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Technical Documentation Directorate  
Bhagirath(English)& Publicity Section  
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The News Clippings on Water Resources Development and allied subjects are enclosed for perusal of the Chairman, CWC, and Member (WP&P/D&R/RM), Central Water Commission. The soft copies of clippings have also been uploaded on the CWC website.

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Deputy Director TD Dte. & Publication Division

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17/9

Director TD Dte *On Leave*

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News item/letter/article/editorial published on 16.09.2018 in the

Hindustan Times

Statesman

The Times of India (N.D.)

Indian Express

Tribune

Hindustan (Hindi)

Nav Bharat Times (Hindi)

Punjab Keshari (Hindi)

The Hindu

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The Times of India (A)

Business standard

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## Arunachal flash floods death toll mounts to 4

### One more body recovered from Assam

PRESS TRUST OF INDIA  
ITANAGAR

With the recovery of one more body from neighbouring Assam, the death toll in flash floods of Arunachal Pradesh has mounted to four while two others are still missing, an official said on Saturday.

Triggered by incessant rain in the past few days, flash flood and landslides af-

fecting normal lives in several places of Itanagar, Capital Complex Deputy Commissioner Prince Dhawan said.

Twenty-six houses have been washed away while over 60 were fully or partially damaged at affected sites such as Modirijo, the Donyi-Polo area, Chandra Nagar, Lobi, GSS Police colony, Press colony, Mr. Dhawan said.



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## MOUNTAINS OF SEDIMENT, CHANGE IN DEPTH OF RIVER BEDS MAKE WATER TABLE GO DOWN

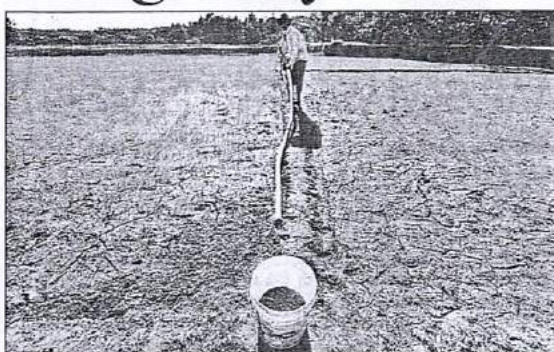
# After the deluge, dry wells & streams in Kerala

Sudha.Nambudiri  
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**Kochi:** When the flood waters receded last month, Kerala had changed in more ways than the eye could see at first. Displaced people, wrecked houses and flattened plantations were obvious, but nobody thought water would become scarce in parts of the state just weeks later.

The rains abated on August 21, and since then streams have reduced to a trickle. More alarming is the fall in the water table at some places. The flood should have recharged groundwater, but many wells have run dry, and even collapsed.

It's happening because the flood — Kerala's worst in a century — moved mountains of sediment and riverbed soil, changing the balance between surface and groundwater, say geologists and water resources experts.



"Surface soil plays an important role in seepage of rainwater to the ground. Heavy flooding might have washed away the upper sandy soil into the sea," said P Nandakumar, a member of Central Ground Water Board in Delhi.

While the flood deposited tonnes of silt on riverbanks, gushing waters made rivers deeper by carrying away sand from their beds. After the flood, the rivers settled at a

lower level than before, so the water in the wells around them also went down. Where groundwater is at a higher level, it is flowing back into the rivers, and thence to the sea.

Such changes have been reported from Chaliyar in Kozhikode and several other places, especially Bharathapuzha, said Dinesan VP, who heads the geomatics division of Centre for Water Resources Development and

**The flood deposited tonnes of silt on the banks while gushing waters made rivers deeper. Rivers settled at a lower level after the flood, and water in nearby wells went down. Where groundwater is at a higher level, it is flowing back into the rivers, and thence to the sea**

Management (CWRDM).

Dinesan said it's normal for rivers to have less water after the monsoon, "but changes in land use and disturbance of the natural environment have led to more visible damage this year."

Environmentalists had cautioned against these changes almost a decade ago. A natural hazard zone map of Kerala drawn in 2009 showed that rapid urbanisation, envi-

ronmental degradation and climate change were increasing the state's vulnerability to floods. Forests, wetlands and paddy fields play an important role in retaining rainwater, but Kerala's forest cover has halved and the area under paddy has shrunk to a quarter.

While half of Alappuzha is now considered flood-prone, Thrissur, Ernakulam, Malappuram and Kottayam are vulnerable districts. In spite of Wayanad's elevation, its bottom valleys and floodplains are vulnerable. Ironically, Idukki, the centre of this year's flood, is considered the least flood-prone because of its rugged topography and absence of flat-bottom valleys.

The state government has asked Kerala State Council for Science, Technology & Environment (KSCSTEC) to study the changes in water resources, and suggest ways to fix them.



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सांसद राज्यवर्धन की उपयात्रा शुरू

## ‘हमारे यहां आएगा पाक जाने वाला पानी’

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पत्रिका न्यूज नेटवर्क  
patrika.com

मनोहरपुर/जयपुर. केन्द्रीय सूचना एवं प्रसारण राज्यमंत्री कर्नल राज्यवर्धन सिंह राठौड़ ने कहा कि जमवारामगढ़ बांध और सांभर झील में पानी लाने के प्रयास किए जा रहे हैं। इस संबंध में सप्ताहभर पहले समझौता हुआ है। इसके तहत पाकिस्तान पहुंचने वाले जम्मू-कश्मीर की एक नदी के पानी को रोककर राजस्थान और पंजाब की तरफ मोड़ा जा रहा है। इससे प्रदेश में खुशहाली आएगी।

राठौड़ शुक्रवार को अपनी सांसद उपयात्रा के दौरान जगह-जगह लोगों को सम्बोधित कर रहे थे। उन्होंने कहा, कांग्रेस झूठ के बल पर प्रचार कर रही है। गौरतलब है कि

मुख्यमंत्री वसुंधरा राजे कोटा के बाद जयपुर संभाग में राजस्थान गौरव यात्रा निकालेंगी। इसके लिए शुक्रवार को राठौड़ ने प्रदेश भाजपा कार्यालय से उपयात्रा शुरू की। प्रदेशाध्यक्ष मदनलाल सैनी ने इसे हरी झंडी दिखाई।

यह उपयात्रा 3 दिन जयपुर ग्रामीण संसदीय क्षेत्र में रहेगी। पहले दिन उपयात्रा का आमेर विधानसभा क्षेत्र के कार्यकर्ताओं ने कुण्डा एवं रूण्डल में स्वागत किया। राठौड़ शाहपुरा कुण्डाधाम स्थित परमानन्द महाराज से आशीर्वाद लेकर नवलपुरा पहुंचे। उपयात्रा मनोहरपुर, टोडी, सुराना, छारसा, खोरालाडखानी, उदावाला होती हुई घासीपुरा पहुंची। यात्रा शनिवार को जमवारामगढ़ क्षेत्र में जाएगी।



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## रेणुका परियोजना का रास्ता साफ : गडकरी

नई दिल्ली | विशेष संवाददाता H-15

यमुना घाटी की तीन प्रमुख बहुउद्देशीय परियोजनाओं में लखवार के बाद अब रेणुका परियोजना का रास्ता भी साफ हो गया है। परियोजना से जुड़े चारों राज्य उत्तराखंड, हिमाचल प्रदेश, हरियाणा व दिल्ली इसी माह एक समझौते पर हस्ताक्षर करेंगे। रेणुका बांध से मिलने वाली 40 मेगावाट बिजली पर हिमाचल प्रदेश का अधिकार होगा, जबकि पानी दिल्ली समेत चारों राज्यों में बांटा जाएगा।

केंद्रीय जल संसाधन मंत्री नितिन गडकरी ने बीते दिनों संबंधित राज्यों के मुख्य सचिवों और प्रमुख अधिकारियों के साथ बैठक में परियोजना से जुड़े सभी पहलुओं का समाधान निकाला। इससे पहले लखवार परियोजना के लिए पिछले माह सभी संबंधित राज्यों के बीच समझौता हुआ था, जिससे रेणुका परियोजना का रास्ता साफ हो गया था। रेणुका परियोजना का 90 फीसदी खर्च केंद्र वहन करेगा। राज्यों को 10 फीसदी खर्च ही देना पड़ेगा।



### दिल्ली सरकार बिजली का 90 फीसदी खर्च उठाएगी

दिल्ली सरकार इस बात के लिए सहमत हो गई है कि वह परियोजना के बिजली घटक का 90 फीसदी खर्च वहन करेगी। इससे दिल्ली को पानी का लाभ तो मिलेगा ही, हिमाचल प्रदेश चाहे तो उसे बिजली बेच भी सकता है।

### केंद्र भूमि अधिग्रहण की लागत वहन करेगा

परियोजना की एक और बाधा दूर करते हुए केंद्र ने भूमि अधिग्रहण की लागत वहन करने की संवैधानिक मंजूरी दे दी। इसमें वन, पर्यावरण व पारिस्थितिकी लागत शामिल है। जल संसाधन मंत्रालय हिमाचल को इसके लिए 447 करोड़ दे चुका है।

### लागत 4600 करोड़ रुपये, 148 मीटर ऊंचा बजंगा बांध

रेणुका परियोजना के तहत यमुना की सहायक गिरि नदी पर 148 मीटर ऊंचा बांध बनाया जाएगा। इस पर कुल 4600 करोड़ रुपये की लागत आएगी। इसमें जल घटक पर 4325 करोड़ रुपये और बिजली घटक पर 275 करोड़ रुपये खर्च होंगे। बांध के जलाशय की इसकी जल भंडारण क्षमता 48.9 करोड़ घनमीटर होगी। हिमाचल प्रदेश को यमुना के 3.15 फीसदी जल का उपयोग करने का अधिकार होगा, इसके लिए उसे किसी से अनापत्ति प्रमाणपत्र की जरूरत नहीं होगी। वह अपने हिस्से का पानी किसी को भी बेच सकेगा।



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# जल स्वावलंबन अभियान में राजस्थान बनेगा देश में मॉडल : वेदिरे

मीडिया दल ने समझा  
जल प्रबंधन

जल संरचनाओं को  
देखकर जाने फायदे

प्रतिक्रिया न्यूज नेटवर्क  
rajasthanpatrika.com

उदयपुर : मुख्यमंत्री जल स्वावलंबन अभियान सिर्फ राजस्थान ही नहीं भारत का नाम विश्व में रोशन कर रहा है। इससे प्रदेश का भू-जल स्तर गत कुछ वर्षों में तेजी से बढ़ा है।

यह बात राजस्थान नदी बेसिन एवं जल संसाधन योजना प्राधिकरण के अध्यक्ष श्रीराम वेदिरे ने गुरुवार को उदयपुर प्रवास के दौरान कही। उन्होंने मीडिया दल के साथ मुख्यमंत्री जल स्वावलंबन अभियान के तहत विकास कार्यों का जायजा लिया। उन्होंने कहा कि



मुख्यमंत्री जल स्वावलंबन अभियान के तहत बनाए गए एमपीटी।

प्रदेश की स्थिति काफी बदल गई है जो देशभर में सुखे प्रदेश के नाम से पहचाना जाता था, वहां पर अब भू-जल स्तर में बीते कुछ सालों में 4 फीट 6 इंच का इजाफा हुआ है जो विश्व रिकॉर्ड है।

उन्होंने कहा कि इस सुधार के बाद हिंदुस्तान ही नहीं विश्व के कई

देश मुख्यमंत्री जल स्वावलंबन अभियान को उनके देश में लागू करने की तैयारी कर रहे हैं। जल्द ही प्रधानमंत्री नरेंद्र मोदी भी इस अभियान को बड़े स्तर पर शुरू करने की तैयारी कर रहे हैं। अभियान के चौथे चरण का सर्वे शुरू हो गया है जिसकी खास बात यह है कि यह

सर्वे सैटेलाइट और ड्रोन से किया जा रहा है। वेदिरे ने बताया कि अभियान के चतुर्थ एवं पांचवें चरण के कार्यों का सर्वे ड्रोन से किया जाएगा जिससे समय और मानव श्रम दोनों की बचत होने के साथ ही गुणवत्ता रहेगी। जल्लादा पंचायत के देवद में करीब 75 हेक्टेयर क्षेत्र में 12



अभियान के कार्यों के निरीक्षण के दौरान पौधरोपण करते अधिकारी।

एमपीटी एवं कई स्टगर्ड ट्रेंचेज का निर्माण हुआ है। इन जल संरचनाओं में वर्षा काल में आए पानी से भूजल स्तर में सुधार हुआ है। पीजोमीटर से नापने पर 1 मीटर से भी कम गहराई पर जलस्तर मिला जो इन संरचनाओं से पहले 15 मीटर गहराई तक था। इस अवसर पर कलक्टर

ग्रामीणों की जुबानी

हरियाली बढ़ी : महेंद्र सिंह नोपावत ने बताया कि अभियान के तहत ग्रामीण क्षेत्रों में बनाए गए एमपीटी से आसपास की पहाड़ियां हरी-सरी रहने लगी हैं। गत वर्ष की तुलना में इस वर्ष कुओं में भी पानी अधिक है। इससे लंबे समय तक सिंचाई के लिए और पीने के लिए पानी उपलब्ध होगा।

फसलों को नहीं होगा नुकसान : विजयलाल मीणा ने कहा कि एमपीटी होने से इस बार खेतों में फसल लहलहा रही है। हर बार बने की फसल के लिए केवल बारिश पर आश्रित रहते हैं, लेकिन इस बार भू-जल पर्याप्त मात्रा में है। ऐसे में पानी की कमी से फसल को नुकसान नहीं होगा।

पशुओं को भी मिला पानी : रामलाल ने बताया कि अभियान से पशुपालन में भी सहाय्य मिल रहा है। पशुओं के लिए पर्याप्त पानी उपलब्ध होने से सहयोग मिल रहा है। साथ ही पहाड़ियों पर भी चारा उगा रहा है, जो पशुओं के चरने में सहाय्यी है।

बिष्णुचरण मलिक, जिला परिषद के सीईओ कमर चौधरी, वाटर शेड अधीक्षण अभियंता सीएल सालवी, नई दिल्ली स्थित राजस्थान सूचना केन्द्र के अधिकारी गोपेन्द्रनाथ भट्ट सहित अन्य अधिकारी एवं जल्लादा प्रधान, मातामुला व भवराणा सरपंच सहित अन्य स्थानीय

जनप्रतिनिधि उपस्थित थे। मातामुला ग्राम पंचायत के जड़ाव में 20 हेक्टेयर वन भूमि पर करीब 25000 पौधों का रोपण किया गया है। यहां पर 3 एमपीटी भी बनाए गए हैं। जिला वन अधिकारी (खेदिगा) आरके जैन ने अभियान के तहत हुए कार्यों के बारे में बताया।



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कैग की रिपोर्ट ने उजागर की खामियां : आधे वादे भी पूरे नहीं कर सकी सरकारें

# बीतते गए साल, धीमी ही रही पेयजल परियोजनाओं की चाल

26 हजार करोड़ की 54 में से 37 बड़ी परियोजनाएं अधूरी



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इंडेक्स  
स्टोरी

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जयपुर. चुनावी साल में पेयजल संकट भले ही जनता की परेशानी और सरकार की चिन्ता बढ़ा रहा है लेकिन राज्य में 30 हजार करोड़ की 450 से अधिक पेयजल योजनाएं दिलाई की भेंट चढ़ रही हैं। राजधानी समेत राज्य का बड़ा हिस्सा पेयजल समस्या से जूझ रहा है लेकिन पेयजल परियोजनाओं की गति नहीं मिल पा रही है। इनमें कुछ योजनाएं तो ऐसी हैं जिनका काम 10 से 18 साल पहले शुरू हुआ लेकिन अब तक 50 फीसदी भी पूरा नहीं हो पाया है।

बीसलपुर बांध में पानी की आवक कम होने के कारण जलदाय विभाग बांध से जुड़े जयपुर समेत अन्य इलाकों में पेयजल आपूर्ति में कटौती कर रहा है। प्रदेश के अन्य इलाकों में भी पेयजल समस्या गहरा रही है। विधानसभा में भी यह मुद्दा उठा लेकिन कहीं जमीन पर कब्जा लेने तो कहीं ठेकेदारों के धीमे काम पर जलदाय विभाग ने ध्यान नहीं दिया। ऐसे में योजनाओं की गति धीमी होने के कारण तय है कि पेयजल समस्या दूर होने में अभी समय लगेगा।

बढ़ता पेयजल संकट बन सकता है चुनावी मुद्दा

इतनी धीमी चाल



ग्रामीण योजनाओं में ये होने हैं काम

पाइप युक्त जल योजना  
नलकूप  
हैंडपंप  
डिग्गी (लघु तालाब)

26 हजार करोड़ रुपए लागत की 54 बड़ी पेयजल योजनाओं में से

20,695

करोड़ की 37 योजनाओं की गति अत्यंत धीमी

कैग ने समन्वय बनाने की दी सलाह

कैग ने वर्षों से चल रही योजनाओं पर ध्यान नहीं देने के लिए सरकारी अफसरों के रवैये पर आपत्ति जताई है। साथ ही जलदाय विभाग को दूसरे मंत्रालयों, विभागों और अधिकारियों से समन्वय स्थापित करने की सलाह दी है।

## अठारह साल बाद भी योजना अधूरी

■ लवणता प्रभावित डोलपुर जिले के 106, भरतपुर के 945 गांवों और पांच कस्बों के लिए 1050 करोड़ की चंबल-भरतपुर-धौलपुर योजना पर काम 1999 से शुरू हुआ था। इसके 7 में से सिर्फ एक पैकेज पूर्ण हुआ है। अब तक 378 करोड़ रुपए खर्च हुए हैं। योजना 1999 से चल रही है।

■ नागौर लिफ्ट परियोजना 494 गांवों के लिए 1194 करोड़ रुपए

लागत से 2006 में शुरू हुई। यह अब भी अधूरी है। ठेकेदारों पर 26 करोड़ का जुर्माना लगाया लेकिन वसूला नहीं गया।

■ कोटा जिले के लाडपुरा तहसील की 77 बस्तियों की बोरवास पदमपुरा नयागांव कसार योजना का काम वन विभाग की आवश्यक मंजूरी के बिना होने के कारण 10 साल बाद भी अधूरी है।

14491 करोड़ रुपए लागत की ग्रामीण पेयजल योजनाओं में से

7,491

करोड़ की 119 योजनाएं भी तय समय से काफी पीछे

## विलम्ब के कारण

बड़ी परियोजनाएं

■ 05 परियोजनाएं संबंधित विभागों से आवश्यक मंजूरी लेने में देर

■ 13 परियोजनाएं जमीन पर कब्जा लेने में देर

■ 06 परियोजनाएं आवश्यक मंजूरी और जमीन पर कब्जा लेने में देर

■ 13 परियोजनाएं ठेकेदारों ने गति धीमी रखी, बजट की कमी

## ग्रामीण योजनाएं

■ 48 भूमि विवाद के कारण देर

21

मंजूरी जारी करने में देर की

15

स्रोत संबंधी देर

08

मंजूरी में देर

03

बजट की कमी

24

अन्य समस्याओं के कारण



15.09.2018

Hindustan Times

Statesman

The Times of India (N.D.)

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Tribune

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M.P. Chronicle

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Nai Duniya (Hindi)

The Times of India (A)

Business standard

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

## Power games

Polymakers, not courts, should take charge to resolve structural issues in the power sector

The Supreme Court has ordered a stay on the Reserve Bank of India's February 12 circular asking banks to recognise loans as non-performing even if repayment was delayed by just one day, and resolve them within 180 days. If banks failed to comply with the RBI's new rules, these stressed assets had to be forced to undergo swift insolvency proceedings under the new Insolvency and Bankruptcy Code (IBC). This comes just weeks after the Allahabad High Court refused to grant relief to troubled power companies facing action from the RBI. The apex court's decision to overturn RBI rules and transfer all pleas seeking exception from them to itself is clearly the biggest challenge against the IBC yet. It is likely to cause significant uncertainty in the resolution of stressed assets and undermine investor confidence in the bankruptcy process. The postponement of the Supreme Court's next hearing of the case to mid-November will send the signal that in contrast to hopes that asset resolution under the new bankruptcy regime would be done within a strict time frame, there are likely to be considerable delays in the resolution of stressed assets. Distressed power companies, and a number of other firms in the shipping, sugar and textile sectors, however, will be relieved as they are spared from bankruptcy proceedings for now. According to the Association of Power Producers, the Supreme Court's order will save stressed companies producing 13GW worth of power from being pushed to the doors of bankruptcy courts. Banks, too, will be happy as the reprieve will help them delay the recognition of bad loan losses.

The Supreme Court's decision to intervene, however, will do very little good in the long run to either stressed power companies or their lenders. The troubles of power companies can be traced to structural issues such as the absence of meaningful price reforms, unreliable fuel supply and the unsustainable finances of public sector power distribution companies. Banks, on the other hand, are unlikely to make much money out of these stressed assets until these structural problems are sorted adequately to attract investors. Polymakers, not courts, need to take charge and resolve these issues. That said, the current insolvency resolution process is not without its flaws. According to a report released by the Insolvency and Bankruptcy Board of India earlier this month, lenders could realistically expect to recover less than a tenth of their dues if stressed assets are to be liquidated. This could be attributed to the IBC's overemphasis on the speedy resolution of bad loans over the recovery of maximum value from stressed assets. Not surprisingly, several power companies emphasise that their assets could yield better returns if the issues are resolved completely outside the purview of the IBC. The Supreme Court's decision has now provided lenders the chance to test this argument.



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

## Flash floods claim 3 lives in Itanagar

PRESS TRUST OF INDIA  
ITANAGAR, 14 SEPTEMBER

Flash floods triggered by a cloud burst claimed at least three lives while two persons went missing in the Arunachal Pradesh capital on Friday morning, police said.

Search and rescue operations are on to trace the missing duo, while two persons rescued are undergoing treatment at a hospital, officials said.

Body of a minor boy was retrieved from the Papu Nallah area, while body of another person was found in the Nirjulil area, police said.

A woman from the Donyi Polo area, who was rescued with multiple fractures, succumbed to injuries at the RK Mission Hospital here, they said.

Twenty-six houses have been washed away while over 60 were fully or partially damaged at affected sites like Modirijo, the Donyi Polo area, Chandra Nagar, Lobi, GSS Police colony, Press colony, said Prince Dhawan, Deputy Commissioner, Itanagar.

The approach road to Modirijo was completely washed away, while half of a culvert in the Donyi polo area was reported to be damaged. A few cars and a few bikes were also reportedly swept away by the floods.

Chief Minister Pema Khandu has expressed deep shock and sorrow over the loss of lives. He announced immediate release of ex-gratia of Rs 4 lakh each to the next of the kin of the deceased and prayed for early recovery of those injured.

Assuring all possible support from the government,

**At least 26 houses have been washed away while 60 were fully or partially damaged. Five teams from the NDRF and four from the SDRF have been deployed**

Khandu directed the district administration and the disaster management department to continuously monitor the situation.

The chief minister directed chief secretary Satya Gopal to personally oversee the rescue operation and shift the people from vulnerable areas to safer places.

Five teams from the National Disaster Response Force and four from the State Disaster Response Force have been deployed, officials said.

Itanagar MLA Techhi Kaso was personally supervising the rescue operation and has directed the district administration to arrange blankets and other essentials for the affected people.

The administration has set up two relief camps at Modirijo government primary school and Donyi Polo government primary school, officials said.

The most affected areas include Modirijo, the Donyi Polo area, Lobby, Chandranagar and Chimpu, they said.

The land protection wall of several streams and rivulets in the state capital has been badly damaged following the floods.

Public Health Engineering Department sources said water tanks at Poma and Itanagar were badly damaged, causing disruption in water supply.



News item/letter/article/editorial published on 15.09.2018 in the

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Nav Bharat Times (Hindi)  
Punjab Keshari (Hindi)  
The Hindu  
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M.P.Chronicle  
Aaj (Hindi)  
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Nai Duniya (Hindi)  
The Times of India (A)  
Business standard

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## Thai ambassador 'disappointed' with govt for refusing Kerala flood relief

**NEW DELHI:** Thailand's ambassador to India Chutintorn Gongsakdi has expressed his disappointment over procedural issues in accepting foreign assistance for relief work after floods wreaked havoc in Kerala in August.

The ambassador posted a tweet on Thursday evening, in which he referred to the issues with the offer of foreign help.

Thailand had proposed government-to-government assistance but it was "politely refused" by India, Chutintorn said. Business-to-government assistance by Thai companies registered in India was then proposed by the authorities. He claimed he was "politely advised not to be present at handing over" ceremony where the companies would hand over the relief amount. The ambassador said he has asked Thai companies registered in India to proceed without his presence.

"I saw the suffering & I knew the private sector wanted to contribute. I just tried to find a way while respecting host government's guidelines. I believe in perseverance... I hope they contribute the ₹54,00,000," he said in reply to a tweet.

India does not accept foreign aid for relief work and had sensitised its foreign missions to convey the message to their respective governments. The contribution from Thai companies was to be handed over to the Resident Commissioner of Kerala in New Delhi. The amount would be donated to the Chief Minister's Relief Fund.

The ambassador also posted a letter from the embassy to Thai companies expressing the envoy's inability to attend the functions to hand over the relief supplies.

The ministry of external affairs did not respond to a query about the envoy's tweets.

### ₹1,236-CRORE SPENT ON RELIEF WORK: MINISTER

An amount of ₹1,236 crore has so far been spent by the Kerala government on relief works to overcome the devastation caused by the deluge last month, industries minister EP Jayarajan said on Friday.

HTC



15.09.2018

Hindustan Times  
Statesman  
The Times of India (N.D.)  
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Hindustan (Hindi)

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The Hindu ✓  
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## 3 killed in Arunachal flood, landslides

Three reported missing; water supply to Itanagar, Naharlagun disrupted

RAHUL KARMAKAR  
GUWAHATI

Three people, including a minor, were killed and three reported missing after incessant rainfall since Wednesday caused landslides and flash floods between Arunachal Pradesh capital Itanagar and satellite city Naharlagun.

Officials of the State's Disaster Management Department said the incident occurred at Modirijo and Donyi-Polo areas, about six km from Itanagar.

Twenty houses were either washed away or partially damaged in the Midirijo area while nine houses were damaged by flood and landslides in the Donyi-Polo area.

Many cars and two-wheelers were washed away or buried under debris, particu-

larly between the Potin and Pangin stretch of National Highway 13 where landslides have been reported in several places.

### Two rescued

Two people were rescued by a search and rescue team. "Six people were swept away along with 12 houses built very close to a hill stream about 4 a.m. We recovered two bodies while a woman who was rescued alive, succumbed to her injuries in the hospital," M. Harshvardhan, Superintendent of Police of Capital Complex (comprising Itanagar and Naharlagun), told *The Hindu*.

"Teams of National and State Disaster Response Force have joined the search and rescue operation, but constant heavy rainfall has

slowed things down," he said. Itanagar, on a higher altitude than Naharlagun, and the 15 km stretch in between have several streams that flow into the Dikrong river beyond.

Capital Complex Deputy Commissioner Prince Dhanwan said water supply lines to large parts of the twin cities have been affected.

Condoling the death, Arunachal Pradesh Chief Minister Pema Khandu directed the authorities concerned to evacuate people from vulnerable areas close to streams.

He also announced immediate release of ex-gratia payment of ₹4 lakh each to the next of kin of the deceased.

The administration in Lakhimpur district, adjoining the flood-hit areas of Aru-

nachal, has put out a high alert after North Eastern Electric Power Corporation Ltd released water from its Ranganadi dam on Thursday. The hydroelectric project is at Yazali in Arunachal Pradesh.

### Rising water levels

Officials said about 20 villages under the Naoboicha revenue circle in Lakhimpur have been inundated by the overflowing Ranganadi. The water levels of Dikrong and Singra are also rising due to heavy rain in the district and Arunachal Pradesh beyond.

Railway services between North Lakhimpur and Murkongselek were also disrupted on Friday due to rain-induced damage to the railway track, a Northeast Frontier Railway spokesperson said.



Hindustan Times  
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# 'Pollution cools monsoon days'

Study says aerosol emissions cause temperature drop of 1 degree Celsius

R. PRASAD  
CHENNAI

Increased emissions of aerosols into the atmosphere due to pollution are beginning to have a definite cooling effect of 1 degree C during the Indian summer monsoon period, a study has found.

The increased cooling is seen during the day, while the night time temperature is increasing, thus shrinking the diurnal temperature difference. The diurnal temperature difference is what drives the convection process (where water evaporates and reaches the atmosphere as water vapour), and development of clouds.

## Shape, characteristics

As diurnal temperature difference decreases, the lower layer of the atmosphere will reduce in height and come closer to the earth's surface.



This will cause more aerosols to get into the atmosphere, thus impacting the lower atmospheric turbulence, which may eventually affect the distribution of moisture and rainfall.

"The increased concentration of aerosols in the atmosphere also tends to change the shape and characteristics of rain-bearing clouds, leading to extreme rainfall events but weakened monsoon rainfall," says Professor Sachchida Tripathi

from the Indian Institute of Technology (IIT)-Kanpur.

## Striking similarity

The study by a team of researchers led by Professor Tripathi, and Dr. Vijay Kanawade from the University of Hyderabad, found striking similarity between satellite data (2002-2016) and a global reanalysis modelled data that showed cloud structure being modified with increased aerosol emission.

Rain-bearing clouds were found to increase in number and height when aerosol emission is higher. The clouds also tend to have a far higher number of ice particles that are smaller in size when aerosol loading is higher, thus reducing the efficiency of water droplet growth, says the paper published in *Nature Communications* by Chandan Sarangi

of IIT-Kanpur. "We found that when there is high aerosol loading, there will be more water droplets in the atmosphere. Once the droplets reach above the freezing level, ice formation begins. Heat is given off when ice formation processes begin. This acts as a fuel to make the cloud grow taller and thicker," says Dr. Kanawade.

"When aerosol loading is higher, the anvil (cloud top) contains more number of smaller ice particles, which tend to reflect the shortwave radiation from the top of the cloud, leading to increased cooling of the earth's surface. Cooling by shortwave radiation surpasses warming by longwave radiation, leading to net reduction in daytime temperature during the summer monsoon," says Prof. Tripathi.



Hindustan Times

Statesman

The Times of India (N.D.)

Indian Express ✓

Tribune

Hindustan (Hindi)

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The Times of India (A)

Business standard

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# Erratic monsoon rainfall in India partly due to air pollution: study

AMITABH SINHA  
PUNE, SEPTEMBER 14

THE ERRATIC behaviour of monsoon rainfall, including the phenomenon of concentrated heavy rainfall on a small number of days, could, at least in part, be attributed to the rising air pollution, especially the increase in suspended particles in the atmosphere, a new study by scientists from IIT Kanpur has said.

The study, published in the prestigious journal, Nature Communications, on Friday has shown how excess aerosols, suspended solid particles like dust, smoke and industrial effluents, in the atmosphere is changing cloud patterns, its shape, size and other properties like temperature, which in turn is resulting in variability in rainfall over the Indian sub-continent during the monsoon season.

"Aerosols are extremely important for cloud formation. In fact, in the absence of aerosols, no clouds would be formed and consequently no rainfall will take place. But as we know, excess of everything is bad. That is what is happening here. An increase in the aerosol content in the atmosphere, a direct consequence of rising air pollution, is inter-

**The study shows how aerosols, suspended solid particles like dust, smoke and industrial effluents in atmosphere is changing cloud patterns**

fering with the stable cloud formation system and influencing rainfall patterns," S N Tripathi, professor at the Centre for Environmental Science and Engineering at IIT Kanpur and one of the authors of the study, said.

Tripathi said in short term, these changes in cloud structure and cloud dynamics lead to sharp variability in rainfall, the kind of which is being witnessed very often in India in the last few years. In the long term, it is likely to lead to an overall suppression of rainfall during the monsoon season, he said.

"This year, Nagpur and Ujjain witnessed unusually heavy rainfall on certain days. Such rainfall events are not normal. We suspect that changing cloud dynamics could have a role to play in events like these. The high pollution levels are not just changing cloud

shape and size and depth, but also its microstructure," Tripathi said.

Tripathi's student, Chandan Sarangi, is the lead author of the study. Other authors are Vijay Kanawade and Abin Thomas of University of Hyderabad, and Dilip Ganguly of IIT Kanpur.

The group analysed satellite data and data from atmospheric computer models from the last 16 years to make an assessment of the likely impacts of changes in cloud behaviour over land area of about 16 lakh square kilometres.

The linkage of air pollution to rainfall activity is not new and has been established in many earlier studies as well. Tripathi's team, however, has, for the first time, given details of the exact changes that take place in the clouds over India as a result of an increase in aerosols, and how this was leading to a reduction in the difference in day and night temperatures, and also impacting rainfall activity.

Since the Uttarakhand tragedy in 2013, India has had an unusually extreme rainfall event every year. Long-term rainfall data also shows that rainfall activity is getting increasingly concentrated to a few extremely wet days during the season, while most of the other days remain relatively dry.



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**ECONOMIC TIMES** ✓

# Govt Reinstates Safeguard Duty on Imported Solar Panels & Modules

Move follows Supreme Court order on imposing duties on equipment imported from China and Malaysia

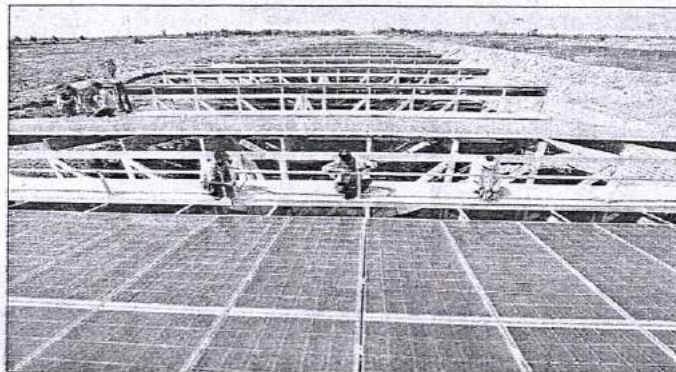
**Kaavya.Chandrasekaran**  
@timesgroup.com

**Bengaluru:** The finance ministry has formally told the customs department to reinstate the safeguard duty on solar panels and modules imported from China and Malaysia, following an order of the Supreme Court.

The ministry has written to the chief commissioner of customs on Friday to reinstate safeguard duty and that its former order staying the imposition of the duty "now stands withdrawn with immediate effect".

This week, the Supreme Court had issued an order allowing the government to impose the duty, setting aside an order of the Orissa High Court that stayed the levy.

In mid-July, the Directorate General of Trade Remedies (DGTR) had recommended imposing safeguard duty



ET ARCHIVES

of 25% on solar panels and modules imported from China and Malaysia for a year, followed by 20% for the next six months, and 15% for another six. Solar developer Acme Solar had chal-

lenged the DGTR's recommendation in the Orissa High Court, which temporarily stayed its notification. A final decision on the matter is yet to be reached.

Local solar manufacturers had complained to the Director General of Safeguards in December last year that growing imports of solar equipment were posing a serious threat to the domestic manufacturing business. In January, the DGS recommended setting a safeguard duty of 70% for 200 days on solar imports in a preliminary order. Following petitions filed by developers, the Madras High Court stayed the order. The DGTR announced its final decision in mid-July.

Around 90% of panels and modules used in Indian solar projects are imported from China and Malaysia because they are significantly cheaper than their Indian counterparts. The safeguard duty is likely to make the prices competitive, albeit for a limited period. However, it is also likely to raise solar tariffs, as solar developers pass on the added cost to discoms buying power from them.



Hindustan Times

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**ECONOMIC TIMES** ✓

## Heavy Rains Increase Kharif Crop Planting by 1% This Season

**Our Bureau**

**New Delhi:** Crop planting this kharif season is about 1% higher than a year ago, with heavy rains across Rajasthan, Odisha, Madhya Pradesh and eastern India in the last one week helping farmers speed up sowing.

According to agriculture ministry data, major crops have been planted on 1,053.03 lakh hectares this kharif season, compared with 1,045.55 lakh hectares a year ago. The area under coarse cereals, cotton and pulses has fallen, while that for oilseeds, rice and sugarcane has increased.

Although rainfall since June

1 is 8% below normal in the country, India's 91 major reservoirs currently hold 31% more water than they did a year ago. At 121.655 billion cubic metres, it is 11% higher than the 10-year average, suggesting better water availability for crops after the monsoon ends.

Rice, the main kharif crop, has been planted on 383.34 lakh hectares, which is 2.28% higher than the previous year, as per the ministry data.

The acreage under pulses has fallen by 0.86% to 137.41 lakh hectares, while that for moong-bean and arhar are higher by 7.5% and 0.86%, respectively. Planting of uradbean is down 8.81%. The overall acreage for coarse cereals has declined

3.71% to 175.46 lakh hectares. Bajra, the major coarse cereal planted in summer, has seen a drop along with ragi, jowar and small millets.

Planting of oilseeds has increased by 3.09% to 177.29 lakh hectares. Farmers in rainfed parts have started planting castor, whose acreage has been increasing in the last few weeks. Soyabean planting is 6.37% higher at 112.50 lakh hectares. However, groundnut planting has fallen by 2.88% and so has planting of sunflower and niger.

Cotton planting has dropped by 0.35% to 120.56 lakh hectares, while sugarcane acreage has increased by 4.17% to 51.94 lakh hectares.



News item/letter/article/editorial published on 17.09.2018 in the

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The Times of India (N.D.)

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## पहाड़ों से पानी निकालेगा जलबोर्ड

नई दिल्ली, (पंजाब केसरी): दिल्ली वालों की पानी की जरूरत पूरा करने के लिए दिल्ली जलबोर्ड अब पहाड़ों से भी पानी निकालने की तैयारी कर रहा है। जलबोर्ड पहाड़ी सतह वाले एरिया में ट्यूबवेल लगाने जा रहा है। इसके लिए जलबोर्ड की ओर से प्रोजेक्ट भी तैयार कर लिया है। इसके लिए नई तकनीक का सहारा लिया जाएगा। पहाड़ी सतह में खुदाई करके पानी निकालने के क्षेत्र में काम करने वाली कंपनियों से यह तकनीक मांगी जाएगी।

इस संबंध में कंपनियों से प्रजेंटेशन भी मांगी गई है। कंपनियों को कहा गया है कि वे एक महीने में अपने-अपने प्रस्ताव जल बोर्ड को भेजें, जिसका प्रस्ताव सबसे बेहतर होगा, उसी पर काम किया जाएगा। जलबोर्ड के एक



अधिकारी ने बताया कि इस प्रोजेक्ट की मदद से दिल्ली के हर कोने में पानी पहुंचाने की योजना को मदद मिलेगी। जलबोर्ड का कहना है कि उनके पास पानी की सप्लाई सीमित सोर्स हैं। यमुना और मुनक नहर सबसे बड़ा सोर्स है, लेकिन इसके लिए भी जल बोर्ड को हरियाणा पर निर्भर रहना पड़ता है। इन वॉटर ट्रीटमेंट प्लांट्स से

सभी जगह तक पानी पहुंचाना बहुत मुश्किल है इसलिए जल बोर्ड ट्यूबवेल का सहारा ले रही है, लेकिन जहां स्तर पहाड़ी है, वहां पर ट्यूबवेल भी नहीं है। उन्होंने बताया कि पहाड़ी सतह में बोरिंग सामान्य तरीके से नहीं की जा सकती। इस वजह से उस एरिया के लोगों को पानी की समस्या से दो बार होना पड़ता है।



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## भू-जल जांच के लिए संयुक्त समिति बनाने का आदेश 17-9

फरीदाबाद | वरिष्ठ संवाददाता

सेक्टर-छह स्थित औद्योगिक क्षेत्र की 60 कंपनियों से कथित तौर पर निकल रहे रसायनों के कारण सेक्टर-सात, चार, आठ, तीन और सेक्टर-नौ क्षेत्र का भू-जल प्रदूषित हो रहा है। सेक्टर-सात निवासी एक अधिवक्ता की याचिका पर नेशनल ग्रीन ट्रिब्यूनल ने भूजल और कंपनियों से निकल रहे रसायन की जांच के लिए विभिन्न विभागों की एक संयुक्त समिति बनाने का आदेश दिया है। समिति को तीन माह के अंदर अपनी रिपोर्ट एनजीटी को भेजनी होगी।

सेक्टर-सात निवासी सुप्रीम कोर्ट के अधिवक्ता गौरव जैन ने मैसर्स स्टेडर्ड एनलाइटिकल लैबोर्टरी प्राइवेट

लिमिटेड से सेक्टर-सात के पेयजल की जांच करवाई थी। जांच में पेयजल मानकों पर खरा नहीं उतरा है। यहां टीडीएस यानी पानी में (टोटल डिजोल्व सोलिड्स) 500 के मुकाबले 4,814 है। टोटल हार्डनेस 200 के मुकाबले 1,512 है।

इस रिपोर्ट को आधार बनाकर अधिवक्ता ने नगर निगम को शिकायत दी। मगर, नगर निगम ने यह कहते हुए कार्रवाई करने से इनकार कर दिया कि रेनीवेल प्रोजेक्ट के शुरू होने से इस समस्या का समाधान हो जाएगा। इस पर पीडित ने इसी माह एनजीटी में एक याचिका दायर की थी। उन्होंने याचिका में बताया था कि फैक्टरियों में ट्रीटमेंट प्लांट नहीं है या वे खराब हैं।



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# हिंद महासागर में चीन की बढ़ती उपस्थिति के मद्देनजर रणनीतिक लाभ होगा, दोनों देशों के बीच सहयोग की यह सबसे बड़ी योजना समुद्री निगरानी के लिए भारत-फ्रांस मिलकर उपग्रह भेजेंगे

## सहयोग

बेगलूर। एजेंसिया

हिंद महासागर में चीन के बढ़ते दखल से निपटने के लिए भारत और फ्रांस मिलकर 8 से 10 उपग्रह कक्षा में स्थापित करेंगे। ये उपग्रह समुद्री निगरानी का काम करेंगे। यह जानकारी खुद फ्रांसीसी अंतरिक्ष एजेंसी सीएनईएस के प्रमुख जीन युक्स ली गाल ने रविवार को दी।

गाल ने कहा, भारत के साथ अंतरिक्ष क्षेत्र में फ्रांसीसी सहयोग की यह सबसे बड़ी योजना होगी।

उन्होंने कहा, प्रस्तावित 8 से 10 उपग्रह मुख्य रूप से हिंद महासागर की निगरानी पर ध्यान केंद्रित करेंगे, जहां पर चीन की लगातार उपस्थिति बढ़ती जा रही है।

फ्रांसीसी एजेंसी के प्रमुख ने कहा, भारतीय अंतरिक्ष अनुसंधान संगठन (इसरो) के मंगल और शुक्र के अंतर अंतरिक्ष मिशन में भी फ्रांस विशेषज्ञता उपलब्ध कराएगा।

उन्होंने कहा, समुद्री निगरानी के लिए उपग्रह छोड़ने संबंधी बातचीत दोनों देशों में शुरू हो गई है। इसमें समय लगेगा, लेकिन यह समय पांच साल से अधिक नहीं होगा।

## मार्च में सहयोग के लिए हुए थे करार

फ्रांसीसी राष्ट्रपति की इस साल मार्च महीने में हुई भारत यात्रा के दौरान इसरो और सीएनईएस ने अंतरिक्ष क्षेत्र में सहयोग को लेकर संयुक्त प्रश्नोत्तर जारी किया था। इसमें डिजाइन और तकनीक को संयुक्त रूप से विकसित करने की बात की गई थी। उद्घरण के लिए स्वतः पहचान प्रणाली, समुद्री और जमीन संपत्ति की निगरानी और सुरक्षा आदि।

08

से 10 उपग्रह समुद्री यातायात पर निगरानी के लिए भेजे जाएंगे



## हिंद महासागर में समुद्री यातायात के प्रबंधन में सहूलियत

फ्रांसीसी अंतरिक्ष एजेंसी सीएनईएस के प्रमुख जीन युक्स ली गाल ने कहा, इन उपग्रहों से हिंद महासागर में समुद्री यातायात के प्रबंधन में सहूलियत होगी। गौरवतः है कि भारत का मुख्य ध्यान हिंद महासागर पर है।

## 'त्रिशा' पर सहयोग

दोनों देशों की एजेंसिया इफारेड की मदद से ब्रिटी की निगरानी के लिए 'त्रिशा' उपग्रह और 'ओरिजन-3 एगो' मिशन पर काम कर रहे हैं। सीएनईएस भारत के साथ जापान एक्स्प्रेस एक्सप्लोरेशन एजेंसी और जर्मनी की अंतरिक्ष एजेंसी डीएलआर के साथ भी काम कर रहा है।

## गगनयान पर साथ

इसरो और सीएनईएस ने पिछले दस वर्षों में सहयोग के लिए करार किया है। भारत का लक्ष्य 2022 तक इस मिशन को भेजना है। फ्रांस विशेषज्ञता सुझाव दे रहा है। दोनों देश जलवायु परिवर्तन की निगरानी का मिशन मेषा-ट्रॉपिकस और सरल-ऑर्बिटर पर कर चुके हैं।



Hindustan Times  
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As part of the new policy, farmers would have to be made aware of international demand and prices.

#### AGRI TRADE POLICY

## Farm export limits could be fixed even during low supplies

Zia Haq  
ziahq@live.com

**NEW DELHI:** India's proposed move towards a liberal agricultural exports regime will require the government to fix permanent threshold quantities of farm commodities that will be free from any kind of trade restrictions, a senior government official said.

If implemented, this will be a critical shift away from past policies because the country will have to keep a certain level of farm exports going even when the supplies are low, for example during drought.

Interministerial consultations are currently on to finalise a new commerce ministry-anchored policy on farm trade, in step with the government's target of doubling farmers' income by 2022.

It seeks to boost agricultural exports from \$30 billion currently to nearly \$60 billion by 2022 and remove restrictions on trade of farm commodities, other than those "critical to the country's food security". India has frequently clamped down on farm exports to shore up domestic supplies and to keep prices in check. The new policy seeks to reverse this approach.

"We will now need to scientifically determine threshold limits of quantities of key commodities which will have to remain free for exports," agriculture secretary SK Pattanayak said.

To finalise the policy, authorities will need extensive data crunching, fairly reliable output estimates and harmonizing of domestic production with global demand, officials said after a review by the Prime Minister's Office last week.

These are tough challenges, independent experts say. The sector is blighted by market imperfections, such as lack of transparency and information about prices, supply and demand. Middlemen often rig the system to their advantage.

The government's Doubling

**THE NEW POLICY SEEKS TO BOOST AGRI EXPORTS FROM THE CURRENT \$30 BILLION TO NEARLY \$60 BILLION BY 2022**

Farmers' Income (Volume IV) report last year stated that India's exports policy "does not promote agricultural trade but is mainly used to control prices in the domestic market". For instance, a three-year ban on non-basmati rice exports during 2008-11 amid a rice glut led to a "notional loss of \$5.6 billion".

Such moves disrupt trade and create unpredictability for importing nations. India's farmers now have consistently jacked up production of commodities such as sugar, onion, soya, wheat and rice, causing prices to crash. Pulses output has shot up to about 17-18 million tonnes from 13-15 million tonne levels just five years ago. The country, therefore, now needs new exports markets.

It will still be difficult to suddenly globalise India's agriculture, analysts say. "Either you have an open trade policy or you do not. These kinds of highly calibrated policies do not work," said Praveesh Sharma, a senior visiting fellow at the Indian Council for Research on International Economic Relations, a think tank.

Sharma said for a trade policy to work, it is also important to also have an open import policy. "For instance, our non-farm imports tariffs are around ASEAN levels, between 18-20%, but agricultural tariffs are still very high," he said. ASEAN is short for the Association of South-East Asian Nations.

Pattanayak, the agriculture secretary, said as part of the new policy, farmers would have to be made aware of international demand and prices. "We aim to do this through farmer producer organizations," he said.



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Harbir Singh at his nursery in Dadlu village, Kurukshetra.

# Indian roots of Italian chillies

VIJAY C ROY

**L**USH green Italian chilli farms have roots in Haryana, thanks to Harbir Singh, an enterprising farmer of Dadlu village in Kurukshetra. He has been exporting chilli seedlings to Italy for the past three years. So far, he has exported about 1 lakh seedlings.

Holder of a master's degree in political science from Kurukshetra University, Singh chose farming over a nine-to-five job. Like others, he started his farming career with wheat, paddy and vegetables. He, however, wanted to do something different that would be exciting besides more remunerative than the traditional farming.

"The earning from traditional agriculture was diminishing, so I was compelled to

diversify. Finally in 2005, I took a plunge into raising a nursery for vegetable farming," says Singh.

Initially, he began with a nursery on a small land spread over around 2 kanals (roughly 1,000 square yards). Despite having burnt fingers after incurring huge losses in the first two years, he did not give up. He experimented with several vegetables including green chilli, tomato, capsicum, brinjal, onion and cauliflower of different hybrids and varieties.

Now his vegetable nursery is spread over 15 acres. Out of the total 14 acres are open while one acre is under the polyhouse. Today, on an average, he raises around 10 crore seedlings per annum.

What made Singh famous was the uniqueness of his crops. His plants that were first popular only in Haryana, soon

became a favourite of people across the country and abroad.

He developed a low-cost vegetable nursery at his farm and helped other farmers in diversifying from traditional crops to remunerative vegetable farming. He made refinement in technologies and management practices for cultivation at the micro level.

"We have evolved innovative ways of nursery media preparation with available local material," he says. The nursery media preparation developed by him were biogas slurry, river bed sand containing silica and burnt rice husk ash for growing vegetables. Later, he also added drip irrigation and micro sprinklers.

He has established a laboratory for experiments and after trials the plants are recommended for cultivating vegetable nursery. Currently, he is meeting the seedling requirements of over 7,000 farmers from neighbouring states of Rajasthan, Punjab, Himachal Pradesh, Uttar Pradesh, Uttarakhand and Bihar.

A large number of farmers are associated with him and getting the nursery on advance booking. His skills in diversification and innovative ways of cultivation have earned him several awards and recognitions from government and private agencies. In 2015, he was awarded as best horticulturist of Haryana. Due to his achievements in farming sector, Singh was awarded the NG Ranga National Farmer Award by the Indian Council of Agricultural Research in 2017. He also got Haryana Nursery Ratan award in the third Haryana Agri Summit, 2018.

"Each and every farmer wants to earn profit, but to earn profit we have to walk hand in hand with technological advancements in agriculture", says Singh.

He has specially brought papaya seeds from Taiwan and America for his nursery.

## MAJOR AGRITECH STARTUP DEALS

Startup	Investment	Investor	Period
RML Agtech	\$4 million	Iycap Ventures	Jan-17
Paalekin	Undisclosed	Angels	Feb-17
Agrostar	\$10 million	Accel, IDG, Aavishkar	Mar-17
Farmart	Undisclosed	Indian Angel Network (IAN)	Mar-17
Waycool	\$2.7 million	Aspada Ventures	Apr-17
Ninjocart	\$5.5 million	Nandan Nilekani	Apr-17
Utkal Tubers	\$4.6 million	CapAleph, Zephyr Peacock	May-17
Crofarm	\$783 thousand	Factor [E] Ventures	Aug-17
EM3 Agriservices	\$10 million	Global Innovation Fund, Aspada	Aug-17
Cropin	Undisclosed	Beenext, Ankur Capital, BSP Funds	Sep-17
Gold Far	\$2 million	Mahindra & Mahindra, Infuse Ventures	Oct-17
Farmtaza	\$8 million	Epsilon Venture Partners	Oct-17
Gobasco	Undisclosed	Matrix Partners	Nov-17
Farmlink	\$3 million	Pioneering Ventures, Syngenta	Nov-17

SOURCE: NMOOR AGRICULTURE MINISTRY

## Startups in India

Application for startups	16,324
Officially recognised	11,129
Mentored for incubation	550

## Government funding

Corpus	₹10,000 cr
To be released by	2025
Startups received funds	142
Total funds received	₹602.60 cr

## Incubators: Existing and proposed\*

Indian School of Business	Punjab
National Institute of Technology	Kurukshetra
Entrepreneurship Development Institute	J&K
JCB Limited	Chandigarh

\*UNDER THE ATAL INNOVATION MISSION (AIM)

## Technology Business Incubators (TBIs)

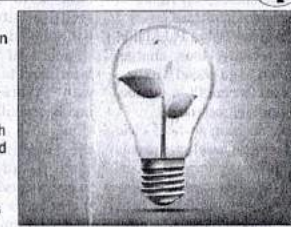
IIT Mandi	Himachal Pradesh
IISER Mohali	Punjab
NIT Jalandhar	Punjab

(SOURCE: LOK SABHA, Q&A, JULY 23, 2018)

## Agri startup funding

\$3.23 bn was invested in agricultural sector worldwide of which, 53 Indian agritech startups raised \$313 mn

AGRICULTURE'S AGITECH INVESTING REPORT



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Hindustan Times  
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# Reform is all about getting the politics right

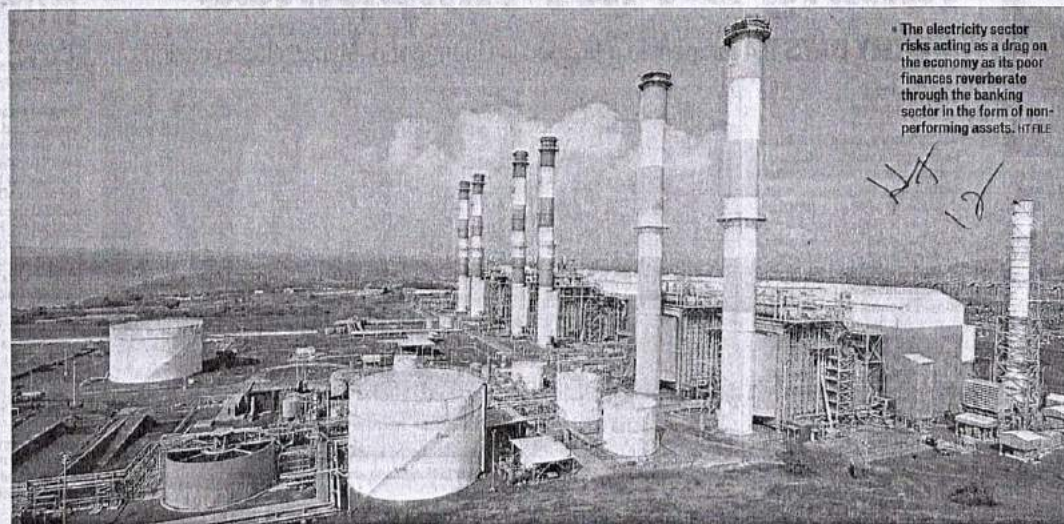
**FACING RISK** Electricity is invariably political in India. Far from de-politicising the sector, reform will require deeper, but careful engagement with politics

Navroz K Dubash, Sunila Kale and Ranjit Bhargava

**T**he Indian economy is among the fastest growing in the world. Sustaining this growth requires a healthy electricity sector that is able to meet increased demands, ideally alongside an eye to environmental sustainability. Yet, electricity consumers continue to face unreliable supply, distribution utilities are in poor financial health, and, most problematic, power plants remain under-utilised even as a universal 24 X 7 supply remains an unfulfilled promise. Far from buttressing growth, the sector risks acting as a drag on the economy as its poor finances reverberate through the Indian banking sector in the form of stubbornly intractable non-performing assets.

These long-standing problems have not persisted for want of attempted solutions: opening up the sector to private generation; regulatory reforms; an omnibus federal Electricity Act in 2003 to introduce competition; and successive efforts to restructure discom finances. The persistence of utility failures speaks to an underlying flaw in the approach taken thus far. All past reform efforts have had, at their core, a common effort to insulate the sector from politics.

In our recently released book *Mapping Power*, we argue that this approach is misplaced. Electricity reform will succeed only by providing greater political payoffs than the flawed status quo. In a developing country like India, where citizens' life chances are strongly influenced by electricity access, costs, and performance, electricity is invariably political, and this is how it should be in a democratic polity. Far from de-politicising the sector, successful reform will require



The electricity sector risks acting as a drag on the economy as its poor finances reverberate through the banking sector in the form of non-performing assets. HT FILE

## Crucial factor

Four categories are crucial in understanding the political economy of power: demand for access and service quality, demand for subsidies, cost of supply, and available financial space. The first two represent political demands placed on the system and the last two represent the extent of breathing room that enables states to manage those political demands. While the importance of each of these factors may vary across states, collectively these four categories, combined with the reform process and the interaction between them as shown in the figure, constitute a way to map the political economy of power in states.

### State political economy of power

Demand for service quality	Demand for subsidies
Available financial space	Cost of supply

### Reforms

Regulators	Bailouts
Privatisation	Renewable energy Promotion
Rural electrification	

## Tomorrow Transformation in Uttar Pradesh

ing up the sector to private generation; regulatory reforms; an omnibus federal Electricity Act in 2003 to introduce competition; and successive efforts to restructure discom finances. The persistence of utility failures speaks to an underlying flaw in the approach taken thus far. All past reform efforts have had, at their core, a common effort to insulate the sector from politics.

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deeper, but more careful, engagement with politics.

Is productive political engagement possible in the power sector, leading to simultaneous electoral and electricity gains? To explore this question, we worked with a set of talented researchers to examine the politics of electricity in fifteen states from the mid-1990s to the present. In this introductory article we explain what our work suggests, not only for why politics is important for India's power sector but how it is best examined and addressed. In articles that will appear throughout this week in these pages, four of our colleagues share their state-level case study findings.

Our framework for mapping power can be summarised in three steps.

First, start with understanding state-specific factors driving politics and power. Thus, electricity politics may be driven by subsidy and quality of service in Delhi, procurement politics in Jharkhand, farmer subsidies in Punjab, the balance of farmer and industrial interests in

Maharashtra, and high loss levels and theft in Uttar Pradesh.

As this suggests, mapping power requires exploring politics beyond the power sector alone. Including party politics, the politics of regionalism within states, and patterns of economic development. While national-level politics and technology drivers are also important, the starting point must be dynamics that are state-specific.

Second, four categories are crucial to understand the political economy of power: demand for access and service quality, demand for subsidies, cost of supply, and available financial space.

The first two—demand for access/quality and subsidies—represent political demands placed on the system, and the last two represent the extent of breathing room that enables states to manage those political demands. While the importance of each of these factors may vary across states, collectively these four categories, combined with the reform process and the interaction

between them as shown in the figure, constitute a way to map the political economy of power in states.

Third, applying this understanding to a forward-looking analysis, how can state governments pursue a virtuous cycle between electoral and electricity politics? In a state such as Bihar, the answer lay in promising and delivering on energy access, taking advantage of low cost power in surrounding states. In Gujarat, creatively managing farmer pressure through a mix of technical solutions and political promises was key.

Other states are trapped in a vicious cycle, and the starting point is to tackle the driving factors, whether the expanding scope of subsidies in Tamil Nadu, or high cost supply and high losses in Rajasthan. Applying this framework, which leads to diverse state-specific explanations, also allows us to comment on the national-level electricity challenges described earlier.

With regard to electricity for the poor, electoral gains and electricity outcomes

point in opposite directions. In an effort to limit their losses, discoms have strong disincentives to connect new citizens to the grid and provide only minimal quantity and quality of supply to the connected poor, because most pay below-cost tariffs.

Simply calling for tariff increases to match costs is unlikely to win voter consent, given the low credibility of discoms to deliver improvements.

Resolving this situation requires developing a state-specific pathway that appropriately sequences politically credible quality improvements and tariff increases alongside, expanding the financial space to actually implement such a pathway.

Moreover, distribution company finances could be further squeezed by slower growth in industrial electricity demand, which would limit the amounts of cross-subsidies available to compensate for low paying customers.

Periodic bailouts, the most recent of which is UDAY, are intended to alleviate this financial pressure on distribution

companies.

But unless the breathing room created by UDAY is explicitly and intentionally used to fundamentally alter some mix of the four key factors described above—political demands for access and subsidies, or supply costs and fiscal space—the result will only be to kick the financial can down the road.

Solving India's electricity problems by continuously devising ways to shut out politics and pretend the sector can be run apolitically simply will not work.

This is not to be naïve and suggest that the power sector must be swayed by every political gust. Rather, we need more creative politics, based on a careful analysis of state-specific links between politics and electricity, which can credibly promise and deliver on long-term electricity gains, and reap long-term political rewards.

(Dubash is Professor, Centre for Policy Research, Kale is faculty at the University of Washington, and Bhargava is Principal at the Regulatory Assistance Project.)



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# Seeds of entrepreneurship

The agri startup is a healthy emerging trend where young entrepreneurs promise the farmer a long-term bonding of mutual trust, says Bhuwan Bhaskar

T-17



**T**HE idea to use technology through corporate intervention is still remote in the Indian agriculture sector. For decades, the agrarian and industrial economies were treated as unrelated entities, hence agriculture still looks at corporate interventions with suspicion. Until recently, companies' involvement in the farming communities was only through the corporate social responsibility (CSR). Anything beyond CSR raises distrust.

There was some basis for this mistrust. While some corporate bigwigs did try to work in the fields with farmers posing as their friends, but it often turned out to be a proxy of marketing techniques to sell their seeds, fertilisers, pesticides and other materials.

Thankfully, this situation is changing. In the past couple of years, the corporate spectrum in the country has witnessed a number of entrepreneurial initiatives, where the modus operandi is to connect with the farmers in the field, apparently for better yields through technological interventions and crop diversification.

This latest trend is different from earlier attempts of the corporate majors. Now, most of these initiatives are being spearheaded by young professionals with humble backgrounds who have 'farmer welfare' and 'zeal to do something better for agriculture' at the core of their business philosophy.

They have a clear ethos: farms and farmers are not the subject of experiments. Unlike earlier attempts by big companies, these young entrepreneurs neither intend, nor do they try treating agricultural fields as their live laboratories. For them, the field is the boardroom and farmers are the partners in progress. There is no pretence of any high moral stand. It is pure business, a well-planned strategy for the startups. The model of these newly developed corporate initiatives, often termed as agri startups, is such that they need long-term bonding and mutual trust between the entrepreneurs and their clients (farmers).

Unlike corporate, agri startups do not need thousands of hectare of land to transform farming by implementing their lab experiments the ground and make huge profits for shareholders. They need sufficient land for their bread and butter. Startups know that they would be out of business if the land and the farmers working with them turn hostile.

These startups have some salient features. Mostly, they work as aggregators of

products and technologies. Agri Hub, Big Haat, EM3, Agro Star are some startups which are developing themselves as platforms to provide facilities to choose from multiple options in a particular segment. In their endeavour to cater to more and more farmers with utmost effectiveness, they continuously pursue new technological advancements in their respective specialities and the end beneficiary is, of course, the farmer.

Agri Hub has developed an expertise in polyhouses, net houses and mulching, mostly based on technologies developed and being practised in Israel and Germany. With its endeavour to produce a "Wikipedia of Agriculture", the company provides various product offerings under seeds, fertilisers, irrigation, plant-protection, planting material, farm tools and equipment sections. Big Haat has its core

interest in seeds, and provides farmers an access to around two dozen brands of healthy and authentic seeds. Delhi-based EM3 is providing the latest agricultural equipment to farmers at a low cost. The company rents out high-end equipment to farmers. Pune-based Agro Star is also providing agri equipment and other inputs to farmers.

Such companies have done a great job in empowering the farmers to choose agri inputs from a range of national and international brands sitting in their villages. These companies understand that their business success depends upon how much goodwill they earn from farmers and that this needs long-term engagement with their consumers. That is why most of these companies not only sell products, but also facilitate farmers to get expert opinion as and when required. These companies run

their business through technology-driven resources like the internet and smartphones. This way, these companies are also helping the country to move towards financial inclusion and digital transformation.

There is another set of companies like Green Digital and SatSure, which are providing unique services to farmers. Digital Green makes small video tutorials featuring successful farmers and shows it to other farmers letting them experience the change in real terms. SatSure aims to create an archive of images taken every eight days for 15 years. After creating the bank, experts in the company will analyse the pictures on various parameters, like crop and ground water. The data will be sold to various government and private agencies to help them carry out their jobs with more precision and accountability. Especially in the case of farm-loss claims under

the Prime Minister Crop Insurance Scheme (PM-CIS), such data will be of immense help to settle the claims fairly and quickly. Another startup Barbox Agro Sciences offers eco-friendly crop protection methods after much research on products that support organic farming to increase crop produce and quality with minimal expenditure. There are many more on the list.

These startups have two very clear messages for the world: Indian agriculture is on the cusp of a silent revolution, and agriculture is no longer a business based on primitive agrarian practices. Naturally, supportive government policies with foreign and domestic investments will go a long way in achieving the dreams of agri startups.

— The writer is AVP, NCDEX.  
Views are personal



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# Typhoon pounds South China; death count 64

More than 2.4 million people had been evacuated from Guangdong province

ASSOCIATED PRESS

HONG KONG, 16 SEPTEMBER

**T**yphoon Mangkhut barreled into southern China on Sunday after lashing the northern Philippines with strong winds and heavy rain that left at least 64 people dead and dozens more feared buried in a landslide.

More than 2.4 million people had been evacuated in southern China's Guangdong province by Sunday evening to flee the massive typhoon and nearly 50,000 fishing boats were called back to port, state media reported.

The gambling enclave of Macau closed casinos for the first time and the Hong Kong Observatory warned people to stay away from the Victoria Harbour landmark, where storm surges battered the sandbag-reinforced waterfront.

Hong Kong's RTHK broadcaster cited experts as saying Mangkhut was expected to be the strongest typhoon to hit the city in decades.

The Hong Kong Observatory issued its strongest storm warning for 10 hours on Sunday, just slightly shorter than the record time of 11 hours set by Typhoon York in 1999, the *South China Morning Post* reported.

The storm made landfall in the Guangdong city of Taishan at 5 p.m., packing wind speeds of 162 kilometres per hour. State television broadcaster CGTN reported that surging waves flooded a seaside hotel in the city of Shenzhen. Groceries flew off the shelves of supermarkets in the provincial capital of Guangzhou as residents stocked up in anticipation of being confined at home by the typhoon, China's official *Xinhua News Agency* said.

Authorities in southern China issued a red alert, the most severe warning, as the



A woman reacts as fire rescue workers assist her through floodwaters in the village of Lei Yu Mun during Super Typhoon Mangkhut in Hong Kong on Sunday.

AFP

national meteorological center said the densely populated region would face a "severe test caused by wind and rain" and urged officials to prepare for possible disasters.

Hundreds of flights were cancelled. All high-speed and some normal rail services in Guangdong and Hainan provinces were also halted, the China Railway Guangzhou Group Co. said.

In Hong Kong, a video posted online by residents showed the top corner of an old building break and fall off, while in another video, a tall building swayed as strong winds blew.

The storm also broke windows, felled trees, tore bamboo scaffolding off buildings under construction and flooded areas with sometimes waist-high waters.

Hong Kong Security Minister John Lee Ka-chiu urged residents to prepare for the worst.

"Because Mangkhut will bring winds and rains of extraordinary speeds, scope and severity, our preparation and response efforts will be greater than in the past," Lee said.

"Each department must

have a sense of crisis, make a comprehensive assessment and plan, and prepare for the worst." Hong Kong's Cathay Pacific said all of its flights would be canceled between 2:30 a.m. on Sunday and 4 a.m. on Monday.

The city of Shenzhen also canceled all flights between Sunday and early Monday morning. Hainan Airlines canceled 234 flights in the cities of Haikou, Sanya, Guangzhou, Shenzhen and Zhuhai scheduled over the weekend.

In Macau, next door to Hong Kong, casinos were ordered to close from 11 p.m. Saturday, the first time such action was taken in the city, the *South China Morning Post* reported.

Macau suffered catastrophic flooding during Typhoon Hato last year, leading to accusations of corruption and incompetence at its meteorological office.

In Macau's inner harbour district, the water level reached 1.5 meters on Sunday and was expected to rise further. The district was one of the most affected by floods from Typhoon Hato, which left 10 people dead. In the northern

Philippines, Mangkhut made landfall Saturday on the northeastern tip of Luzon island with sustained winds of 205 kilometres per hour and gusts of 255 kph.

Dozens of people, mostly small-scale miners and their families, were feared to have been trapped by a landslide in the far-flung village of Ucab in Itogon town in the northern Philippines' Benguet province, Itogon Mayor Victorio Palangdan said by phone on Sunday.

Palangdan said three villagers who nearly got buried by the huge pile of mud and rocks told authorities they saw residents rush into an old three-story building, a former mining bunker that has been transformed into a chapel, at the height of the typhoon's onslaught Saturday afternoon.

"That was not an authorized evacuation center," Palangdan said, but expressed sadness that the villagers, many of them poor miners, had few options to survive in a region where big corporations have profited immensely from gold mines.

Police Superintendent Pelita Tacio said 34 villagers had died and 36 remained missing in the landslides in Ucab and another village in Itogon town. Rescuers were scrambling to pull out the body of a victim from the mound of mud and rocks in Ucab before Tacio left the area Sunday.

Rescuers were hampered by rain and mud, and the search and rescue operation was suspended at nightfall and will resume at daybreak Monday, Palangdan said.

Police could not immediately reach the landslide-hit area because the ground was unstable and soaked from the heavy rains, said regional police chief Rolando Nana.



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## Rain may be back, but only by weekend Tb-17

TIMES NEWS NETWORK

**New Delhi:** After a dry week in terms of rain, monsoon activity is expected to elude the capital this week as well. Clear skies are likely to prevail in the region, coupled with high temperatures and humidity. The met office says Delhi could see similar conditions this week, with rain likely to take place only by Saturday. Delhi has already recorded

'excess' rainfall for the month of September, crossing its monthly average in the first four days of the month. While the monthly average for September is 125.1mm, the capital, till September 16 at 8.30pm, had received 179mm of rainfall.

Officials from the regional meteorological centre say Delhi may see cloudy conditions over the week, however, chances of rain are likely around the wee-

kend. "The region is now seeing a dry spell. There has been more rain activity in parts like Punjab and Haryana, but not all NCR locations are seeing rain," said an official. Delhi's maximum temperature on Sunday was recorded at 34.6° C—one degree above normal, while the minimum was recorded at 25.5° Celsius. Humidity levels oscillated between 50% and 83% in the last 24 hours, officials said.

"Humidity levels have come down slightly, with moisture content reducing. The maximum temperature is, however, expected to rise even further over the next few days and may touch 36 degrees C," said the official.

Forecast for Monday shows partly cloudy skies with a maximum and minimum temperature of around 35 and 26 degrees Celsius, respectively, the official added.



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## IMD: Monsoon withdrawal may begin by Sept 25

Shrinivas Deshpande

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**PUNE:** The withdrawal of the south-west monsoon from the North of India may begin only after September 25 as rainfall predictions in Punjab, Haryana and some parts of the Rajasthan, between September 20 and 22, are likely to delay its retreat, according to the India meteorological department (IMD).

According to AK Srivastava, head, climate monitoring and analysis group, IMD Pune, signs of weakening of monsoon are showing as there is reduced rainfall over the north-western states. However "complete withdrawal" of monsoon can begin only after September 25, said Srivastava.

"Rainfall pattern is subdued all over India specifically in north and west. There will be rainfall in Punjab, Haryana and some parts of the Rajasthan between September 20 and 22, following which conditions will start developing for the monsoon's withdrawal. By Septem-

ber 25 we can see complete withdrawal of monsoon from India," said Srivastava.

According to the met office, a western disturbance may be responsible for rainfall activity over north India in between September 20 to 22, which could delay monsoon's withdrawal.

Analysing monsoon data from over the last few decades shows that withdrawal of monsoon from North-West India can begin in between September 1 to 5, scientists highlight that it was delayed over the time because of delayed entry and effect of international climate change. Depression over the Bay of Bengal last week is also responsible for rainfall over north-western states in next year.

According to the weather forecast, a low pressure area is likely to develop over North-West Bay of Bengal around September 18, which will bring rainfall over Odisha, Chhattisgarh and parts of Central and peninsular India. However, intensity of rainfall is not expected to be high and reduce subsequently.



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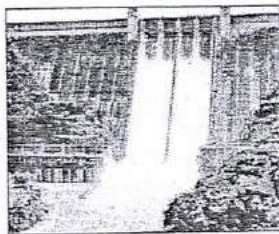
## Water in major reservoirs up 30%, but North lags behind

**VIJAY MOHAN**  
TRIBUNE NEWS SERVICE

CHANDIGARH, SEPTEMBER 16

Overall water storage in major reservoirs in the country is around 30% higher this year as compared to 2017 while water availability is lower by 10-12% in the northern region vis-à-vis last year.

Stating this during his visit to the Bhakra Beas Management Board (BBMB) today to launch a website on the First International Conference on Sustainable Water Management scheduled to be held here in December, UP Singh, Secretary, Ministry of Water Resources, said rainfall distribution this year has been good and it would be beneficial for



the cropping season.

"Out of the over 5,000 reservoirs in the country, the Ministry regularly monitors 91 major reservoirs that account for two-thirds of the total national storage capacity. The overall storage in these is not only more than the previous year but also better than the last 10 years' average. While dams in the South and other parts are full, the situation is

not so in the North," he added.

At present, 121.655 billion cubic meters (BCM) of water is available in these reservoirs as compared to 92.878 BCM last year and the past 10 years live storage average of 109.688 BCM. In the northern region comprising Punjab, Himachal Pradesh and Rajasthan, the present storage is 77% of the total live storage of 18.01 BCM. It was 86% last year and an average of 82% over the past 10 years.

BBMB Chairman DK Sharma said the water storage situation in North had become critical this year due to historically low inflow during the summer, which was around 50% of the inflow last year.



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# In managing water, Surat takes the lead

Municipality to supply 115 MLD treated water to meet industrial requirement by March 2019

MAHESH LANGA  
AHMEDABAD

India's 'Diamond City' offers a lesson for the country's ever-expanding cities on water management and the optimal use of water, which is rapidly becoming a scarce resource.

Surat's civic body is setting up state-of-the-art sewage treatment plants (STPs) to ensure every drop of waste water is treated and reused for purposes other than drinking.

From March 2019, the Surat Municipal Corporation (SMC) will be supplying 115 MLD (million litres per day) treated water to industries located within the city, in order to meet the entire industrial requirement of water through treated or recycled water.

The entire quantum of water will be treated from domestic sewerage water in tertiary treatment plants at the Bamroli and Dindoli areas for supplying to mainly textile factories in the Pandesa-

## Leading by example



• The total water requirement is 1,200 MLD for domestic and industrial use

• Total 800 MLD sewage is generated. The Surat civic body has 8 sewerage treatment plants with capacity to treat 726 MLD

• In its tertiary treatment plant, 57 MLD sewage turns into 40 MLD potable water that is supplied to the Pandesara Industrial estate, housing dyeing and printing mills

• By March next, total 115 MLD recycled water will be supplied to industries, meeting the entire industrial water requirement through treated water

• The civic body has invested approximately ₹300 crore to create infrastructure to recycle sewage and generate industrial grade water

ra and Sachin industrial clusters housing over 400 dyeing and printing units.

"At present, we are supplying 40 MLD treated water to industries in Pandesara in the city. This is the largest capacity of tertiary water treatment in the country. In fact, Surat was the first city in the country to start selling recycled water to industries in 2014.

Now, we are expanding the capacity to take it up to

115 MLD by March 2019," Surat Municipal Commissioner M. Thennarasan told *The Hindu*.

Surat's cost effective water management system is most advantageous for its contribution towards reducing the dependency on conventional resources of water, and thus optimal use of the resource.

So far, the SMC has invested ₹280 crore in creating tertiary water treatment facili-

ties in the city. "By March next year, the corporation will save 115 MLD fresh water by supplying recycled water to industries," Mr. Thennarasan said, adding, "The SMC charges industrial units ₹23 per 1,000 litres of water."

## Recycling technology

The civic body's efforts to create infrastructure for water management is in line with the State government's policy of promoting the use

of recycled water for non-drinking purposes, and reducing dependence on ground water.

"Gujarat is a water scarce State, so we have to be innovative in managing our water resources in the most efficient manner," Gujarat's Chief Secretary Dr. J. N. Singh said.

Mr. Thennarasan added that the civic body intends to go further and supply recycled water to industrial clusters like Hazira, outside the city.

"In future, we want to cover industrial estates not located in the municipal area in our network as per the State government's policy," he said.

## Fact check

India is facing its worst water shortage in history, according to a report by the Niti Aayog. Nearly 600 million Indians faced water stress and about 2,00,000 people die every year because of lack of access to safe water.



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## More river stretches are now critically polluted: CPCB

Maharashtra, Assam, Gujarat account for 117 sections

JACOB KOSHY  
NEW DELHI

The number of polluted stretches in India's rivers has increased to 351 from 302 two years ago, and the number of critically polluted stretches – where water quality indicators are the poorest – has gone up to 45 from 34, according to an assessment by the Central Pollution Control Board (CPCB).

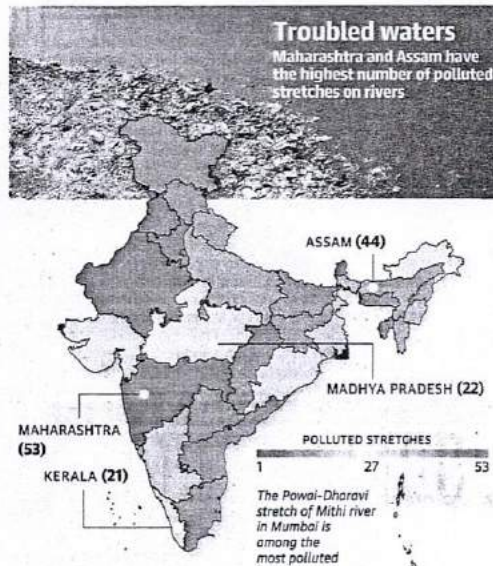
While the ₹20,000 crore clean-up of the Ganga may be the most visible of the government's efforts to tackle pollution, the CPCB says several of the river's stretches – in Bihar and Uttar Pradesh – are actually far less polluted than many rivers in Maharashtra, Assam and Gujarat. These three States account for 117 of the 351 polluted river stretches.

Based on the recommendations of the National Green Tribunal, the CPCB last month appraised the States of the extent of pollution in their rivers.

### Mithi among the worst

The most significant stretches of pollution highlighted by the CPCB assessment (which is yet to be published) include the Mithi river – from Powai to Dharavi – with a BOD (Biochemical Oxygen Demand) of 250 mg/l, the Godavari – from Someshwar to Rahed – with a BOD of 5.0-80 mg/l; the Sabarmati – Kheroj to Vautha – with a BOD from 4.0-147 mg/l; and the Hindon – Saharanpur to Ghaziabad – with a BOD of 48-120 mg/l.

In its compilation of pol-



luted stretches in Uttar Pradesh, the Ganga with a BOD range of 3.5-8.8 mg/l is indicated as a 'priority 4' river.

"The cultural significance of the Ganga is such that there's been greater focus on it but many more rivers are far more polluted," said an officer in the Union Water Resources Ministry, who didn't want to be identified.

### Graded scale

The CPCB, since the 1990s, has a programme to monitor the quality of rivers primarily by measuring BOD, which is a proxy for organic pollution – the higher it is, the worse the river. The health of a river and the efficacy of water treatment measures by the States and municipal bodies are classified depend-

ing on BOD, with a BOD greater than or equal to 30 mg/l termed 'priority 1,' while that between 3.1-6 mg/l is 'priority 5.'

The CPCB considers a BOD less than 3 mg/l an indicator of a healthy river.

In its 2015 report, the CPCB had identified 302 polluted stretches on 275 rivers, spanning 28 States and six Union Territories.

A person involved in the monitoring exercise, who didn't wish to be identified as he was not authorised to speak to the media, told *The Hindu* that the increase in numbers reflected higher pollution levels as well as an increase in water quality monitoring stations.

## Most river stretches critically polluted: CPCB

"We have used about 500 more monitoring stations in our 2016-2017 assessment than for the previous exercise (2008-2012). A priority 1 river may show high pollution but it also means more resources for clean up, whereas a priority 4 can mean achieving a clear river with relatively fewer resources," he said.

Based on its 2008-2012 evaluation, the CPCB published a report in 2015 and

asked States to prepare plans for improving these polluted stretches. Though the information from the 2016-2017 assessment doesn't indicate improvements, the bulk of the increase in polluted stretches were in priority 4 (6-10 mg/l) and priority 5 river stretches

Currently, the CPCB has 1,822 monitoring stations on rivers and 473 on lakes/ponds/tanks.



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The Times of India (A)

Business standard

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## Odisha may witness heavy rain from today

PRESS TRUST OF INDIA

BHUBANESWAR

Heavy rain is likely to lash several parts of Odisha from Monday owing to formation of a fresh cyclonic circulation in the region, the Meteorological Centre here said

on Sunday.

The cyclonic circulation, now lying over east-central Bay of Bengal and its neighbourhood, is likely to bring heavy rain in some places like Mayurbhanj, Khurda, Cuttack, Nayagarh and

Boudh districts during the next 24 hours, it said.

Due to the cyclonic circulation, a low pressure area is likely to develop over central and adjoining north Bay of Bengal around Tuesday. It is likely to become more

marked subsequently, it said. Under its impact, several parts of Odisha are likely to be lashed by heavy rain while light to moderate rain along with thunderstorm may continue at most places of the State till Saturday, it

14.12  
said. Heavy to very heavy rainfall is likely to occur at some places in Gajapati, Ganjam, Puri, Khurda, Nayagada, Malkangiri, Koraput, Rayagada, Kalahandi and Kandhamal districts during the period.



17.09.2018

Hindustan Times

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# 'States may miss FY19 fiscal targets

Spending on elections, other populist measures to blame, says ICRA

PRESS TRUST OF INDIA  
MUMBAI

Funding of farm loan waivers, poll-related spending and other populist measures are likely to ensure that States are set to miss their fiscal consolidation targets budgeted at the beginning of the year, says a report.

"Given the factors such as funding of crop loan waivers, election-related spending and the flood relief will see the States miss their fiscal consolidation targets," ICRA wrote in a note.

The States' fiscal deficit is primarily financed by issuing State development loans (SDLs). In April-August of FY19, gross issuance of SDL contracted by 3.4% to ₹1.32 trillion, primarily led by a sharp decline in issuance by Uttar Pradesh, Maharashtra and Gujarat.

However, excluding these three States, total SDL is-



**Sowing debt:** States may miss fiscal consolidation targets as a result of funding farm loan waivers. • B. VELANKANNI RAJ

suance by the remaining States has grown 14.7% in the first five months of FY19.

## Redemption of SDLs

The agency also estimates that ₹1.3 trillion of SDLs are scheduled to be redeemed in FY19, much higher than ₹0.8 trillion redeemed in FY18.

"Given the sharp rise in the redemption amount,

and assuming an annual growth of 10-20% over the net SDL issuance of ₹3.4 trillion in FY18, gross SDL issuance may rise to ₹5-5.3 trillion in FY19 from ₹4.2 trillion in FY18," says the report.

Recently, the Reserve Bank of India had estimated that fiscal deficits of all the 29 States might decline to 2.6% of their gross State

domestic product (GSDP) citing their FY19 Budget estimates, from 3.1% in FY18.

But an analysis of the FY19 Budgets of nine States, accounting for about 62% of the combined GSDP of all 29 States in FY17, shows that their fiscal deficits are budgeted to slip to 2.5% of GSDP in FY19 from 2.6% in FY18.

As 12 of the 29 States, three of which were part of the nine included in the analysis, are also poll-bound, apart from the general elections before May 2019, there is a risk of new schemes being announced or a higher allocation for welfare schemes, the note said.

The unforeseen expenditure on flood relief in states like Kerala and Karnataka, which may not be fully offset by higher grants or other revenue mobilisation measures, can exert pressure on their fiscal balances, it said.

CM  
VK



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#### SINGLE FILE

## Transforming agriculture

The Green Agriculture project synergises biodiversity conservation, agriculture production, and development

KONDA REDDY & JIRLYNE KATHARPI



MOHAMMED YOUSUF

India is signatory to the Convention on Biological Diversity. As four of the 35 biodiversity hotspots are located in India, it is biodiversity-rich. However, climate change and development without consideration for biodiversity are leading to loss of biodiversity.

India's National Biodiversity Action Plan (NBAP) recognises the importance of biodiversity for inclusive development. The Green Agriculture project implemented by the Indian government and the Food and Agricultural Organisation (FAO) takes a novel approach to support the NBAP and synergise biodiversity conservation, agriculture production and development. It is being implemented in five landscapes adjoining Protected Areas/Biosphere Reserves: Madhya Pradesh, Mizoram, Odisha, Rajasthan and Uttarakhand. It envisages a transformation in Indian agriculture for global environmental benefits by addressing land degradation, climate change mitigation, sustainable forest management, and biodiversity conservation.

Man-animal conflicts in the fringes of Protected Areas or animal corridors, and conflicts over unsustainable procurement of non-timber forest products (NTFPs) have been contentious, especially in Odisha and Uttarakhand. A participatory and landscape approach can ensure sustainability of conservation efforts. Keeping the focus on initiatives for sustainable NTFP harvest, eradication of invasive alien species, and mitigation of wildlife conflicts is essential.

Biodiversity conservation is a part of traditional wisdom. The landscape approach will aim to restore traditional knowledge systems, such as the conservation of common property resources. Examples include the Orans of Rajasthan and the village safety and supply reserves in Mizoram. Traditional farming systems such as jhum encouraged crop diversity. However, climate change and shortened fallow cycles are undermining jhum cultivation sustainability. Participatory learning tools will encourage farmers to adopt more sustainable indigenous soil conservation.

India gave the world crops such as rice, chickpea, pigeon pea, mango and eggplant. However, with the focus on policies that cater to market demands, its reservoir of indigenous traditional crops has dwindled. Most keepers of these crop genetic diversity are smallholder farmers, including women. The approach will be to strengthen their role as agrodiversity guardians by developing value chains for their indigenous crops such as traditional rice varieties in Odisha.

Environmental concerns are inadequately reflected in the development rhetoric. Thus, projects such as Green Agriculture are essential in equipping decision-makers with the necessary instruments to design effective and informed policies to underpin environmental concerns.

Konda Reddy is Assistant FAO Representative in India and Jirlyne Katharpi is a Research Associate



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## STRESSED POWER UNITS: PANEL RECOMMENDS GUJARAT GOVT

# 'Salvage units, allow pass through of high fuel costs'

High power panel also suggests capping imported coal prices

DEEPAK PATEL

NEW DELHI, SEPTEMBER 16

THE HIGH Power Committee (HPC) set up by the Gujarat government has suggested that the mega power projects of Tata Power, Adani Power and Essar Power — which run on imported coal only and have a total generating capacity of around 10,000 MW — need to be "salvaged" and should be permitted to pass through the impact of high fuel costs equitably to consumers, lenders and other stakeholders.

The HPC recommended that a pass through of high coal prices to consumers may be permitted, which will lead to increase in tariffs, "at the same time ensuring that the entire cost impact of such financial and commercial re-structuring is not passed on merely to consumers, rather the same is equitably distributed amongst the other stakeholders too". It suggested a cap on the imported coal prices upto which a pass through will be permitted. These mega power projects are based out of Gujarat only but discoms of various states such as Maharashtra, Rajasthan, Punjab and Haryana have signed PPAs with them.

Supreme Court gave a ruling in April 2017 stating that the impact of high imported coal prices — which occurred due to Indonesian Regulations, 2010 — can't be passed through to consumers as it was neither 'Change in Law' nor 'Force Majeure' as per the PPAs (power purchase agreements), which were signed with the distribution companies (discoms) of various state governments. 'Force Majeure' is a completely unexpected event that inhibits the party from fulfilling its contractual obligations.

The HPC, which was set up in July this year to resolve the issues arising these mega power projects, stated that "the economic viability of these projects has been severely impacted due to promulgation of Indonesian Regulations 2010, which led to unprecedented rise in the price of coal". It added that this situation has further been exacerbated because the generators could not pass the "uncontrollable increase in the fuel prices on the procurers (discoms) under the PPAs".

## PASS THROUGH MAY LEAD TO PRICE RISE

■ The HPC suggested that a pass through of high coal prices to consumers may be permitted, which will lead to increase in tariffs, "at the same time ensuring that the entire cost impact of such financial and commercial re-structuring is not passed on merely to consumers, rather the same is equitably distributed amongst the other stakeholders too".

The HPC has suggested a comprehensive commercial re-structuring plan to "salvage" these projects from liquidation. However, it has made it clear that the past losses would be borne by generators only and the plan would be applicable from a prospective cut-off date of October 1, 2018. In its plan, the HPC has suggested a major haircut for banks; option for extension of PPA tenure by another period of 10 years after the completion of the PPA tenure of 25 years; offer for tie-up of free capacity lying with the generators; and sharing of profit from the Indonesian mines of generators.

The HPC stated that the commercial resolution package has to be accepted by the procurer state governments — which currently have power purchase agreements with the generators — as the various changes would need to be made in the PPAs itself. These changes would then need approval of "appropriate commission" such as Central Electricity Regulatory Commission (CERC) according to HPC. The three member HPC was chaired by former Supreme Court Justice R.K. Agrawal. Gujarat government is yet to form an opinion on this HPC report.

The HPC stated that "a directive may be issued by the state government(s) to the discoms". According to HPC, the said directive would primarily state that the discoms have to ensure ad-

equated supply of energy on the least possible tariff and while doing so, they should consider whether the same can be achieved by way of "facilitating and promoting the rehabilitation of existing thermal capacities already installed in the state, that may have, for diverse reasons, become financially stressed and economically unviable to be operated in a sustainable basis".

Since the commencement of operations, the three mega projects have been facing hardship due to under-recovery in fuel costs. These projects were envisaged to receive coal from Indonesia for their operations. Indonesia is the largest supplier of imported coal in India due to its coal quality and logistical advantage.

However, Indonesian government brought change in coal pricing regulation with effect from September 2011 which increased the cost of coal procurement for these projects significantly. The indicative fuel cost when applied to the normative operating parameters of such projects, translate to more than Rs 2 per unit for almost the entire period from 2011 to 2018. Despite high prices of imported coal, these developers kept supplying electricity at PPA tariff which is in the range of Rs 1.30 to Rs 2 per unit. Consequently, the projects had to absorb significant losses in the form of under recovery of fuel costs, in the past," the HPC noted.

The HPC also explained its logic behind salvaging these projects. "If these projects are not salvaged, consumer interest will be adversely affected on account of various reasons: the cost of replacement power at today's market price would be higher; setting up new projects in any event will be more expensive and will take another 4-5 years to commence supply; increase in cost on account of procurement of power from inefficient and old plants which would also have reliability issue; discoms will resort to load shedding on account of difficulties associated with complete replacement of power from these projects; any insolvency or liquidation of these projects would hardly address the issues of power supply," it said.



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#### LEGAL INTERPRETATION OF SC ORDER

## Banks to Go Ahead with Power Units' Resolution Plans

To continue without seeking RBI advice

Sarita.Singh@timesgroup.com

**New Delhi:** Banks have decided to continue with their resolution plans for power plants without seeking any advice from the Reserve Bank of India.

The decision follows a favourable legal advice in the interpretation of the Supreme Court's September 11 interim order that directed status quo on the matter.

The banking regulator is also unlikely to come out with any clarification following the Supreme Court order, sources said.

Banks sought legal advice on whether the Supreme Court order stalls the ongoing resolution process by the lenders. The order briefly said: "Status quo, as of today, shall be maintained in the meantime."

After initial apprehensions, law firms have finally interpreted the brief judgement as favourable to the resolution proceedings and interpreted status quo only on insolvency proceedings till November 14, the next hearing, an official with a top lending institution told ET, speaking on the condition of anonymity.

"Almost all banks have decided to continue with their resolution proceedings. No bank is seeking clarification from RBI on this matter," he said.

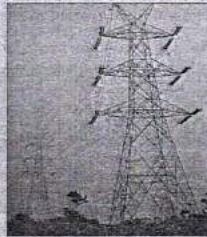
The sources said RBI was unlikely to pronounce any direction on treatment of stressed assets till next court hearing. It would take a call on a case-by-case basis if a bank comes with an issue, said one of the people.

The RBI didn't respond until press time Sunday to ET's request for comment.

PFC chairman Rajeev Sharma last week said the worst was over for the lender in terms of provisioning for stressed assets, with most power plants fetching better-than-expected deals and at least eight of those set to be completed before the Supreme Court's next hearing in mid-November.

He said the company was in final stages of closing deal for at least eight projects such as GMR Chhattisgarh, KSK Mahanadi, RKM Powergen, RattanIndia Amravati and Nashik and Essar Mahan, totalling 15,000 mw of generation capacity.

"We are hopeful to close quite a few deals that are closer to resolution as we have got more time to meet and discuss," said



#### LEGAL ANGLE

Law firms have interpreted the order as favourable to resolution plans & status quo only on insolvency proceedings till Nov 14

an executive with another lender with a significant exposure to stressed power assets. "All the banks had sought opinion from legal departments or legal firms like Cyril Amaldas Mangalchand or Dheer & Dheer. The lawyers have said that the status quo was ordered by the Supreme Court on just the insolvency proceedings and not on resolution plans."

Last week, the Association of Power Producers wrote to banks over the interpretation.

"We understand from the information coming in from our members that some banks and FIs have expressed a doubt as to whether they can go ahead with resolution process already underway," it said.

The letter cited a September 11 ET article carrying RBI counsel Jayant Bhushan's statement that the order stalled only the insolvency proceedings against the troubled projects.

"The SC order does not impact the ongoing resolution process of stressed assets by lenders. What has been stopped is mandatory reference to NCLT of any stressed asset resolution plan for which was not implemented on or before 27.08.2018. Therefore, the bankers are requested to utilise this time and finalise and implement the ongoing resolution process to save assets from value erosion post referral," the association said.

With inputs from Mumbai bureau



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## Researchers dive in to restore coral ecosystems

The group has successfully transplanted corals in the Lakshadweep region.

SHUBASHREE DESIKAN

Coral reefs are among the most diverse ecosystems on earth, and their role in maintaining marine biodiversity is of no small measure. However, it is well documented that coral systems around the world are bleaching and dying due to climate and chemical changes in the sea water. A team from National Centre for Coastal Research, Chennai, plans to work on coral monitoring and restoration in the Gulf of Mannar region. "We assess the location and coverage of corals through remote sensing, then study how the sediment affects the coral reef," says T Shunmugaraj, who leads this project along with M V Ramanamurthy, Director, NCCR. The team will also set up an aqua-tech park which will help local persons rear marine ornamental fish towards a sustainable livelihood.

The group has prior experience in studying corals across the country. They have successfully transplanted and nurtured corals in the Lakshadweep region. Now they are set to work in the Gulf of Mannar.

### Coral bleaching

Corals have a symbiotic relationship with the unicel-



We take a small polyp, tie it to an iron frame and take it underwater, says Dr Shunmugaraj

lular algae dinoflagellates. An increase in sea surface temperatures leads to coral bleaching and the breaking of this relationship.

Not all corals are equally sensitive. The most susceptible are the branching corals, for example, *Acropora* species, and the least susceptible are the massive ones, for example *Favia* species.

Coral reefs in India are only seen in some localities around the Gulf of Mannar, Gulf of Kutch, Lakshadweep islands and Andaman and Nicobar islands. In many of these places, bleaching of corals and related cnideria species such as giant clam and tentacle sea anemone have been observed by the team.

has surveyed the area around Agatti and Kavaratti islands in the Lakshadweep, and in an area approximately one acre, transplanted branching corals, massive corals and foliac corals. "We take a small polyp, tie it to an iron frame and take it underwater. The iron frame is needed because if you place it directly, sediments will fall on them," explains Dr. Shunmugaraj.

### Restoration efforts

Over the last decade, this region has seen restoration of live corals in these areas. The team found that the branching coral *Acropora* could grow 25 cm in 3 years. Another genera, *Pocillopora*, grew 15 cm in 3 years.

The researchers plan to replicate the model in the Gulf of Mannar region, and towards this end, they have set up a centre in a 25-acre piece of land near the Rameshwaram coast. Partnering with Gulf of Mannar Marine National Park Authority, they will first monitor the 21 islands in this region and identify degraded areas.

In January, after the monsoons, they plan to start transplantation work with branching coral species.

However, constructive interventions exist for this problem. The methods include reducing harvest of herbivorous fish and minimising anthropogenic causes of bleaching.

The National Centre for Coastal Research, which comes under the Ministry of Earth Sciences, conducted a mapping of corals for Gulf of Kutch, Gulf of Mannar, Lakshadweep and Andaman and Nicobar islands over a period of five years, from 2000 to 2005. Their results were startling, as they found less than 40% of the coral reefs in India were still alive.

From 2005 to present, the team, with support from Department of Science and Technology,



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Business standard

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## WHAT

# The slowdown on kharif sowing

**WHAT IS IT?** With the summer (kharif) sowing picking up across the country on account of improved distribution of monsoon rain during the last fortnight of August, another bumper harvest is expected this season, if weather conditions continue to be conducive. While the increase in crop acreage has eased the fear of a fall in grain production, the bright harvest outlook also throws a challenge to the government to deal with a situation of abundance of produce. A good kharif harvest means an increase in supply, which could result in a drop in crop prices, hitting farm income.

Agriculture and Farmers' Welfare Secretary S.K. Pattanayak, anticipating a good harvest, recently pointed out that the challenge with a "situation of abundance" before the government is that of maintaining food prices at levels that ensure farmers get their due profits, while not depriving consumers of the gains of a bumper harvest.

This year, summer crops have been sown on nearly 1,053 lakh hectares against 1,046 lakh hectares during the corresponding period in 2017-18, as per data released by the Agriculture Ministry on September 14. Though the cumulative monsoon rain across the country has been 8% lower than the normal as of September 14, the higher acreage is being attributed to better distribution of rainfall. The National Collateral Management Services, a private post-harvest management company, last week released its second advanced estimates for the 2018-19 kharif crop. It has pegged the total grain production at 136.75 million tonnes. The estimate is just 3% less than previous year's record harvest of 140.73 million tonnes.

**WHY DOES IT MATTER?** A bumper harvest will help the government fill its granaries for the Public Distribution System and reduce hunger and malnutrition. However,

er, with the increased supply of crops (cereals and pulses) other than the food-grain, which are procured by the government, the fall in prices can never be ruled out, which is associated with the economics of demand and supply. A bumper crop is expected to benefit the consumer. For farmers, it is a different story. The key issue is that a very small proportion of the produce is procured by government agencies. The bulk of the output is purchased by private

players. The system of selling the produce is such that the intermediary gains more and the producer and the consumer both suffer. While the primary producer (farmer) gets low prices, consumers often have to pay high rates.

**WHAT DOES IT MEAN?** After harvesting, the crop goes out of the hand of the primary producer (farmer) and is largely usurped by the intermediary. When the primary producer's share of the pie is declining, the sustainability of farmers come under threat. This is the trend with bumper crop prices, especially those of pulses, vegetables and fruits, crashing at the time of harvest and sky-rocketing in the lean period. Marketing institutions are very weak across the country, and innovative reforms are lacking in this area.

**WHAT NEXT?** Farmers' organisations have come together to demand a better deal for primary

producers, as their survival is at stake. Lakhwinder Singh, an agriculture expert and professor of economics at Punjabi University, Patiala, points out that a large number of small and marginal farmers are becoming highly distressed owing to the system of market institutions squeezing them both on the input and output side. "The interlinked transactions, such as the informal credit market, further make them victims of a debt trap. Large-scale suicides of farmers across India is testimony to this. To make farming a healthy business, the government needs to invest in the agriculture sector to improve input and output chains, where the value addition should be reaped by the primary producer (farmer)," he says. Increased investment is urgently required to revamp a dying agriculture sector and make it inclusive and sustainable in the long run.

VIKAS VASUDEVA



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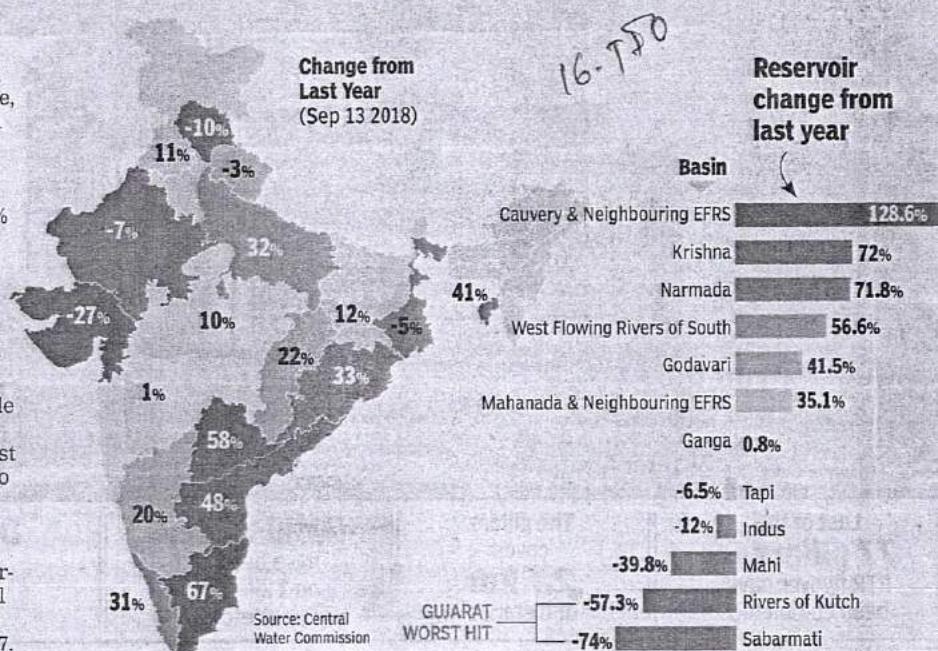
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## DAMS RUN DRY IN WEST, NORTH, OVERFLOW DOWN SOUTH

June was a good month: monsoon hit Kerala on time and most of the country, barring four states, got decent rain. By mid-June, rainfall was actually 20% in excess. Things got choppy after that – heavy rain in parts, deficit in others. So, by August 8, there was a 10% deficit. This shrunk to 6% by end of the month, but by September 11, deficit was up to 8%.

All this, coupled with how it has rained in the previous years, led to some reservoirs running dry while some are overflowing. Gujarat has been among the worst hit, with reservoirs linked to river Sabarmati 74% drier than last year.

It's exactly the opposite down south. There, the reservoirs are overflowing. Tamil Nadu's reservoirs now have 67% more water than in 2017.





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## cover story magazine

SEPTEMBER 16-22, 2018

09

### Auction Dampener

**3,900 MW**  
of solar capacity auctions  
held between March and July cancelled

High tariffs quoted by bidders  
blamed for cancellation

**1,000 MW**  
of these have been re-tendered

Source: Mercom India Research

### Safeguard Danger

Duty on imported solar cells  
could be counterproductive

**25%** duty  
imposed on  
solar cells  
from China and Malaysia,  
whether or not assembled in solar  
modules, for a year from July 30

**20%** duty imposed for the  
following six months

**15%** duty imposed for another  
six months, to support  
domestic manufacturing

Two-year breather not  
long enough to give  
domestic companies a  
serious boost

**90%** of India's solar  
cell and module  
requirements are  
imported from  
China, Malaysia  
and Taiwan

Safeguard duty could slow  
down installations and  
raise tariffs

"When government  
agencies start dictating  
what the tariff should  
be, we get into muddy  
waters. They shouldn't  
dictate price without  
accepting any of the  
risks"

Raj Prabhu  
CEO, Mercom Capital Group



safeguard duty will be offset by the fall in prices of Chinese solar panels owing to the phasing out of subsidies for solar installations by the government in Beijing. With demand in China evaporating, Chinese solar panels may be cheaper by up to a third by the end of the year, according to Bloomberg New Energy Finance (BNEF). Global solar panel prices have fallen 84% since 2010 and is forecast to decline another 52% by 2025. China produces nearly half the world's solar panels.

Ramesh Nair, CEO, Mundra Solar PV Ltd, says the initial indications of a 70% safeguard duty were followed by foreign companies wanting to set up joint ventures in India. "But after the announcement of the duty, the response has been lukewarm, given the inadequate safeguards provided by the order in its current form," Mundra Solar is the solar manufacturing arm of the Adani group.

As part of its efforts under the 2015 Paris Agreement on climate change, India, the world's third largest emitter of greenhouse gases in absolute terms, has committed to cutting its emissions by a third by 2030 from 2005 levels. To meet this goal, the contribution of renewable energy to India's electricity capacity should double to 40% by 2030. But it is not clear if India will be able to muster the capability to achieve this target, especially given that manufacturing of solar power equipment has not taken off here.

Nikhil Dhingra, CEO, Acme Solar Holdings, says Indian solar manufacturers only capture a minor portion of the manufacturing value chain, which includes polysilicon, wafer, cell and module. "There are incremental changes in technology at frequent intervals, which require capital and the know-how to absorb. Backward integration and scale help in managing these factors."

The Supreme Court's decision on the safeguard duty came days after a report by Mercom India Research said solar installations in April-June had halved to 1.6 GW from January-March, due to the lack of a strong project pipeline. "Tender activity cratered after the lowest tariffs were reached in the Bhadla (Rajasthan) auction in May of 2017, as government agencies started expecting other bids to go down to the 2.44/kWh level that was reached in the Bhadla auction," said the report. Capacity addition in 2018 would decline 14% from 2017, to around 8.3 GW, it added. The number could be higher if projects set to be commissioned in the past three months of the year stay on course.

Acme Solar Holdings, which has 2 GW of operational capacity, won the Bhadla bid at ₹2.44 a unit. It again bid the same price for 600 MW in a 3,000 MW auction held by the



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incremental  
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Nikhil Dhingra  
CEO, Acme Solar Holdings

Solar Energy Corporation of India (SECI). Acme was the only bidder to emerge successful. Other bids, which were higher, were not considered and the allotment of the remaining 2,400 MW was cancelled. Even state government entities in Uttar Pradesh and Gujarat cancelled the bids for projects of 1,500 MW, though 1,000 MW of that has been re-tendered, according to Mercom.

"The whole point of reverse auctions is that you let the market settle on what it thinks is the best price. When government agencies start dictating what the tariff should be, we get into muddy waters. They shouldn't dictate the price without accepting any of the risks," says Raj Prabhu, CEO, Mercom Capital Group.

#### Price wars

CEEW's Chawla says it is unclear why tariffs are being capped without taking into account market phenomena such as financing cost and the health of utilities. Developers also complain about the depreciating rupee, which makes importing equipment more expensive. The rupee has declined 13% against the US dollar in 2018.

The government wants the lowest possible prices to help indebted and loss-making state-owned power distribution companies keep costs down. Jatindra Nath Swain, managing director, SECI, did not respond to requests for comment.

Jayant Parimal, CEO, Adani Green Energy, says it is not viable to bid at ₹2.50-2.60 a unit even for a project in Rajasthan, an optimal location to tap solar power, much less in other states. "There was a euphoria that was not based on facts in thermal power, and banks and the country suffered. There is a similar kind of irrational exuberance in solar power and we don't want to participate in it."

There are 34 stressed thermal power projects, with a capacity of 40 GW and a combined debt of ₹1.7 lakh crore. Thermal power accounts for two-thirds of India's electricity capacity.

Given these obstacles, is India's solar growth story, as we know it, coming to an end? Allen Tom Abraham, an analyst at BNEF, does not think so. "India will remain the bright spot for solar in the world. We expect India to have the largest solar power installed capacity base across the world by 2050."

At the end of 2017, China had a third of the world's installed solar capacity, the US had 13% and India just 5%, according to the BP Statistical Review of World Energy 2018.

### India wants to quadruple solar capacity by 2022



**23 GW**  
Current solar  
capacity



**100 GW**  
Target for 2022

Source: CEA

### India wants to double share of renewable energy by 2030



**21%**  
Power capacity  
from renewable  
sources



**40%**  
Target for 2030

Source: CEA

### India has just 5% of world's solar power capacity

% of installed global solar power capacity in 2017



Source: BP Statistical Review of World Energy 2018

India is also taking a lead in the International Solar Alliance (ISA), launched at the Paris climate change conference in 2015. Headquartered in Gurgaon and with 68 signatory countries, the ISA will help in the transfer of solar technologies across mem-

bers. "India also sees this as an opportunity for the domestic solar industry to find inroads in some of the smaller and untapped markets like Africa and South America," says Abraham of BNEF. Smaller countries could use India's experience in conducting large solar auctions and also learn from the various strategies it adopted to address major risks in the sector, he adds. But Prabhu of Mercom says the ISA has not achieved much: "It has not had any impact, good or bad, on the Indian solar sector. It is more of a public relation exercise at this point."

Regardless of whether or not the ISA is effective, renewable energy, particularly solar, is crucial to India's future. Not only is solar sustainable, in some cases it is already cheaper than thermal power. While thermal power will continue to be necessary to meet India's energy needs in the near future, its share in the total mix will fall. BNEF estimates that by 2050, 75% of its electricity will be from renewables (from the current 21%), higher than in China (62%) and the US (55%). For the renewables sector to grow at a steady clip, India would do well to not repeat some of the mistakes made in the thermal power sector and ensure consistency in its policies.

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THE ECONOMIC TIMES

08

THE ECONOMIC TIMES

magazine cover story

SEPTEMBER 16-22, 2018

16-02-2018

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India is determined to be the world's greatest solar energy success story. All's not quite going according to plan, however

**G Seetharaman**

**I**t would be hard to be more bullish than India has been on solar power.

The country wants a solar power capacity of 100 GW by 2022 (India's total peak electricity demand in 2017-18 was 164 GW and is expected to be 235 GW by 2021-22). This involves building more than four times the existing capacity in four years. If all goes according to plan, solar will account for three-fourths of the planned renewable energy capacity of 175 GW by 2022.

If the first wave of India's renewable energy push this century was in wind power, a second and bigger revolution is underway in solar. But recently, gathering clouds have been threatening to rain on India's sunny parade.

The issues relate to India's conflicting desires to procure cheap solar equipment, on the one hand, and to encourage a domestic manufacturing base through imposition of import duties, on the other. The

latter means slower capacity additions and higher tariffs in the short run. The other is the expectation by power buyers, mainly state-owned utilities, that solar power will be available at dirt-cheap rates in all parts of the country, when the cost of generating solar power can vary vastly depending on climate.

On September 10, the Supreme Court lifted an Orissa High Court stay on a so-called safeguard duty imposed by the Centre on solar cells (whether or not assembled in a solar module) imported from China and Malaysia. The government had in July imposed a 25% duty for a year from July 30, 20% for the following six months and 15% for six months after that.

The idea behind the move was to encourage domestic manufacturing. India imports 90% of its solar cell and module requirements from China, Malaysia and Taiwan. But will the idea work?

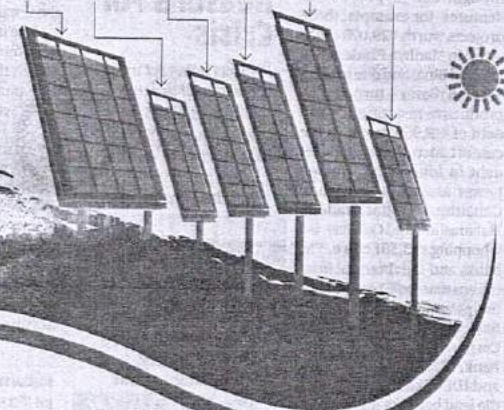
"Two years (the duration of the safeguard duty) may be inadequate to create a robust domestic manufacturing base that will be able to compete with the global market. However, it will dampen capacity additions and raise tariffs in this period," says Kanika Chawla, senior programme lead at the Centre on Energy, Environment and Water (CEEW), a think tank. Moreover, measures like safeguard duty work only when there is a large existing domestic manufacturing base, says Sunil Jain, chief executive at Hero Future Energies.

Domestic manufacturers believe the

## Dim Prospects

Solar installations (in GW) in April-June have halved from Jan-March

Q1 2017	Q2 2017	Q3 2017	Q4 2017	Q1 2018	Q2 2018
3	2	2.3	2.5	3.3	1.6



## Weak Scenario

Solar installations (in GW) are expected to fall in 2018



Source: Mercom India Research

**"There was a euphoria in thermal power that was not based on facts, and banks and the country suffered. There is a similar kind of irrational exuberance in solar power and we don't want to participate in it"**

Jayant Parimal  
CEO, Adani Green Energy





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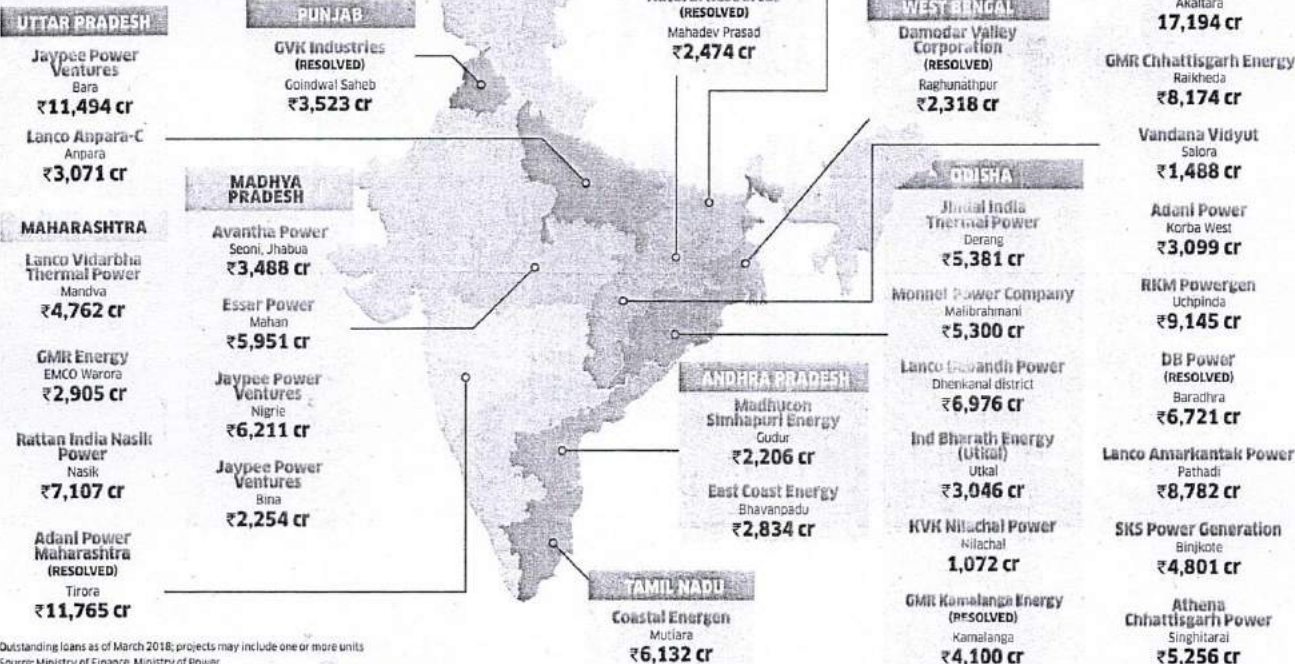
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THE ECONOMIC TIMES ✓

cover story magazine 07  
SEPTEMBER 16-22, 2018

# Debt Overload

Outstanding loans of 27 power projects in various stages of insolvency and of the 7 that have been resolved



Outstanding loans as of March 2018; projects may include one or more units  
Source: Ministry of Finance, Ministry of Power

though. For Jaypee Power Ventures, for example, three projects worth ₹29,078 crore – two in Madhya Pradesh (Nigrie and Bina) and one in Uttar Pradesh (Bara) – turned non-productive resulting in a bad debt of ₹19,959 crore. In the case of Lanco, the outstanding debt in four of its stressed power assets – one each in Chhattisgarh, Uttar Pradesh, Maharashtra and Odisha – is a whopping ₹23,591 crore. The banks and the financial institutions that took a major hit of this power mess include State Bank of India, Power Finance Corporation, Punjab National Bank, ICICI Bank, Axis Bank and IDBI Bank, as they were the lead bankers (or financial institutions) in those 34 stressed assets.

Last week, the Supreme Court offered a reprieve to power companies when it stopped a February 12 order of the central bank from taking effect. The Reserve Bank of India had ordered that a bank should draft resolution plans within 180 days in the case of stressed assets where it has exposure of more than ₹2,000 crore. Had the court not intervened, the banks would have by now referred most of these cases to the bankruptcy courts run by the National Company Law Tribunal (NCLT). The Supreme Court will next hear the case on November 11. So the companies and banks have

## Reasons For Crisis

Projects being set up without coal linkage

Cancellation of coal blocks

Lack of power purchase agreements

Aggressive bidding by developers

Contractual & tariff-related disputes

Promoter's inability to infuse equity, working capital

Delay in project implementation and subsequent cost overrun

got two months to salvage the situation.

"The immediate way-out is the mutual settlement between the (stressed) companies and the lenders. As the demand for electricity will only grow and with no new thermal and hydro projects coming up, all those projects under duress today will become viable in the near future," says Deepak Amitabh, chairman and managing director of PTC India, a company that trades power.

### Returning demand

JM Financial ARC, an asset reconstruction company, is keen to pick up power assets and help turn them around. "We had a bearish outlook on the power sector in the past. But currently we have turned positive and are beginning to like power assets. There has been no new addition in the power generation capacity in the last few years and the demand is going up. Hence we have changed our outlook. However, operation and maintenance will remain a challenge," says Anil Bhatia, MD & CEO of JM Financial ARC.

Bhatia says fuel supply issues are slowly getting resolved. State Electricity Boards are being allowed to purchase power from the

open market. "It may be possible to enter the sector at a good cost," he says.

Quite apart from issues related to coal supply and power purchase agreements, the consensus among stakeholders goes, aggressive bidding by private players, the promoters' inability to infuse equity, and contractual or tariff-related disputes have added to the sector's woes.

Bankers are now, some might say belatedly, wary of the sector. For 16 out of 21 government-owned banks, the exposure to the power sector lending has dropped between 2016 and 2018, the only exceptions being the SBI, Bank of Baroda, Central Bank and Union Bank of India. "The reduction in exposure could be because of no new addition of loans to the sector or for writing off bad loans, or both," says a banker in a public sector bank on the condition of anonymity. He adds that the trend will be clearer only next year.

Kumar Saurabh Singh, a partner with Khaitan & Company that has been involved in many high-profile cases under the Insolvency and Bankruptcy Code (IBC), 2016, argues that more government interventions will be required to make the auction of power sector assets a success. "The steel industry is on an upswing, but that's not the case for power," he adds, explaining why the

enthusiasm witnessed in the recent bidding of stressed steel assets may not be seen in power, too.

Rajiv Gupta, managing director of Arpwood Capital, which helped the Tatas buy Bhushan Steel, says the government intervention can be a catalyst in helping find new owners for distressed power assets. He says power companies referred to IBC will be sold at an appropriate price. "Once the current equity shareholders (promoters) are taken out, IBC will not fail in finding solution to the power companies."

But there are two factors that are in favour of the distressed assets, if they can find time before the bankruptcy rules kick in. It will be a while before renewables can reduce the dependency on thermal and demand is rising at a steady clip in the meanwhile. With no new capacity being added in thermal and hydro, it's only a matter of time before buyers come knocking. The peak capacity of solar comes during the day, while peak demand is at night. Besides, solar power has its own issues to contend with (turn to

"The immediate way out is a settlement between the (stressed) companies and the lenders. As demand for electricity will only grow and with no new thermal and hydro projects coming up, all those projects under duress today will become viable in near future"

Deepak Amitabh  
CMD, PTC India

page 8). But the big question is, can these companies stay solvent for longer than it will take for demand to catch up?

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THE ECONOMIC TIMES

06

THE ECONOMIC TIMES  
magazine cover story  
SEPTEMBER 16-22, 2018

# Power Trip

How did India's compelling narrative in power derail, threatening to blow a hole the size of ₹1.74 lakh crore into the heart of India's terrifying bad loans problem?

Shantanu Nandan Sharma,  
Suman Layak & Baiju Kalesh

**T**his is not how it was supposed to end. The script was supposed to have happy stories. How India, once a notoriously power-deficit nation, became a net exporter of power. How electricity shortage went from 4.2% (of demand) in 2014 to 0.7% in 2017. How India managed to increase its total power capacity by a third in just three years (up 31% from 243 GW in March 2014 to 320 GW in March 2017) and how it achieved universal electrification, and so on.

It had nothing about profit-and-loss statements bathed in red ink or panicked bankers. Or 34 thermal power projects, representing 40 GW of capacity, going sour, jeopardising ₹1.74 lakh crore in bank loans, becoming the principal line item in India's terrifying bad loans problem.

And yet, some of India's top banks are staring at the spectre of taking as much as an 80% haircut in massive loans extended to power plants. And now, with India's new bankruptcy rules and a recent central bank directive, the parties involved are also running out of time for negotiation and course correction, before they are forced into a firesale of sorts.

How did this come to be?

The private sector was always allowed to produce power, but the enactment of the Electricity Act, 2003, which liberalised the entry of the private players, was the watershed. The decision paid rich dividends as private companies delivered in spades. In no time, they were adding more mega-

watts (MW) in capacity than all the state-owned utilities that had dominated the sector all these years.

During the 12th Five-Year Plan, private firms added 54,279 MW of capacity (of the total 99,209 MW capacity added), achieving 116% of the target given, according to the Union ministry of power. State government-controlled utilities added 24,477 MW, whereas the central PSUs generated an additional capacity of 20,452 MW. The massive contribution by the private sector helped achieve the good news described earlier. In 2017, India became a net power exporter, selling 5,798 million units to Nepal, Bangladesh and Myanmar. This would have been unimaginable just five years

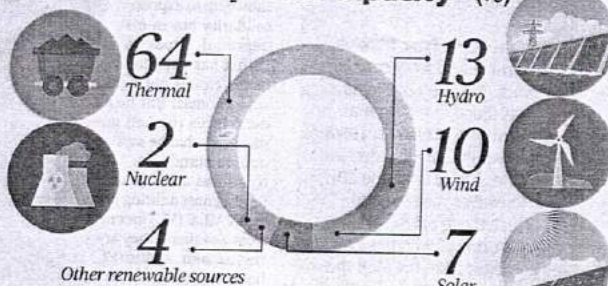
ago. It must be noted that total installed capacity does not mean all of it is produced. Production depends on demand, which is linked to consumer's access to electricity and her ability to pay.

## Power Matrix

The viability of a thermal power plant, therefore, depends on a complex matrix of factors. Seamless availability of coal, power purchase agreements with distribution companies at a reasonable rate, demand and the price of non-thermal sources of power. Many of these companies were affected by the Supreme Court's 2014 cancellation of coal block allocations.

The challenge from renewable sources

## Thermal is two-thirds of India's installed power capacity\* (%)



\*as of August 2018; figures for renewable energy are as of June 2018  
Source: Central Electricity Authority (CEA)

another factor. Solar, for instance. In May 2017, the Solar Energy Corporation of India received a winning bid of ₹2.44 per kilowatt hour (kWh) from ACME Solar Holdings Pvt Ltd for a 500 MW phase of the 10,000-hectre Bhadla Solar Park, bordering the Thar desert. Thermal power prices averages ₹3.7 per kWh in India's power exchanges. Suddenly, for tariff-sensitive and debt-saddled distribution companies that are mostly owned by state-governments, which love nothing more than to be able to offer cheaper power to voters, there was a cheaper source of power. They were not about to conclude power purchase agreements in a hurry. During 2017-18, for the first time, India added more capacity in renewables (11,788 MW) than in the thermal and hydro sectors combined (5,400 MW). Thermal power contributes around 65% to India's energy basket.

All of this meant the companies that set up coal-fired thermal power plants were either unable to start production for lack of coal, or were unable to find buyers.

So we now have 34 thermal power projects with 40,130 MW of assets and ₹1.74 lakh crore in debt that is in risk of going bad.

Seven of those stressed projects – Adani Power's Korba (Chhattisgarh), Adhunik's Jharkhand plant and GMR's Kamalanga (Odisha), to name a few – have been resolved, according to finance ministry documents. That barely chips at the problem

## Problem Zone

34

No of stressed projects;  
all are coal-based

₹2.9 lakh cr

Estimated project cost  
(debt plus equity)

₹1.74 lakh cr

Outstanding debt  
of the projects

40,130 MW

of which 15,725 MW is  
still under construction

7 of the 34  
projects were  
resolved recently



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# Private procurement of oilseeds faces commercial viability bump

## 15% service charge as compensation too little if losses mount, say experts

SANJEEB MUKHERJEE  
New Delhi, 15 September

The government has decided to allow the entry of private players into oilseeds procurement on a pilot basis, but experts have raised concerns about its commercial viability. According to the decision taken by the Union Cabinet on Wednesday, private companies can procure oilseeds at the state-mandated minimum support price (MSP), for which they would be paid a 'service charge' not exceeding 15 per cent of the notified MSP. The pilot project will be launched in select places after state governments agree to it. Based on feedback, the scheme could be expanded.

Though the Food Corporation of India (FCI) has already engaged private players for procurement of wheat and rice for the last few years, the initiative got a fresh impetus after NITI Aayog Vice Chairman Rajiv Kumar backed it as an idea to ensure the MSP to farmers. According to experts and officials, the experience of engaging private players in procurement operations has been mixed so far despite best efforts, and the biggest challenge is commercial viability of the entire operation.

"To me, the biggest consideration and challenge of involving private players in oilseeds procurement is whether it will be commercially viable. And if the offer isn't viable, I doubt private companies will be interested," Sanjay Kaul, managing director, National Collateral Management Services (NCML), told *Business Standard*.

The NCML, which has been one of the biggest private players engaged in procurement of paddy and wheat on behalf of the FCI, said in the case of paddy, the organisation set up procurement centres, purchased paddy from farmers at MSP, stored the produce, milled it and then sold it back to the corporation for which they were compensated at a price determined through an open bidding process. "However, here we don't know whether the 15 per cent service fee which the government has fixed includes the losses incurred in procurement and disposal," Kaul said.

He said if 15 per cent of the MSP as service tax included the losses suffered by private players in procurement and

sale, then it wasn't a very attractive proposition because the government's own agency Nafed incurred 40-50 per cent of MSP as operational expenditure.

"Agreed, the private sector is expected to be more efficient than the public sector, but then this difference seems big," Kaul said. He said the second big challenge is getting funds from the government on time. "In the case of paddy, funds are locked up for more than six months, sometimes," he added.

In the recent past, the first attempt to involve the private sector was made in 2008, when the FCI engaged the NCMSL (now known as the NCML) and the NBHC for procurement of paddy in Odisha and some other states.

Thereafter, in 2016-17, the Centre, along with the FCI, again roped in the private sector for procurement of paddy in eastern India, where the procurement process was weak. This time, it was slightly more structured, and modalities were worked out in more detail.

Three private firms, including the NCML, were roped in for rice procurement on a cluster basis in Uttar Pradesh, Jharkhand, and West Bengal.

The other two firms were Veerprabhu Marketing and Farmers Fortune (India). Food Minister Ram Vilas Paswan had then said, in a written reply to the Rajya Sabha, that private firms were bound to furnish daily procurement reports to the FCI, which has the right to inspect purchase centres, storages and miller premises.



### THE MSP QUESTION

- Private firms apprehensive of the 15 per cent of notified minimum support price payable as service charge
- The pilot scheme will be run to assess its impact
- Private firms say commercial viability to be the main concern for participation in procurement scheme
- Firms say they will need more clarity from the government before making any commitment

The FCI would do the quality check of rice at the time of acceptance at its depots.

Moreover, these firms have to mandatorily make the MSP payment electronically to farmers within 48 hours of procurement. The FCI would evaluate the performance of private players and impose a commensurate penalty on them for their acts of omissions and commissions.

In UP, the NCML was given a cluster to procure rice from four districts -- Ballia, Mau, Ghazipur and Chandauli. Veerprabhu Marketing was awarded an area covering Allahabad, Kausambhi, Pratapgarh and Sultanpur. Similarly, Farmers Fortune (India) was given a cluster covering Ambedkarnagar, Basti Sant Kabirnagar and Siddharthnagar. In Jharkhand, the NCML was given two clusters -- South Chottanagpur and Kolhan. In West Bengal, Veerprabhu Marketing was awarded four clusters, covering Bankura, Burdwan, Dinajpur and Siliguri districts.

The success or failure of these experiments are still being evaluated.

"If the central government does not bear the losses suffered by private players, who will be interested to come for 15 per cent charge when the market price of some oilseeds is 20-30 per cent less than the MSP," said Shiraz Hussain, former agriculture secretary. Shortage of storage space is another problem, which private players might encounter before entering the procurement space.



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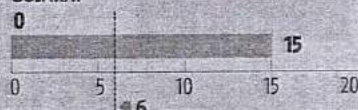
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## CRISIL'S DRIP INDEX RAINS DEFICIENT IN FIVE STATES

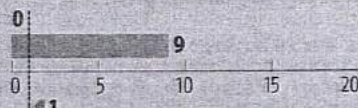
### State-wise DRIP scores

■ 2017 ■ 2018 ◀ Average of last 5 years

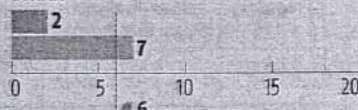
#### GUJARAT



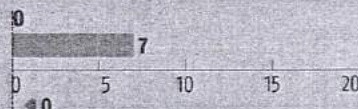
#### WEST BENGAL



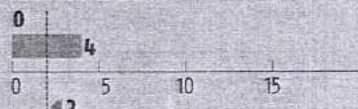
#### BIHAR



#### RAJASTHAN

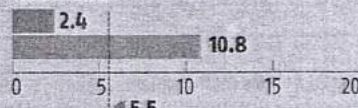


#### ANDHRA PRADESH



### Crop-wise DRIP scores

#### GROUNDNUT



### RAINFALL DEFICIENCY AT THE ALL-INDIA LEVEL

STOOD AT 8 per cent below the long-period average (LPA) in the week ended September 12, as the monsoon begins its slow withdrawal.

On an overall basis, six key kharif growing states — Andhra Pradesh, Punjab, West Bengal, Bihar, Haryana and Gujarat — have rainfall deficiency on a cumulative basis. But healthy irrigation cover in a few them — and for certain crops — has saved the blushes. On an overall basis, only the groundnut crop is under some pressure.

Irrigation is a crucial determinant to assess impact of rainfall on states and crops. By itself, rainfall volume data is not enough to gauge the distribution impact.

This is where CRISIL's Deficient Rainfall Impact Parameter, or DRIP, provides a better assessment, because it considers the irrigation buffer available for states and crops. The higher the CRISIL DRIP score, the more adverse the impact of deficient rains.

The latest scores continue to highlight the strain in Gujarat, West Bengal, Bihar and Rajasthan. Last week, AP was added to that list with marginally deficient rains. In these states, scores are higher than last year and the average of the past five years.

But crop-wise DRIP scores show stress on groundnut (largely cultivated in rain-deficient Gujarat). Rice, which all this while was in strain, showed some recovery as rains caught up in key rice-growing states.

We will continue to track DRIP scores for the rest of September, but with the southwest monsoon retreating, the situation is unlikely to alter much.

Note: DRIP scores are for rainfall data from June 1 to September 12 for each year.

Source: Indian Meteorological Department, Ministry of Agriculture, CRISIL



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# Recovery in kharif sowing to boost fertiliser sales

DILIP KUMAR JHA  
Mumbai, 15 September

Fertiliser companies are poised to clock a higher top line from the second quarter of this financial year owing to an increase in the overall kharif sowing area.

The Union Ministry of Agriculture, in its latest report released on September 7, has estimated a sharp recovery in sowing this kharif season.

With this, the deficit of nearly 1.21 per cent in kharif acreage till the end of August has been bridged, with a marginal increase of 0.20 per cent to 104.17 million hectares.

The recovery has raised the potential for increase in fertiliser consumption as the kharif crop season progresses. Also, with the southwest monsoon expected to be normal this year, the use of fertiliser is set to increase. September and October are crucial for fertiliser companies, and this sets the tone for the entire financial year.

"The July-September quarter started on a positive note with an almost near normal monsoon and a healthy hike in minimum support prices (MSPs) of major crops. We estimate fertiliser production to increase during FY19 to 42.2-42.5 million tonnes from 41.3 million tonnes in the previous year. With a normal monsoon, soil moisture also remains favourable for the rabi crop. Hence, we estimate fertiliser consumption to go up this year," said Madan Sabnavis, chief economist, Care Ratings.

Fertiliser companies posted a sharp increase in their top line and bottom line for the quarter-ended June 2018 after an improvement in their financial performance in 2017-18.

Meanwhile, the government has rolled out direct benefit transfer (DBT) nationwide. Fertiliser companies have started aligning their sales with the DBT mechanism. The subsidy payout under DBT has started, and the government has to settle the claims within two-three weeks, which would provide a major relief for fertiliser companies.

However, the rising raw material cost poses a challenge for fertiliser companies. A sharp increase in crude oil prices has led to a proportionate rise in the prices of natural gas. Analysts estimate a 5 per cent increase in the cost of fertiliser raw materials owing to increase in gas prices.



## DEMAND OF FERTILISERS (2017-18)



Compiled by BS research Bureau

Source Ministry of Commerce, Mospi

The price of natural gas was the lowest during the first quarter of FY18 (\$2.48/mmBtu), which aided in improving the profitability of urea manufacturers. According to the New Domestic Gas Policy, the price of domestic natural gas is revised every six months and in the first quarter it is \$3.06/mmBtu (23.4 per cent higher than the price in the corresponding period in the previous year). Prices of natural gas have risen on account of a sharp increase in crude oil prices.

"This could put pressure on government spending," said Sabnavis. The fertiliser subsidy for FY19 has been

**Fertiliser companies posted a sharp increase in their top line and bottom line for the quarter-ended June 2018**

fixed at ₹700.9 billion, of which ₹449.89 billion has been earmarked as urea subsidy and the remaining ₹251 billion as nutrient-based subsidy.

"The monsoon has been well distributed in almost all key markets. However, a lower opening channel inventory and positive market sentiments have ensured a good offtake so far this financial year," said Pratik Tholiya, an analyst with Emkay Global Financial Services, in a note on Gujarat State Fertilizer and Chemicals.

India imports the raw materials needed for manufacturing fertilisers.



दिनांक 14.09.2018... को निम्नलिखित समाचार पत्र में प्रकाशित मानसून/ बाढ़ सम्बन्धी समाचार

Hindustan Times ( Delhi )  
नवभारत टाइम्स ( दिल्ली )  
The Tribune ( Chandigarh )

✓ The Assam Tribune ( Guwahati )  
The Times of India ( Mumbai )  
The Telegraph ( Kolkata )

The Deccan Herald ( Bengluru )  
The Deccan Chronical ( Hyderabad )  
Central Chronical ( Bhopal )

# Flood situation critical in Dhemaji district

## CORRESPONDENT

DHEMAJI, Sept 13: The overall flood situation in Dhemaji district is still critical as the surging water has submerged new areas causing severe hardships for the people. Several hectares of standing crops have been submerged by flood water.

Sources from the District Disaster Management Authority (DDMA), Dhemaji informed that about 22,689 people of 118 villages spreading in Dhemaji, Gogamukh and Jonai revenue circles have been affected in the second wave of flood. According to sources, altogether 4,078 hectares of crops in the district have been destroyed.

Overflowing water of Siang, Lali and Brahmaputra has inundated human habitation of Kobuchapori, Moonmuni Chapori, Mesaki chapori and Mudoi Islands, while it has submerged vast rural areas at Bera chapori, Borong Sorainbari, Galighat and Kangkan-chapori under Jonai circle.

Around 11,000 people of 81 villages are reeling under the second wave of flood. The sub-divisional administration has opened two relief camps and distributing food items and other relief materials. Thus, the administration has already distributed 153.18 quintals of rice, 29.37 quintals of dal, 8.81 quintals of salt, 9 packets of baby food and 300 pieces tarpaulin besides other materials among the flood-hit villagers.

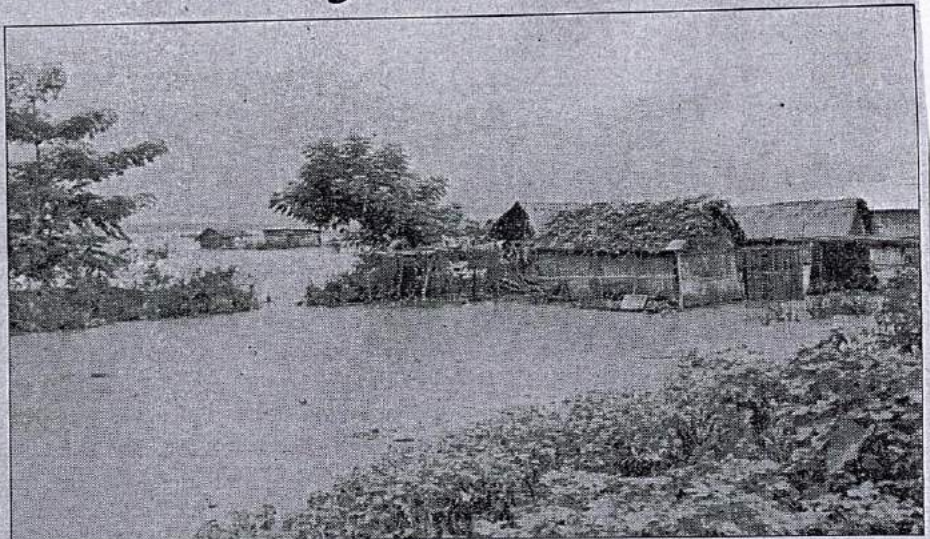
In Dhemaji circle, surging water of Jiyadhal river has flooded human habitation at Joirampur and Lalukijaan area on its right bank. The administration today opened a relief camp at Dharmapur LP School providing accommodation of 357 inmates of two villages.

The administration has so far distributed 154.25 quintal rice, 30 quintal dal, 9 quintal salt and 50 litre mustard oil among the flood-hit families

under Dhemaji circle.

The flood water also ravaged 35 villages under Gogamukh circle, including Gorotali, Chutiyakari, Rotuwa, Betonihula, Berbhonga, Bhokotgaon, Bordoibaam-Bongali and adjoining villages.

The autumn rain, which has turned torrential on Sunday, has paralysed normal life in Dhemaji district and Siang valley of bordering Arunachal Pradesh.





Hindustan Times (Delhi)  
 नवभारत टाइम्स (दिल्ली)  
 The Tribune (Chandigarh)  
 The Hindu (Chennai)

The Assam Tribune (Guwahati)  
 The Times of India (Mumbai)  
 The Telegraph (Kolkata)  
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The Deccan Herald (Bengaluru)  
 The Deccan Chronicle (Hyderabad)  
 Central Chronicle (Bhopal)

## Dhemaji dist flood scene grim

CORRESPONDENT

DHEMAJI, Sept 14: The overall flood situation in Dhemaji district has been grim as rising waters of the rivers in spate have submerged vast areas in Sissorgaon and Jonai circles, thereby causing severe hardship to the affected people.

A flood report compiled by the District Disaster Management Authority (DDMA) of Dhemaji revealed that about 47,41 people in 173 villages were affected by the deluge so far, while it has inundated 7,108 hectares of cropland in four revenue circles of the district.

Overflowing waters of the Lalriver breached a dyke at No.1 Tar Majgaon and flooded human habitation under Bahirjoni Rayang-Bijoypur, Sia and Gili-Sikari Gaon Panchayats, while rising waters of the Brahmaputra entered Sogajara area and flooded 20 villages in south Jonai area.

Further, the overflowing waters of Gairadi has created flood in 11 villages of Sissiborgaon and Sissitongani areas.



With the Brahmaputra in spate, the inundated ferry ghat at Nimatighat in Jorhat, on Friday. — UB Photos

In a similar manner, surging waters of the Jiyadhal and Kumatiya rivers inundated 42 villages in Pachim Dhemaji and southern part (Bordoloi) under Gogamukh Circle. Strong currents of the turbu-

lent Jiyadhal river eroded a culvert at Kekuri portion of the BG railway line between Jiyadhal and Bordoloi station this morning and snapped railway services along the route. The NF Railway has in the meantime engaged men and machines to repair the damage, but could not succeed till the

time of filing this report.

Flash floods in the district has so far claimed one life as Bijoy Tanti (22) of Kamalpur village under Gogamukh Police Station drowned in the flood waters on Thursday.

Though the weather condition in the region has improved today, but the water level in

the rivers have not receded. As per Water Resource Department record, the Brahmaputra is flowing above the danger level at Kareng Bogibee, Sissikoghori and Panbari. On the contrary, the water level of Gairadi, Jiyadhal and Kumatiya rivers are slightly receding.

## Torrential rain leaves a trail of destruction in Itanagar

CORRESPONDENT

ITANAGAR, Sept 14: Flash floods and landslides triggered by torrential rain have left a trail of devastations in various parts of Arunachal Pradesh capital region here in the last 24 hours with at least two persons dead and three others missing after being washed away and dozens of houses damaged.

The worst-affected are Donyi-Polo Colony and Modirijo village. At Modirijo, besides large scale property damages, three members of a family, including a minor, were drowned early this morning around 4.30 am. Later, the body of the kid, identified as Kojam Beyong (3), was retrieved from downstream area at Naharlagun and handed over to the family. Those who went missing are Mary Beyong (32) and her 10-year-old daughter Pangpi Beyong.

At Donyi Polo Colony, three persons were washed away by floodwaters. However, two of them — Taring Yaha (50) and Rake Naku (30) — were rescued and undergoing medical treatment, while the third, Mohan Bahadur Chetry (50), is missing.

At Jami Jate near Donyi



Polo Colony, one Yadi Rigo was drowned and his body was retrieved from Modirijo but she succumbed to her injuries at hospital.

A search and rescue operation is underway to trace the missing people. The operation is being conducted by the district administration along with police and NDRF personnel, official sources said.

Few cars and motorbikes have also been reportedly swept away in the flooded river. People residing in

flood prone areas have been asked to immediately shift to safer places. The district administration has opened temporary relief camps for the affected people.

Reports of widespread damages by flash floods and landslides are also pouring in from Lobby, Chandranagar areas. Reports of massive landslide in Potin to Pangin portion of NH-13 near Aalo-Bam-Pusi-Doke-Tirbin, Hoj-Potin and some other parts of the State have also been received.

Meanwhile, Arunachal Chief Minister Pema Khandu has expressed deep shock and sorrow over the loss of precious lives at Modirijo and Donyi-Polo area due to landslide this morning.

Conveying his heartfelt condolences to the bereaved families, Khandu announced immediate release of ex-gratia payment of Rs 4 lakh each to the next of kin of the deceased and prayed for early recovery of those recuperating in the hospitals.



Hindustan Times ( Delhi )  
 नवभारत टाइम्स ( दिल्ली )  
 The Tribune ( Chandigarh )  
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The Deccan Herald ( Bengluru )  
 The Deccan Chronical ( Hyderabad )  
 Central Chronical ( Bhopal )

# Dam disclosures

The deluge in Kerala was made worse by inefficient management of 34 dams



AMESH CHENNITHALA

The people of Kerala have braved the worst calamity since the great flood of 1924. The floodwaters have receded from most of the affected areas leaving Kuttanad. Most people have come back to their homes from relief camps, only to find them battered beyond redemption. As the State is coming back to a "new normal" after the devastation, it is time to ponder the reasons for the floods.

Rubbishing the contention from the Opposition as well as studies from international experts that the mismanagement of dams was the primary reason for the floods, the Kerala government has stood firm that incessant rainfall in August is what caused the floods. This is in contrast to the affidavit filed in the Supreme Court by the Chief Secretary of Kerala, which cited the water released from a dam as the major cause of the floods. While there was considerable deviation in rainfall in August, it is unacceptable to put the blame only on that. In fact, according to a India Meteorological Department study, the rainfall in August was only the sixth highest in the past 13 years (1875-2017) in Kerala.

## Mismanagement of dams

One of the major functions of dams is flood protection – to attenuate the flow of water and its impact downstream. The golden rule followed in dam management is to maintain a flood cushion (buffer) in case of unexpectedly high rainfall.

He also sought to make light of the Opposition's criticism of the relentless fall in the value of rupee by claiming that the real fall in the Indian currency was not more than 30%.

"Rupee's fall not so big"



"Controlled release from these dams would have reduced the gravity of the calamity." An aerial view of the floods in Kerala. • REUTERS

KSEB are Idukki, Lower Periyar, and Madupetty. The water from Lower Periyar, Madupetty and Mullaperiyar drains into the Idukki reservoir consisting of the Idukki dam and the Cheruthoni dam. The water from the Idukki reservoir and Idamalayar drains directly into the Bhoothathankettu dam, which is the lowermost in the Periyar system, just 15 km from Kothamangalam town.

A closer look at the reservoir levels reveals that the major dams in the Periyar system were filled to the brim starting August. Idamalayar dam was kept full for most of the days in the pretext of electricity generation. This caused the Periyar to overflow all through its course, in Kothamangalam, Kalady, Perumbavoor, Aluva, and Eloor.

It is the same story with the Chalakudy river system, which consists of the Tamil Nadu Sholayar, Lower Sholayar draining into the Peringalkuthu dam. The Peringalkuthu, which is the lowermost dam in the Periyar riv-

erty board. Finally, when close to 20 lakh litres of water per second was released from Lower Sholayar and Parambikulam, and 15 lakh litres per second from 526 sq km of its catchment reached the Peringalkuthu dam on August 15, the dam overflowed for more than 3 metres, submerging Chalakudy town. The dam has been severely damaged with its structural stability is under serious threat.

The missing water level data of Kakki dam in the Pampa river system from the public domain is conspicuous as there has been a lot of hue and cry over its management. There is little doubt that it was the water which was flushed out of the Sabirigiri projects, Pampa dam and the Kakki-Anathode dam which caused the heavy flood in Pathanamthitta district and in Chengannoor. According to the data released by the State Disaster Management Authority, 85,300 litres of water was released every second from Kakki-Anathode dam, and

dams surged from 46.26 mcm/day on August 14 to 200 mcm/day the next day. This caused the towns downstream to be totally submerged.

Better management of water in Sholayar and Idamalayar would have considerably reduced the extent of the flood in the Periyar and Chalakudy river system.

The operation and maintenance of dams is governed by the guidelines of the Central Water Commission and water management protocols. The safety, precautions and evacuation measures to be followed while declaring different alerts (blue, orange, red) are clearly mentioned in these guidelines. The guidelines state that the reservoir control schedule, release procedure and gate operation procedure have to be done only after assessing the potential impact of the procedures. The State government and the KSEB opened 34 of the 39 major dams simultaneously. Controlled release from these dams would have reduced the gravity of the calamity.

## What needs to be done

Admittedly, the change in topography due to human interventions and climate change have contributed to the sporadic and excess rainfall. The proliferation in illegal stone-quarrying activity has been a major reason for widespread landslides. The decision of the incumbent government to reduce the boundary of a quarry from residential buildings to 50 metres has facilitated the mushrooming of the stone quarrying mafia and needs to be repealed at the earliest. The recent decision to water down the Kerala Conservation of Paddy Field and Wetland Act will add to the problem. The disaster management system has failed to predict

said that the government led by Prime Minister Narendra Modi was keen on sustainable solutions rather than "Band-Aid" ones. A decision taken to solve a specific issue may cause more harm than provide benefit, he said, adding that the retail inflation

"No reply yet"  
 The petition, filed through advocate A. Maitti, also claimed that Ms. Mahajan's representation to the Central government on the price issue has not yet been decided.



Hindustan Times (Delhi)  
 नवभारत टाइम्स (दिल्ली)  
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 The Deccan Chronicle (Hyderabad)  
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## WEATHER GUWAHATI

### LOCAL FORECAST:

Mainly cloudy sky. A few spells of rain/thundershower is very likely to occur.

### TEMPERATURE:

Max 27.4° C  
 Min 23.4° C

## Mishap claims 1

### CORRESPONDENT

JALUKBARI, Sept 11: The body of an unidentified man aged around 65 was found near Boragaon, Gorchuk early this morning. According to Gorchuk police, the deceased was hit by an unidentified vehicle while trying to cross the road.

After post-mortem the body has been kept in the GMCH morgue for identification. Police investigation is on to trace the vehicle.

# Jorabat flood: where lies the solution?

### CORRESPONDENT

JORABAT, Sept 11: Even after the administration's strong action against encroachers, including a week-long eviction drive in an around Jorabat to mitigate the flood problem, the scenario has not changed to the expected level.

A brief downpour this morning badly inundated national highways 37 and 6 affecting the smooth flow of traffic. This led to traffic snarls for hours.

Recently, a week-long eviction drive was carried out by the Kamrup Metropolitan district administration in Jorabat area to clear a roadside drain.

Under the direction of Kamrup (M) Deputy Commissioner Virendra Mittal, a team comprising additional deputy commissioners P Mahanta, N Pathak, PP Bora and R Konwar, Circle Officer of Sonapur revenue circle Jenifer Yashmin Choudhury and officials of the National Highways Authority of India (NHAI) carried out the eviction drive against the illegal encroachment on the land meant for the drain. Over 200 structures were demolished during the drive along with deepening and broadening of the drain



Photo: Jorabat Correspondent

to increase its water-bearing capacity.

The local residents now tend to say that the eviction drive was "a failure" as the authorities had allegedly failed to hit at the right place.

A concerned section of society here smells something fishy as the NHAI is freshly indulged in building new culverts on NH-37 to mitigate the flood impact, but is showing its back to a popular demand for raising the height of the existing culvert at the Jorabat tri-junction.

So far a huge amount of money has

been spent on constructing a new culvert near Hastinapur. Another culvert is being constructed near the North East Cancer Hospital and Research Institute, Jorabat, but one wonders why no initiative has been taken to raise the height of the existing culvert at Jorabat.

"During normal days, the level of water in the drain remains just few inches below the upper surface of the culvert, which overflows at the time of downpour. It is almost impossible to solve the flood problem unless the

height of the culvert is raised," a local resident said.

The locals have also stressed the need to clean the drain under the culvert as temporary relief, other than clearing only the two ends of it just to befool the residents.

There are strong allegations that there is a conspiracy among different stakeholders not to raise the height of the culvert just to favour a businessman, leaving the residents and passers-by to suffer for life.

When contacted, Sonapur Circle Officer Jenifer Yashmin Choudhury said, "We have cleared all the identified blockages in the drain and have cleared the encroachment over it along the highway, but we are not able to clear the encroachment over the drain in the inner areas as it is not possible for a JCB or a PC to enter such places."

A plan is being formulated to shift the drain along the national highway as there will be no problem in cleaning it in future, she added.

The locals have urged the government to come up with a good plan to put an end to the menace.



Hindustan Times ( Delhi )  
नवभारत टाइम्स ( दिल्ली )  
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The Times of India ( Mumbai )  
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हिन्दुस्तान ( पटना )

The Deccan Herald ( Bengaluru )  
The Times of India ( Hyderabad )  
Central Chronicle ( Bhopal )

# Outlet blocked, village turns pond

**RAVI DHALIWAL**  
TRIBUNE NEWS SERVICE

**GURDASPUR, SEPTEMBER 13**

Khojepur is a village where epidemics occur frequently. For the past eight years, ever since some persons blocked the outlet of the pond by constructing houses, a person, on an average, has to be rushed to the hospital every day.

Water enters houses as there is no outlet. To make things worse, the water from the pond reverses its flow and accumulates at almost all places in the village.

Nearly 60 per cent of the households are affected by the scourge of water which, in turn, leads to various vector-borne diseases.

Over the years, the administration has done nothing to mitigate the problems of 900-odd villagers, who are living in inhumane conditions.

The lone hand pump in

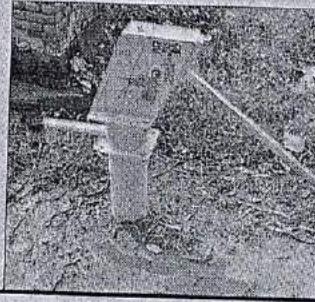
the village has its own tale to tell. Old timers recall the last time somebody used it in 2012, it spewed out contaminated water leading to an epidemic. Underground seepage from the pond located nearby ensured the water was polluted.

Eight children were taken ill, following which a fear psychosis gripped the residents and the pump became 'untouchable.'

The village, surrounded by lush agriculture fields -

## LONE HAND PUMP SPEWS DIRTY WATER

The lone hand pump in the village has its own tale to tell. Elderly recall the last time somebody used it in 2012, it spewed out contaminated water leading to an epidemic. Underground seepage from the pond located nearby ensured the water was polluted



labelled as highly fertile by PAU — is at stone's throw way from two modern entities — the Institute of Hotel Management and Beant College of Engineering and Technology.

Irked with no response from the administration, the villagers collected Rs 3,000 and drained out water from the streets with the help of a diesel pump.

A Good Samaritan last week sent an SOS to Deputy Commissioner Vipul Ujwal, who visited the

village himself to take stock of the situation.

"I am aware of the appalling conditions. The administration has drawn up a plan under which sewer pipes will be laid so that water is drained out into nearby agriculture fields or numerous orchards that dot the village," said the DC.

"The situation turns worse during monsoon. Many people, who had resources, have left the village for good. Those still living do not have the wherewithal to move out. We are living under the curse of some unhappy God," said Sarpanch Ramesh Kumar.

The village falls in the Dinanagar Assembly segment represented by Cabinet minister Aruna Chaudhury.

Girls wade through a waterlogged road on the way to school in Gurdaspur's Khojepur village. TRIBUNE PHOTO





Hindustan Times ( Delhi )  
नवभारत टाइम्स ( दिल्ली )  
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Central Chronicle ( Bhopal )

# CWC report on Kerala dams relevant to NE

AJIT PATOWARY

GUWAHATI, Sept 11: The Central Water Commission (CWC), in its 46-page study report on Kerala floods of August 2018, has recommended that it is essential to review the rule curves of all the reservoirs in Kerala.

The rule curves of the Kera-

la reservoirs need to be formulated for both conservation and operations as well during the flood, particularly for the reservoirs having the live storage capacity of more than 200 MCM, in order to create some dynamic flood cushion for moderating the floods of low return periods, particularly in the early period of monsoon, it says.

Rule curve is one of the most commonly used tools to aid reservoir operation. It means the division of the useful volume of the reservoir in zones with different strategies for water supply for different uses. Rule curve is generally used to limit the reservoir operations in flood control, the maximum height of the stored water, preventing collapse in supply, etc.

The CWC recommendations in this regard have implications for the NE region, which has several hydroelectric power projects under operation and has the proposal for installing over 150 more hydel projects in the near future.

It perhaps needs no mention here that the phenomenon of climate change has been upsetting the entire rainfall regime

of the Indian subcontinent and incidences of heavy to very heavy rainfall activities have been gradually increasing here, along with the lengthening of the list of the number of rainless days.

In Kerala, of the total 758.6 mm rainfall between August 1, 2018 and August 19, 2018, about 414 mm rainfall occurred in just three days, that is – on August

15, 16 and 17, 2018. This created severe flooding in the state. Due to severe rainfall from August 15 to 17, the gates of about 35 dams were also opened because of extremely large inflow of water in the reservoirs. Last month, the reservoirs were either at full reservoir level (FRL) or only few feet below the FRL.

(See page 4)