 from 7.8% in the preceding three fiscals.

The past three fiscals have seen the price effect overtaking the output effect in determining farm income. The situation is worsened by a sharp rise in input costs. Therefore, if rains are inadequate this year and hurt output, the consequent rise in food prices could offset some of the income loss of farmers. But that could also push headline inflation above the Reserve Bank of India's medium-term target of 4%.

Ergo, cautious optimism would be par for the course.

These are the authors' personal views

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Fani: Odisha reels under water crisis, power cuts

SNS & PTI
BHUBANESWAR, 5 MAY


ST-6

The death toll in Cyclone Fani rose to 29 on Sunday, two days after the "extremely severe" storm barrelled through coastal Odisha, causing widespread destruction and leaving hundreds grappling with water shortage and power cuts, an official said.

Announcing a relief package for those affected by the calamity, Chief Minister Naveen Patnaik said all families in Puri and in those parts of Khurda, which had been "extremely severely affected" in the storm, will get 50 kg of rice, Rs 2,000 in cash and polythene sheets, if covered under the Food Security Act (FSA).

For the rest of Khurda district -- categorised as "severely" affected -- the FSA families will get a month's quota of rice, Rs 1,000 in cash and polythene sheets, he added.

Those living in the "moderately-affected" districts of Cuttack, Kendrapara and Jagatsinghpur will be eligible for a month's quota of rice and Rs 500 in cash, Patnaik said.

The chief minister also announced an assistance of Rs 95,100 for "fully-damaged" houses, Rs 52,000 for "partially-damaged" houses and Rs 3,200 for houses that had suffered minor damage.

Talking to reporters here, Patnaik claimed that water supply had been restored in 70 per cent areas of the worst-hit Puri town and 40 per cent of the places in state capital Bhubaneswar. "I am hoping that water supply will be fully restored in Bhubaneswar shortly and at least in 90 per cent areas of Puri town by this evening," the Biju Janata Dal (BJD) chief, who is seeking a fifth term in office, said.

"The government has made arrangements to provide cooked food for free over the next 15 days. We will also take up tree plantation on a mission mode," he added. The chief minister, however, could not give the details on the status of the ongoing work for power restoration in the affected areas. "We have to be very careful to avoid accidental electrocution," he said.

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Surviving Fani

The Odisha government has shown by example how to manage a natural disaster

Cyclone Fani has left a trail of destruction across a large part of coastal Odisha, but its management has emerged as a global example of how timely weather alerts, preparedness and informed public participation can dramatically reduce loss of life. The toll from the extremely severe cyclonic storm on May 3 stood, at last count, at 34 deaths. In terms of material losses, several districts were battered, houses flattened and electricity and telecommunications infrastructure destroyed, but the relatively low mortality shows a dramatic transformation from the loss of over 10,000 lives in 1999 when super cyclone 05B struck. Odisha then worked to upgrade its preparedness, which was tested when very severe cyclonic storm Phailin struck in 2013. It was able to bring down the number of deaths to 44 then, in spite of a wide arc of destruction: 13 million people were hit and half a million houses destroyed. The Odisha government and the Centre now have the task of rebuilding infrastructure. They should use the opportunity to upgrade technology, achieve cost efficiencies and build resilience to extreme weather, all of which can minimise future losses. Given the vulnerability of Odisha and Andhra Pradesh to cyclones, the frequency and intensity of which may be influenced by a changing climate, the Centre should press for global environmental funding under the UN framework to help in the rebuilding. Both States have received funding from the World Bank in cyclone risk mitigation efforts since 2011.

The priority in Odisha is to restore electricity and telecommunications, which will require massive manpower. This should be treated as a national mission. Public health interventions are paramount to avoid disease outbreaks. The State government has been able to restore some physical movement by opening up highways and district roads; the Centre has relieved tension among students by postponing the National Eligibility-cum-Entrance Test in Odisha. Overall, there is a sense of relief that in the midst of a national election the toll was effectively contained. Looking ahead, India must prepare for many more intense and frequent cyclones along the coastal States. Preparedness has to focus on building resilience and strengthening adaptation. This can be achieved through better-designed houses and cyclone shelters, good early warning systems, periodic drills and financial risk reduction through insurance. Early weather warnings hold the key to better management, and during the Fani episode the India Meteorological Department played a crucial role. Its commendable performance has been recognised by the UN as well. Odisha's experience, which coincides with similar devastation along east Africa this year, will be keenly followed at the UN Disaster Risk Reduction conference convening on May 13 in Geneva.

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Rashtriya Sahara, Delhi
Monday, 6th May 2019;

जहर है पानी में घुला आर्सेनिक

मुद्दा ज्ञानेंद्र रावत

देश में अभी मई का महीना शुरू ही हुआ है और गर्मी अपना रंग दिखाने लगा। इसी के साथ देश में जल संकट गहराने लगा है। देश के अधिकांश हिस्सों में पीने का साफ पानी मिलना सपना हो गया है। लोग प्रदूषित पानी पीने को मजबूर हैं। जो पानी पीने को मिल भी रहा है, उसमें आर्सेनिक की मात्रा निर्धारित मानकों से कहीं ज्यादा है। इससे गंभीर जानलेवा बीमारियों का खतरा मंडरा रहा है। देश की अधिकांश आबादी स्थानीय निकायों द्वारा पीने के साफ पानी की समुचित मात्रा में आपूर्ति नहीं किये जाने के कारण भूजल पर ही आश्रित है। वह जैसे तैसे हैंडपम्पों, सबमर्सिबिल पंपों और कुओं के द्वारा ही पीने के पानी की अपनी जरूरत पूरी कर रहे हैं। लेकिन पानी में आर्सेनिक घुला होने के कारण त्वचा, फेफड़े और मूत्राशय व अन्य अंगों के कैंसर, त्वचा का फटना, केरोटोइस और नाड़ी एवं संतानोत्पत्ति से संबंधित जानलेवा बीमारी की चपेट में आकर मौत के मुंह में जा रहे हैं।

केंद्रीय जल संसाधन मंत्रालय तो इस तथ्य का बहुत पहले से ही खुलासा कर चुका है। असलियत यह है कि देश के 23.9 करोड़ लोग आर्सेनिक युक्त पानी को मजबूर हैं। देश की आबादी का 19 फीसद हिस्सा खतरनाक स्तर तक आर्सेनिक की मौजूदगी वाला पानी पी रहा है। आकलन के अनुसार देश के 153 से ज्यादा जिलों के लोग आर्सेनिक युक्त पानी पीने की समस्या से सबसे ज्यादा प्रभावित हैं। जवाहरलाल नेहरू विश्वविद्यालय, दिल्ली के वैज्ञानिक आरपी सिंह अपने एक शोध में इस तथ्य का खुलासा कर चुके हैं कि आर्सेनिक एक भारी वस्तु है। यह हमेशा सतह की ओर पाया जाता है। घटते भूगर्भीय जल के चलते, खेती में उपयोग में आ रहे रसायन और कारखानों से निकला रसायनयुक्त पदार्थ आर्सेनिक की प्रमुख वजह है। अखिल भारतीय आयुर्विज्ञान संस्थान के ऑन्कोलॉजी विभाग के प्रोफ़ेसर डॉ. एम. डी. रे इस बारे में कहते हैं कि शरीर में आर्सेनिक की मामूली मात्रा भी यदि लंबे समय तक बनी रहती है तो कैंसर होने की संभावना कई गुणा तक बढ़ जाती है। यदि पानी में खतरनाक आर्सेनिक तत्व मौजूद हैं तो

फिर यह गंभीर चिंता का विषय है। देश में पानी में आर्सेनिक की मात्रा की खतरनाक स्तर तक मौजूदगी का दावा करने वाले वैज्ञानिक डॉ. आर. पी. सिंह जिनका शोध अमेरिका के प्रतिष्ठित जर्नल विली में प्रकाशित हो चुका है, का कहना है कि विश्व स्वास्थ्य संगठन के मानकों के मुताबिक पानी में आर्सेनिक की मात्रा 10 से 50 माइक्रोग्राम प्रति लीटर तक सुरक्षित होती है। हमारे देश में 50 माइक्रोग्राम प्रति लीटर को सुरक्षित माना गया है। उनके अनुसार जब मानकों की जांच के लिए 10 माइक्रोग्राम प्रति लीटर आर्सेनिक वाले पानी को एक महीने तक स्वस्थ कोशिकाओं के संपर्क में रखा गया तो उसमें से कुछ रोगग्रस्त हो गईं। पानी में आर्सेनिक की मात्रा को डब्ल्यूएचओ के सबसे कम मानक को शोध में शामिल किया गया। असलियत में हमारे देश में उत्तर प्रदेश, बिहार, छत्तीसगढ़, झारखंड, असम, नगालैंड, मणिपुर, त्रिपुरा, अरुणाचल और पश्चिम बंगाल में इससे पांच गुणा तक अधिक मात्रा में लोग आर्सेनिक मिला पानी पी रहे हैं। केंद्रीय भूजल बोर्ड यह स्वीकार करता है कि खेती में अत्यधिक उर्वरकों के इस्तेमाल ने तस्वीर बिगाड़ने में प्रमुख भूमिका निभाई है। देखा जाए तो पानी में घुला आर्सेनिक ही नहीं, नाइट्रेट और कॉपर भी जानलेवा बीमारियों को जन्म दे रहा है। पीने के पानी में नाइट्रेटों की बढ़ी हुई मात्रा के कारण देश के तकरीब 23 करोड़ से ज्यादा लोगों पर पेट के कैंसर, स्नायु तंत्र और दिल की बीमारियों की तलवार लटक रही है।

इसके अलावा नाइट्रेट का जहर बच्चों में मृत्युकारी ब्लू बेबी सिंड्रोम जैसी बीमारियों को जन्म दे सकता है। इस बीमारी में चार वर्ष तक की आयु के बच्चों के पेट, होंठ व शरीर का रंग नीला पड़ने लगता है। यही नहीं पानी में घुला कॉपर महिलाओं का लिवर खराब कर रहा है। गणेश शंकर विद्यार्थी मेमोरियल मेडिकल कॉलेज (कानपुर) के शोध से यह तथ्य सामने आया है। इस शोध में खुलासा हुआ है कि हैंडपम्प का पानी इस्तेमाल करने वाली 20 से 30 साल की उम्र की अधिकतर महिलाओं में इसके लक्षण पाए गए हैं। परीक्षण में पाया गया कि हैंडपंप के पानी में अधिकांश मात्रा में कॉपर और मेटल था, जो लिवर खराब होने का कारण बना। सरकार विकास के कुछ भी दावे करे, जब देश के तकरीबन नौ राज्यों की 13,958 बस्तियां प्रदूषित भूजल के इस्तेमाल को विवश हैं, उस स्थिति में हालात की भयावहता का सहज अंदाजा लगाया जा सकता है। सरकारी दावे धोखे के सिवाय कुछ नहीं हैं। असलियत यह है कि जब तक देश में लोगों को पीने का साफ और शुद्ध पानी नहीं मिलता, इन बीमारियों से निजात मिलने की उम्मीद बेमानी ही है।

News item/letter/article/editorial Published on 5.05.2019 in the

Hindustan Times
Statesman
The Time of India (New Delhi)
Indian Express
Tribune

Hindustan (Hindi)
Nav Bharat Times (Hindi)
Punjab Keshari (Hindi)
The Hindu (New Delhi)
Rajasthan Patrika (Hindi)

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

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

Fani kills 14, injures 63 in B'desh

Over 1.6 million people shifted to safer places | 36 villages flooded

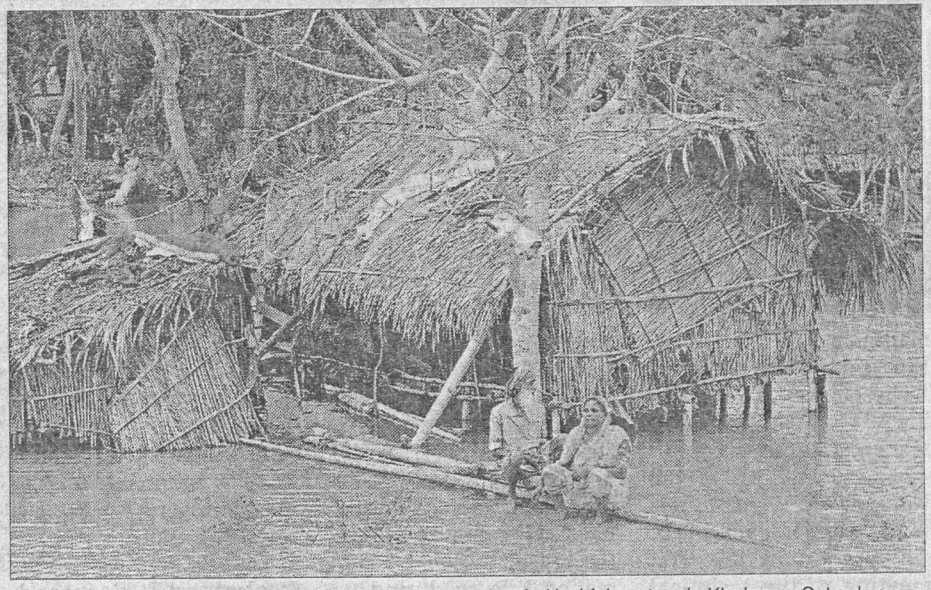
DHAKA, MAY 4

At least 14 people were killed and 63 others injured as cyclonic storm "Fani" barrelled into Bangladesh on Saturday, a day after leaving a trail of destruction in eastern Indian coastlines, media reports said.

However, Bangladesh Disaster Management Ministry officially confirmed four deaths — two in Barguna and one each in Bhola and Noakhali — on the basis of "initial reports" from the three coastal districts and said it was yet to compile the details of the casualties and damages caused by the cyclone.

"The detailed information from all affected districts is yet to reach us," state minister for disaster management Enamur Rahman told reporters here.

According to Dhaka Tribune, 14 deaths were reported from eight districts, including Noakhali, Bhola and Lakshmipur, which were among the places worst-hit by the cyclone. The dead also included a two-year old boy and four women.



An elderly couple sits on a log close to their home surrounded by high waters in Khulna on Saturday. AFP

The severe cyclone, which entered Bangladesh through the southwestern region early this morning, also wounded several people though it weakened strength while barrelling into Bangladesh overland.

The storm uprooted trees, knocked down power lines and damaged more than 500 houses. The Bangladesh authorities said over 1.6 million people were shifted to safer places as about 36 villages were flooded after the storm surge breached embankments in the country's coastal areas.

Meanwhile, the sky in several parts of Bangladesh remained overcast and rain and thundershowers with gusty winds continued to lash the country since Friday, the Daily Star reported.

Disruption of electricity and internet connection was reported from many areas of the country after the storm started.

The rough weather conditions also compelled the authorities to cancel 12 flights, the report said. —PTI

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Why is northeast India drying up rapidly?

Decreasing monsoon rainfall is associated with natural changes in the subtropical Pacific Ocean

ASWATHI PACHA

Northeast India, one of the wettest places on the Earth has been experiencing rapid drying, especially in the last 30 years. Some places which used to get as high as 3,000 mm of rain during the monsoon season have seen a drop of about 25-30%.

A team of researchers from the Indian Institute of Tropical Meteorology, Pune, and Assam University set out to understand whether this decline is caused by anthropogenic activity or is it part of natural changes.

The results published recently in *JGR-Atmospheres* show that the decreasing monsoon rainfall is associated with natural changes in the subtropical Pacific Ocean.

Root cause: Rainfall reduction over the last 36 years is associated with natural phenomena. ▪ S.S. KUMAR

Pattern of fluctuations

"We found that changes in the Pacific decadal oscillation (PDO) – a pattern of fluctuations in the ocean, particularly over the north Pacific basin – are mainly associated with this declined rainfall," explains Abida Choudhury, a Ph.D. scholar at Assam University and the first author of the paper. "Just like El Nino/La Nina in the tropical Pacific, PDO has a signature for a longer time (on the decadal scale) in the sea surface temperatures and its interaction with the atmosphere, which in turn affects the northeast Indian summer monsoon."

Natural and manmade

The team used observed rainfall and sea surface temperature data for the period 1901-2014 for the study. The results show out that the reduction in rainfall during a major part of the last 114 years may be associated with global man-made factors, while the trend during the last 36 years is associated with natural phenomena.

"Only about 7% of the rainfall in this region is associated with local moisture recycling, which means that anthropogenic activities can affect only this small percentage. So we concluded that the recent rapid drying is a part of interdecadal variability of monsoonal rainfall which is strongly associated with the PDO," says Subodh Kumar Saha from IITM, Pune.

The researchers note that this study can be used to predict the monsoon rainfall over the northeast region on a decadal time scale using Pacific Ocean region data.

Previous studies have found that a dry spell may be preceded by a wet spell, so the researchers warn that "change in land cover and deforestation could potentially result in more natural disasters, for example, flash flood, landslides from torrential rains, and damage to crops and biodiversity".

"Policymakers should take these long-term predictions into account while planning construction of dams, power plants, etc. to prevent loss of property," adds Mahen Konwar, the corresponding author of the study from IITM, Pune.

News item/letter/article/editorial Published on 05.05.2019 in the

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Haribhumi, Delhi
Sunday, 5th May 2019;

वर्षा के जल को संरक्षित कर जलसंकट से निपट सकते हैं: महेंद्र मोदी

वर्षा जल संरक्षण के लिए कार्यशाला आयोजित

हरिभूमि न्यूज ▶▶| गाजियाबाद

देश के महानगरों में गगनचुम्बी बहुमंजिला इमारतों से बहने वाले वर्षा जल को संरक्षित किया जाये, तो देश में काफी हद तक जल संकट से उबरा जा सकता है। उत्तर प्रदेश सरकार के जल संरक्षण अभियान सलाहकार महेंद्र मोदी ने शनिवार को गाजियाबाद विकास प्राधिकरण (जीडीए)सभागार कक्ष में आयोजित जल संरक्षण कार्यशाला में बोलते हुए यह बात कही। उन्होंने बताया कि महानगरों के बहुमंजिला इमारतों से वर्षा का जो जल गिरता है वह सीधे नालों ओर सीवर लाइन में जाता है। जिसका कोई प्रयोग नहीं होता। यदि इस वर्षा जल को वैज्ञानिक ढंग से संरक्षित कर भविष्य के लिए स्टोर किया जय तो पीने के पानी की समस्या लगभग समाप्त हो जाएगी। उन्होंने बताया कि लखनऊ की पुलिस कॉलोनी और झांसी मंडल में वर्षा जल को

वैज्ञानिक ढंग से संरक्षित कर उसे इस्तेमाल करने का अभियान चल रहा है और उसके सकारात्मक परिणाम भी मिल रहे है।

1986 बैच के आईपीएस अधिकारी व वर्तमान में उत्तर प्रदेश सतर्कता विभाग के पुलिस महानिदेशक महेंद्र मोदी पुलिस दायित्व के अलावा वर्ष जल संरक्षण के लिए भी पिछले कई वर्षों से कार्य कर रहे हैं। कार्यशाला में मौजूद जीडीए के अभियंताओं, उद्यान अधिकारियों व बिल्डरों को संबोधित करते हुए मोदी ने कहा कि जिस प्रकार बहुत गर्भ जल का स्तर लगातार नीचे जा रहा है उससे आने वाली नस्लों को भावी जलसंकट से आगाह कर दिया है। उन्होंने प्राधिकरण के अधिकारियों से आग्रह किया कि वे गाजियाबाद शहर में जल संरक्षण पार्क तैयार करें ताकि लोगों में जलसंरक्षण के प्रति जागरूकता आये।

कार्यशाला में उन्होंने कहा कि देश उन्मुख राज्यों में जितनी वर्षा होती है वहां भी हमें जलसंरक्षण को प्रोत्साहन देना चाहिए इस जल से गैर वर्षा प्रभावित राज्यों में जल संकट से उबरने में मदद मिल सकती है।

कार्यशाला में जीडीए उपाध्यक्ष कंचन वर्मा, सचिव संतोष कुमार राय, विशेषधिकारी वीके सिंह, मुख्य अभियंता वीएन सिंह व आईटी प्रमुख अमरदीप कुमार समेत बड़ी संख्या में बिल्डर व विभिन्न विभागों के अभियंता मौजूद थे।

News item/letter/article/editorial Published on 05.05.2019 in the

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

Dainik Jagran, New Delh
Sunday, 5th May 2019;

बांध ध्वस्त नहीं किया तो एनजीटी जाएगी दिल्ली सरकार : मोहनिया

राज्य ब्यूरो, नई दिल्ली : यमुना नदी में बांध बनाकर दिल्ली का पानी रोके जाने के मामले में हरियाणा के खिलाफ दिल्ली सरकार नेशनल ग्रीन ट्रिब्यूनल (एनजीटी) में जा सकती है। यह बात दिल्ली जल बोर्ड के उपाध्यक्ष दिनेश मोहनिया ने कही है। इससे पहले उन्होंने यमुना पर बनाए गए कच्चे बांध वाले स्थान का जायजा लिया।

शनिवार को मोहनिया ने कहा कि शिकायत के बावजूद यमुना नदी में बनाए गए अवैध बांध को अब तक हरियाणा सरकार ने हटाया नहीं है। इसलिए दिल्ली में पेयजल संकट गहराने का खतरा बना हुआ है। उन्होंने इस मामले पर हरियाणा सरकार से जल्द कार्रवाई करने की मांग की है। साथ ही कहा है कि यदि बांध ध्वस्त नहीं किया गया तो दिल्ली सरकार एनजीटी का दरवाजा खटखटाएगी।

उन्होंने आरोप लगाया कि यमुना पर अवैध बांध बना कर दिल्ली का पानी रोकने की साजिश की जा रही है। पानी रोके जाने से वजीराबाद जलशोधन संयंत्र से पानी आपूर्ति ठप हो सकती है। यदि ऐसा हुआ तो दिल्ली में पेयजल संकट बढ़ जाएगा। हालांकि, जल बोर्ड के अनुसार अभी तक दिल्ली में यमुना से पानी आपूर्ति पर असर नहीं हुआ है। इसलिए जल बोर्ड अपनी क्षमता के अनुरूप पानी आपूर्ति कर रहा है। यमुना पर यह बांध कौन और कैसे बना रहा है, अभी तक यह स्थिति भी स्पष्ट नहीं हो पाई है। उल्लेखनीय है कि हरियाणा में ताजेवाला बैराज से 17 किलोमीटर पहले अवैध बांध बनाए जाने का मामला सामने आया है। जल बोर्ड के अधिकारी शुक्रवार को यमुना में पानी के बहाव की निगरानी के लिए ताजेवाला बैराज गए थे। इस दौरान उन्होंने यह बांध देखने का दावा किया है। इस संबंध में जल बोर्ड ने केंद्र सरकार, हरियाणा सरकार, दिल्ली सरकार के मुख्य सचिव और उपराज्यपाल को पत्र लिखकर इसकी शिकायत की थी।

News item/letter/article/editorial Published on 04.05.2019 in the

Hindustan Times
Statesman
The Time of India (New Delhi) ✓
Indian Express
Tribune

Hindustan (Hindi)
Nav Bharat Times (Hindi)
Punjab Keshari (Hindi)
The Hindu (New Delhi)
Rajasthan Patrika (Hindi)

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

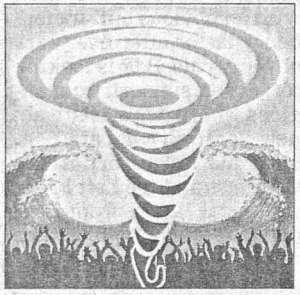
and documented at Bhagirath (English) & Publicity Section, CWC

Cyclone Fani 4 TD

Odisha lessons in disaster management

With 'extremely severe' cyclone Fani making landfall in Odisha yesterday, life has been significantly disrupted in several areas of the state. While the full extent of the damage is yet to be ascertained, initial assessment suggests considerable structural damage to private and public properties. The roof of a building at AIIMS Bhubaneswar was ripped off but thankfully all patients, staff and students were reported safe. Winds measuring upto 200 km per hour uprooted trees and damaged power lines. Telecom networks have been disrupted in Puri and Bhubaneswar districts. At the time of going to press, six people were reported dead.

This has revived memories of the super cyclone that struck Odisha in 1999. Back then, the cyclone had killed around 10,000 people and inflicted massive material damage. However, much has changed in Odisha's cyclone preparedness since. The state government and other agencies constructed many cyclone shelters and instituted a disaster risk reduction system that included preparedness activities by families, communities, government bodies and NGOs. These efforts drastically minimised the damage wrought by cyclone Phailin in 2013 – something that was even recognised by the UN.



Even this time more than a million people have been evacuated to shelters, probable flood inundation villages have been identified, rapid response teams have been formed, and aircraft and navy ships have been kept on standby to aid rescue efforts. Add to this accurate updates about the cyclone path by the India meteorological department. Natural disaster management today has certainly become more effective with the aid of technology. Still, there's no room for complacency. With extreme weather phenomena increasing due to climate change, there's a need to constantly expand disaster management capacities. In fact, disaster management should become a critical component of all development projects. That's the only way we won't be caught unawares.

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NGT seeks stringent norms to treat sewage

Joydeep Thakur
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4-5-A

NEW DELHI: Proposing more stringent norms for sewage treatment plants (STP) in metropolitan cities with populations of over one crore, such as Delhi, a four-member committee formed by the National Green Tribunal (NGT) has warned that the dilution of standards in 2017 threatens to further "affect the health of rivers" across the country.

The NGT accepted the committee's report on Tuesday and directed the ministry of environment, forests and climate change (MoEFCC) to issue an "appropriate" notification within a month.

In 2018, the Central Pollution Control Board (CPCB) surveyed 445 rivers in 29 states and six Union territories and found at least 351 polluted stretches in 323 rivers. At least 45 stretches had biological oxygen demand (BOD) above the unsafe level of 30mg/litre. "The notification issued by the Union government had indeed diluted the STP norms for mega-cities like Delhi. This would have further affected the health of rivers across the country. We have recommended various standards for different classes of cities based on their population. The new standards will help to achieve all purpose non-potable reuse quality effluent," said A A Kazmi, associate professor of civil engineering at IIT Roorkee, who is a member of the panel that also includes Rajesh Biniwale from the National Environment Engineering Research Institute, Vinod Tare from IIT Kanpur and NK Gupta from CPCB.

The committee, formed in 2018 to examine the alleged dilution of STP norms, submitted its report to the NGT on April 30.

The MoEFCC draft notification of 2015 set the standards for BOD at 10 mg/litre, but the final notification in 2017 set it at 30 mg/litre. The standards for total suspended solids (TSS) were relaxed from 20 mg/litre to 100 mg/litre, and the standards for faecal coliform were lowered from 100 mpn/100ml of water to 1,000 mpn/100ml of water.

Citing the CPCB report on polluted river stretches, the committee has recommended more stringent cut-offs for BOD at 10 mg/litre for metropolitan cities such as Delhi, TSS at 20 mg/litre, and faecal coliform at 230 mpn/100ml.

"The standards we have prescribed are similar to the one which was set in the draft notification, which was later relaxed in final notification...," said Tare.

News item/letter/article/editorial Published on 04.05.2019 in the

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TDB-4

Bund being built on Yamuna will block drinking water: DJB

TIMES NEWS NETWORK

New Delhi: Delhi Jal Board has alleged that a bund (dam-like obstruction) is being constructed 17 kilometres downstream of Tajewala Barrage right on the main course of the river flowing from Haryana to Delhi. The DJB CEO has written to Government of India, Haryana government, CS Delhi and the monitoring committee to get the construction stopped immediately as blockage of the river flow amounts to stoppage of drinking water flow to Delhi in this scorching summer.

A senior government spokesperson said, "The Delhi Jal Board (DJB) official assigned to visit Tajewala Barrage to monitor and report about the river flow sighted the construction of the bund while he was visiting various places to monitor the visual quantum of the river water flow on Friday."

A DJB official assigned to visit Tajewala Barrage spotted the construction of the bund

He added that the obstruction was being made around 17 kilometres downstream of Tajewala Barrage. "Our official spotted many men building a bund, which was being constructed on the main river course. The point is just downstream of the confluence of river Somb and river Yamuna. This blockage amounts to stoppage of drinking water flow to Delhi, stopping of the natural course of the river and causing instant death of the flora and fauna downstream. It could hit Delhi's drinking water supply hard if remedial action is not taken immediately," the spokesperson said.

DJB argues that the water being supplied to Delhi in the river course is directly being supplied under the cover of the orders of the Supreme Court. "This construction, therefore, also amounts to contempt of court," the DJB official said.

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Only 10 of 100 Ganga sewage projects completed

JACOB KOSHY
NEW DELHI

H-9

The National Democratic Alliance government has only finished 10 of the 100 sewage infrastructure projects commissioned after 2015 under the Namami Gange mission, according to records.

Commissioning of sewage treatment plants (STP) and laying sewer lines are at the heart of the mission to clean the Ganga. Nearly ₹23,000 crore has been sanctioned of the ₹28,000 crore outlay for sewage management work. River-front development, cleaning ghats and removing trash from the river – the cosmetic side of the mission – make up about for ₹1,200 crore of the mission outlay.

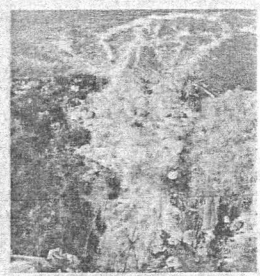
The bulk of the projects completed were those commissioned before the Ganga mission began work in earnest under programmes such as the Ganga Action Plan-1 and Ganga Action Plan-2, which began in 1987 and 1996 respectively.

For instance, as of March 31, 27 of the 37 completed STP projects and sewer infrastructure were those commissioned before 2015, says a report on the National Mission for Clean Ganga (NMCG) website.

U.P.'s performance

Uttar Pradesh, responsible for about three-fourths of the inadequately treated industrial waste and municipal sewage, had 18 pre-2015 STP and sewage infrastructure projects commissioned. Only 12 of these have been completed, and only 1 – of the 33 projects commissioned after 2015 at the cost of ₹8,000 crore – has been wrapped up, records show.

Making the Ganga pristine was one of the claims of the Narendra Modi government and this was followed up by sanctioning ₹20,000 crore for the NMCG.



The commissioning of sewage treatment plants is at the heart of the mission.

As of March – the latest figures available – slightly over ₹28,000 crore has been sanctioned for various projects but only about ₹6,700 crore (about 25%) has been spent. Last March, the ratio was about 20%. The incomplete projects are reflected in the river quality.

Rajiv Ranjan Mishra, Director-General, NMCG, said completing pending projects too was a major obligation of the mission. Moreover, it was only after August 2016 that the NMCG got the necessary independence and authority to commission projects quickly, he explained. "Most of the major projects we have sanctioned have been in 2017 and 2018 and several of them will come online (and translate into improved water quality) by 2019 and early 2020. We have also followed a new model of having a single private operator take care of all the infrastructure works of a city (to improve efficiency) and implemented the Hybrid Annuity Model (HAM) in awarding tenders to STP and infrastructure developers," he told *The Hindu*.