

FFM. Directorate

भारत सरकार
Government of India
केन्द्रीय जल आयोग
Central Water Commission
बाढ़ पूर्वानुमान प्रबोधन निदेशालय
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संदर्भ : उपरोक्तानुसार

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उपनिदेशक

निदेशक (बा.प.प्र.)

210245
03/10/18

कृपया केन्द्रीय जल आयोग की वेब साईट पर अपलोड करने की व्यवस्था करें ।

36 निदेशक (तकनीकी प्रलेखन)

विवेक
03/10/18

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

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

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

Rainfall for September in city lowest in 27 years

Richa.Pinto@timesgroup.com

Mumbai: The total rain recorded this year in Mumbai in the month of September has been the lowest in 27 years. The India Meteorological Department's (IMD) Santacruz observatory recorded a meagre 73mm of rain this month even though the average rainfall required for September is 341mm. The city, thus, has got only 20% of the required rainfall. The last time Mumbai recorded such low rainfall in September was in 1991, when it was lower still at 58.7mm.

Besides, with the four monsoon months coming to an end, the number of heavy rain days recorded this year have been low compared to the past two years. This year the IMD Santacruz observatory recorded nine heavy rain days, while in 2017 the number was 13 and in 2016 it was 17.

K S Hosalikar, deputy director-general (western region), IMD, said any rainfall on the last day of September wouldn't help much. "Whatever rainfall we expect towards the end of the month is associated with thunderstorm activity. This is not going to fill in for the deficiency, because rain with thunderstorms is intense but for a very short duration," he said. He added the absence of active weather systems was also one of the reasons for low rainfall. "For rain to occur over the west coast, you require a low-pressure system moving over the mon-

STOCK IN LAKES BEGINS TO DIP

➤ With no significant rain in state for a month, stocks in lakes that supply water to the city has started to dip before the official withdrawal of monsoon

➤ While total stocks in lakes stand at 91.68%, in last 2 years they were over 99% at this time

➤ Total water stocks on Aug 31 stood at 13.80 lakh mn litres, which meant the 7 lakes had almost over 95% of water

➤ But now total water quantum stands at 13.26 lakh



mn litres, so lakes have 91.68% stock

➤ Ideally water content in the seven lakes needs to be 14.47 lakh million litres till the end of monsoon to supply the city's needs for the rest of the year

FALLING SHORT

Total rainfall recorded in Sept 2018	Required average
73.4mm	341.4mm
Total rainfall in August	Required average
235mm	493.1mm

soon trough line from Bay of Bengal and close to North Konkan (which Mumbai is a part of). This did not happen. While low-pressure systems came, they moved northwards, resulting in a lot of rain over northern Madhya Pradesh and Haryana."

The offshore trough over the coast, which also brings significant rainfall, too was not available, Hosalikar said. "Third, there was no circulation or low-pressure system in the Arabian sea so on the Maharashtra coast the rain has not been good.

Mumbai is known to record mostly 300mm of rain in most months but it did not happen in August and September this year," he said, adding that moderate rainfall too was not seen. This August brought a meagre 38% of the required monthly rainfall.

According to the IMD's classifications, 15.6mm to 64.4mm of rainfall in a day is 'moderate', 64.5mm to 115.5mm 'heavy', 115.6mm to 204.4mm 'very heavy' and more than 204.5mm is seen as 'extreme.'

Central Water Commission
Water System Engineer,
Bhagirath(English)& Publicity Section

West Block II, Wing No:5,
R.K. Puram, New Delhi – 66.

Dated: 03.10.2018

Subject : Submission of News Clippings.

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

S. Maheshwari
3.10.2018
SPA (publicity)

Encl : As stated above.

Deputy Director WSE.Dte.

[Signature]
03/10/18

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

o/c

Hindustan Times

Statesman

The Times of India (N.D.)

Indian Express

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The Times of India (A)

Business standard

and documented at Bhagirathi(English) & Publicity Section, CWC, THE ECONOMIC TIMES

Monsoon: Drizzle & Downpour



The monsoon has been a mixed bag this year, swinging erratically long dry patches to torrential rains, but on the whole it has been reasonably well distributed. **ET** takes a look at the performance of the vital weather phenomenon, significant for the majority of Indians as they depend on farm income, and also for political parties as the harvest can influence voter mood. Here are the key milestones of the June-September season:

Total rainfall was **9% below** average, worse than the weather office forecast

Rainfall was deficient in every month of the season - the first such consistent deficiency in **14 years**

Sept had highest deficit of **22%**, following a deficit of **5%** in June **6%** in July and **7%** in Aug

June closed with **5%** shortfall; July with **6%**, August **7%**; September saw the highest deficit at **22%**

The weather office says it's rare for monsoon to have such a high deficit

Withdrawal of monsoon was delayed by almost a month

TROUBLE SPOTS

After a strong start, monsoon stopped advancing for 12 days in 3rd week of June

Kerala was devastated by one of its **worst floods** in over a century

The NE was exceptionally dry. Since 1901, it's been so dry only 4 times - 1992, 2005, 2009 & 2013

Countrywide rain deficit for the season rose to **10%** on Sept 18, hovering on borderline drought conditions

Deficient rains recorded over **31%** area of the country this monsoon



POSITIVE FEATURES

Burst of heavy rainfall on the eve of monsoon withdrawal has filled up reservoirs

Reservoir storage on Sept 27 was **117%** of last year and **105%** of storage of 10-year average

Reservoir levels in north, Central & southern region better than average storage capacities

Rainfall was reasonably good in key crop-growing regions in northern and central India

IMPACT ON FARMERS

The government confidently expects a bumper harvest in the weeks ahead

Many experts say this year's erratic rainfall will hit farm output

Torrential rain this month damaged rice fields in Punjab and Haryana

Farm mood may turn sombre if the harvest is bad



Some experts say farmers worry more about the price than the quantity harvested

Countrywide Rainfall between June to September

Region	Actual (mm)	Normal (mm)	% Departure
East & NE India	1,087.5	1,438.3	-24%
NW India	603.2	615	-2%
Central India	911.3	975.5	-7%



News item/letter/article/editorial published on 02.10.2018 in the

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Farm size shrinks by another 6%

SANJEEB MUKHERJEE

New Delhi, 10 October

The average size of an Indian farm shrank a little over six per cent between 2010-11 and 2015-16, to 1.08 hectares from 1.15 ha, shows provisional estimates of the first phase of the 10th agricultural census. The data was released on Monday.

As a result, the share of small and marginal holdings (up to 2 ha) rose to about 86.2 per cent of total operational holdings in 2015-16 (around 126 million), from close to 85 per cent in 2010-11. The share of semi-medium and medium operational holdings (2-10 ha) dropped from 14.3 per cent to 13.2 per cent. And, that of large holdings (10 ha and above) fell from a little above 0.7 per cent in 2010-11 to a little below 0.6 per cent in 2015-16.

Operational holding is defined as all land used wholly or partly for agricultural production and operated as one technical unit by one person, alone or with others, without regard to title, legal form, size or location.

Total operational area -- which means cultivated and uncultivated area, provided part of it is put to farm production -- fell from close to 159.6 mn ha to 157.1 mn ha in 2015-16.

This is the 10th such exercise since 1970-71, the reference period being July to June.

In this first phase of the census, data on primary characteristics such as a number of operational holdings and area operated by different size classes (marginal, small, semi-medium, medium and large), social groups (SC/ST, others), gender, types of holding, etc, are collected. In the second phase, details on characteristics of operational holdings are collected --



land use, irrigation status, tenancy particulars and the like. In the third and final phase, data on the pattern of input use by operational holdings, also termed an Input Survey.

According to an official statement, the percentage share of female operational holders increased from close to 12.8 per cent in 2010-11 in total holdings, to nearly 13.9 per cent in 2015-16. The corresponding figure was almost 10.4 per cent and 11.6 per cent in operated area. "This shows more and more females are participating in management and operation of agricultural lands," went the statement.

The highest number of operational holders was in Uttar Pradesh, at 23.8 mn of the 146 mn total. Followed by Bihar (16.4 mn), Maharashtra, Madhya Pradesh and Karnataka.

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THE ECONOMIC TIMES

Centre aims at 1.5 mt of extra rabi pulse production

DILIP KUMAR JHA
Mumbai, 10 October

The central government hopes to achieve 1.5 million tonnes (mt) of additional pulses output during the rabi sowing season of October/November.

The area left fallow for rice in Bengal, Bihar, Assam, Chhattisgarh, Jharkhand and Odisha is being targeted — 80 per cent for pulses and the other 20 per cent for oilseed. Also, to promote cultivation in the north-eastern states, where most of the agricultural land is used for only one crop through the year.



"We are planning to cover 5,000 villages in the northeastern states this rabi, with a target to cov-

er an area of 1.87 million hectares, which will contribute an additional 1.35 million tonnes of pulses and

SHINING BRIGHT

Year-wise output
(in million tonnes)

Crop year**	Kharif	Rabi	Total
2014-15	5.73	11.42	17.15
2015-16	5.53	10.82	16.35
2016-17	9.58	13.55	23.13
2017-18*	9.34	15.89	25.23
2018-19#	9.22	-	-

*Fourth Advanced Estimate
#First Advanced Estimate; **July-June
Source: Ministry of Agriculture

oilseeds during 2018-19," said a senior food ministry official.

Targeting of rice fallow began

with 4,000 villages in 2016-17, covering an area of 1.5 million ha (1.2 mn ha in pulses and 0.3 mn ha of oilseed). This yielded nearly one mt of pulses and oilseed that year. The programme was extended in 2017-18, resulting in additional production of 792,000 tonnes of pulses and 112,000 tonnes of oilseed.

Union food minister Ram Vilas Paswan says this expansion in acreage would help India progress to self-reliance. "The government is committed to use internal resources to raise local production to meet domestic consumption," he had said on a recent visit to Mumbai.

The Centre's estimate is 9.22 mt of pulses for the kharif harvesting season, to begin in a few weeks, as compared to one of 9.34 mt for kharif 2017-18. Rabi output is expected to see a rise. With total output of 25.23 mt, India achieved self-sufficiency for 2017-18. In contrast, total pulses output in 2015-16 was 16.35 mt and seven to eight mt was imported. Annual home consumption is about 25 mt. Dissemination of latest crop technology, new seed varieties and better management of nutrition and pests, beside water saving devices and farm implements, are being promoted.

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8 ECONOMY & PUBLIC AFFAIRS

NEW DELHI | TUESDAY, 2 OCTOBER 2018

Sewage chokes Modi's clean-up drive

The Swachh Bharat campaign focuses exclusively on toilet-building but clean cities are a pipe dream if sewage and solid waste are left untreated

BS REPORTERS

New Delhi/Hyderabad/Chennai/Ahmedabad/
Lucknow/Kolkata/Rhubaneswar, 1 October

In the river Mutha which runs through Pune, one of the fastest growing cities in India, the dissolved oxygen levels have fallen below 2 parts per million (ppm). The global norm is 8 ppm. The dissolved oxygen level in a water body determines its ability to sustain life, whether it is letting fish breathe inside the water or making the water fit for human consumption.

A near-dead river, as water conservationists call it, the Mutha joins the Bhima, traverses four big states as it becomes the Krishna, and caters to the water needs of people, crops and companies along its way.

Like the Mutha, all Indian rivers running through cities and towns have suffered excessive and ever-increasing contamination from industries and restaurants and from our bathrooms and toilets. On the fourth anniversary of Swachh Bharat, data shows an uptake in the number of toilets built; from about 45 million under UPA II to 86 million rural toilets to date under the current government.

But in the urban areas, there is a clear lack of efficiency. As against a sum of ₹59 billion released to the states, only ₹22 billion stands utilised, as the parliamentary standing committee on urban development has noted.

With a 38 per cent spending efficiency, though with five million added toilets, the issue of cleanliness beyond the building of toilets is in crisis. Of the 62 billion litres of wastewater (sewage) generated in our cities daily, only 23 billion litres gets treated, according to Central Pollution Control Board (CPCB) data. The rest, two-thirds of it, flows into rivers untreated. As the treated water gets mixed with the untreated dirty water, the net impact of sewage treatment plummets to zero.

The sewage treatment capacity varies

across states. While Maharashtra generates the highest amount of sewage among states, it treats 63 per cent of it. Kerala, West Bengal and Bihar treat less than 10 per cent of the sewage they generate.

Further, the major cities in any state invariably have a better treatment capacity. Sewage generation in Ahmedabad, for example, rose from 817 million litres per day (mld) to 848 mld in three years. However, city officials say the sewage treatment capacity is stagnant at 817 mld. Yet, this is still better than the state average. Gujarat as a whole treats 75 per cent of the sewage it generates, the highest among the big states.

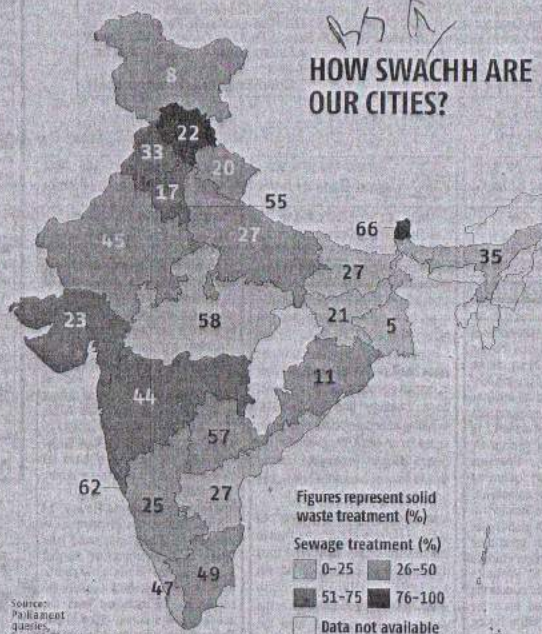
"Meeting the revised SPCC norms and expanding coverage to 100 per cent of the area have been a challenge. The newer areas included in the city limits still run on septic tanks and are not connected to our drainage system," a senior official in the Ahmedabad Municipal Corporation told *Business Standard*.

Further, more than half of wastewater enters a sewage treatment plant in the three morning hours from 6-9 when the capacity falls short, and the extra sewage gets bypassed through a "bypass pipe" to the river.

All this could spell the nemesis of Swachh Bharat. A recent CPCB report shows that about 175, or half, of the 351 select river stretches in India have pollution levels higher than the clean norm. Coarse rapid industrialisation and urbanisation, Maharashtra and Gujarat lead in having the maximum stretches with extreme contamination.

Biological Oxygen Demand (BOD) is the oxygen in the water spent in cleaning up the contamination such as human waste and food. The water is said to be fit for use if the BOD is less than 6 mg/litre, says the CPCB report. But in the Japur to Saran stretch of the Bhadar river in Gujarat, the BOD levels have touched as high as 426 mg/l.

The case of Lucknow too reinforces the plight of Indian cities. Only 55 per cent of



Sachin Tendulkar takes part in a cleanliness drive in Mumbai on Monday

PHOTO: PTI

the city is connected to a sewer network. This half of the city generates 600 mld of sewage; the city has a capacity to treat only 500 mld per day.

The waste generated by the other half does not see the light of the sewage treatment plant. Hyderabad, the joint capital of Andhra Pradesh and Telangana, too leaves half of its sewage untreated, and lets it flow into the Musi River.

If the state of liquid waste treatment is far from Swachh, the record on treating solid waste too is dismal - except for one improvement, namely, that from half of the wards in Indian cities, door-to-door waste collection now operates in two-thirds of the wards.

However, the waste that is collected is mostly a mix of dry waste and wet organic waste. In such a situation, the wet waste reacts with the dry waste to create sludge and leachate, which spreads a

foul smell across the city, pollutes the groundwater, and proves fatal for sanitation workers.

According to the parliamentary committee on urban development's response to the government earlier this year, only 33 per cent of the municipal wards in the country have 100 per cent waste segregation in place.

Then comes the treatment of the waste. One of the objectives of the Swachh Bharat Mission (urban) is 100 per cent scientific processing and disposal of solid waste by October 2019. As of today, only 37 per cent of the municipal waste in India gets treated.

In Haryana, the proportion is as low as 17 per cent. In Odisha, it is even lower, at 10 per cent. In Chennai, the auto industry capital, about 2,800 tricycles collect garbage from homes. However, in the absence of a working treatment plant, about 4,500

tonnes of solid waste are dumped on two different landfills.

In Hyderabad, the dynamics are different. While the waste segregation at source is about 60 per cent, officials from the Greater Hyderabad Municipal Corporation claim that the entire waste generated gets treated under the Integrated Municipal Solid Waste Management Project, taken up in collaboration with a private company.

"Source segregation was the biggest challenge we faced in our efforts involving the municipal solid waste management," said B Janardhan Reddy, the former municipal commissioner of Hyderabad.

After four years of Swachh Bharat, the gaps are huge. If the crisis in rural areas is the failure to use toilets, in urban areas, it is the failure of sewage and waste treatment that is thwarting the campaign's objective.

Hindustan Times

Statesman

The Times of India (N.D.)

Indian Express

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Nai Duniya (Hindi)

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Business standard

and documented at Bhagirath(English)& Publicity Section, CWC. **THE ECONOMIC TIMES**

ISA will soon become key energy body: PM

SHREYA JAI

New Delhi, 2 October

Prime Minister Narendra Modi said on Tuesday that the International Solar Alliance (ISA) could replace the Organisation of Petroleum Exporting Countries (Opec) as the key energy supplier in future.

He added that to strengthen the ISA, India will invite countries in the UN General Assembly to be a part of the global congregation of solar energy harnessing nations.

"The role played by oil wells today will be taken over by the sun's rays. The ISA will meet the energy requirements of the world in the years to come," said Modi.

Officially announced during the UN Climate Change Conference in Paris on November 30, 2015, the ISA is a partnership of nations with abundant solar energy. Currently, there are 121 countries which have agreed to be members of the ISA. Most of these countries are mainly from Africa, South-East Asia and Europe.

"In the future, we must make efforts to ensure that there is One Sun, One World and One Grid. This will eliminate the energy poverty of the world as the sun is always shining somewhere," Modi said.

He also launched the Second Re-Invest Conference. The conclave first took place in 2014 and saw an investment commitment of over



PM Narendra Modi during the inauguration of the first Assembly of International Alliance on Tuesday

PHOTO: PTI

2,00,000 MW by Indian and foreign investors.

The Prime Minister said 50 GW of renewable energy will soon be added to the existing capacity and the non-hydro renewable segment will contribute 20 per cent of the total energy.

"This is the right time to invest in solar manufacturing," he said, adding that he saw an investment potential of ₹700 billion to ₹800 billion in solar manufacturing.

The Prime Minister lauded the Centre for its contribution towards the renewable energy segment. He said the KUSUM scheme would help instal 2.8 million solar pumps which would produce 5 GW of energy every year.

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Quake-hit Indonesia seeks foreign aid

1,91,000 people in urgent need: UN

AGENCE FRANCE-PRESSE

JAKARTA

Indonesia's President formally invited foreign donors to contribute to rescue and recovery efforts on the quake-and-tsunami-struck island of Sulawesi on Monday, but his government was at pains to stress the situation was under control.

"The President has decided to accept aid from abroad," said Army General-turned-Minister Wiranto.

Giving a less than full-throated welcome to offers of help – even as the UN warned that 1,91,000 people were in urgent need – General Wiranto explained President Joko Widodo's acceptance in almost apologetic terms. "There are a lot of offers from other countries to help the disaster in Palu, of course, we appreciate the requests," he said, citing the need to keep up good bilateral relations with many countries.

"Another consideration is that Indonesia has also often contributed and given

aid," he said. "Helping each other is an international tradition which we need to appreciate."

Offers of help

Around 18 countries and scores of non-governmental aid groups have offered to help in the four days since the quake and tsunami that killed hundreds, but they have not been able to until now. Many in the humanitarian sector have privately expressed frustration about sitting on the sidelines, as residents of Sulawesi turn to looting for water, food or petrol and many remain trapped in the rubble due to lack of heavy machinery for rescue.

Meanwhile, Indonesian volunteers at Pobaya began to fill a vast grave with the dead, with instructions to prepare for 1,300 victims to be laid to rest. A massive 7.5 magnitude tremor on Friday had sent monster waves barrelling into the island of Sulawesi, leaving at least 844 dead.

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Treat the new wetlands report as a red flag

Preserving and restoring natural
infrastructure can reduce disaster risk

If there is one beautiful wetland that can be called the jewel of India's natural heritage, it is the Loktak Lake in Manipur. It is well known for phumdis (heterogeneous mass of vegetation) floating over it and the Keibul Lamjao National Park located on these phumdis is the only floating national park in the world, home to the endangered Sangai and Manipur brown-antlered deer. That's not all: Loktak's biological diversity comprises 233 species of aquatic plants and 57 species of water birds. Today, development activities such as hydropower generation, irrigation and drinking water supply are destroying this lake. Unfortunately, such destruction of wetlands is a worldwide phenomenon. According to the Global Wetland Outlook (State of the World's Wetlands and their Services to People 2018), 35% of wetlands — lakes, rivers, marshes, peatlands, as well as coastal and marine areas such as lagoons, mangroves, and coral reefs — across the world were lost between 1970 and 2015. "We are losing wetlands three times faster than forests," said Rojas Urrego, head of the Ramsar Convention on Wetlands.

It is important that the Global Wetland Outlook report is treated as a red flag by all governments since they contribute to 75 Sustainable Development Goal indicators. If we specifically take the urban sector, they help in flood control, store excess rainwater, replenish groundwater, supply freshwater, play host to an assemblage of species, and provide cultural and aesthetic value. The 2015 flood in Chennai is just one example of what destruction of wetlands can lead to. Restoring natural infrastructure can help reduce the risk of a disaster. The Netherlands has restored natural floodplains of the Rivers IJssel, Rhine, Lek and Waal, to reduce the impact of floods. In India, the Coringa Wildlife Project in Andhra Pradesh has revived mangroves, and, according to UNDP calculations, these mangroves have protected at least 75,000 people of Kakinada from cyclones.

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Mamata, Raghubar ^{16/2} meet over dam dispute

EXPRESS NEWS SERVICE

RANCHI, OCTOBER 1

WEST BENGAL Chief Minister Mamata Banerjee and her Jharkhand counterpart Raghubar Das on Monday met in Kolkata and agreed that talks should be initiated to find a solution to the Massanjore Dam dispute.

Das raised the issue at the Eastern Zonal Council meeting, an official statement read. The meeting, chaired by Home Minister Rajnath Singh, was also attended by representatives from Bihar and Odisha. "Both the CMs agreed that talks should be initiated to solve the issue. The two neighbouring states should work together and assist each other," said the statement.

In August, a war of words had broken out between the BJP and the TMC after attempts by the Bengal government to colour the 1950s structure in blue and white — apparently the favourite shades of Chief Minister Banerjee.

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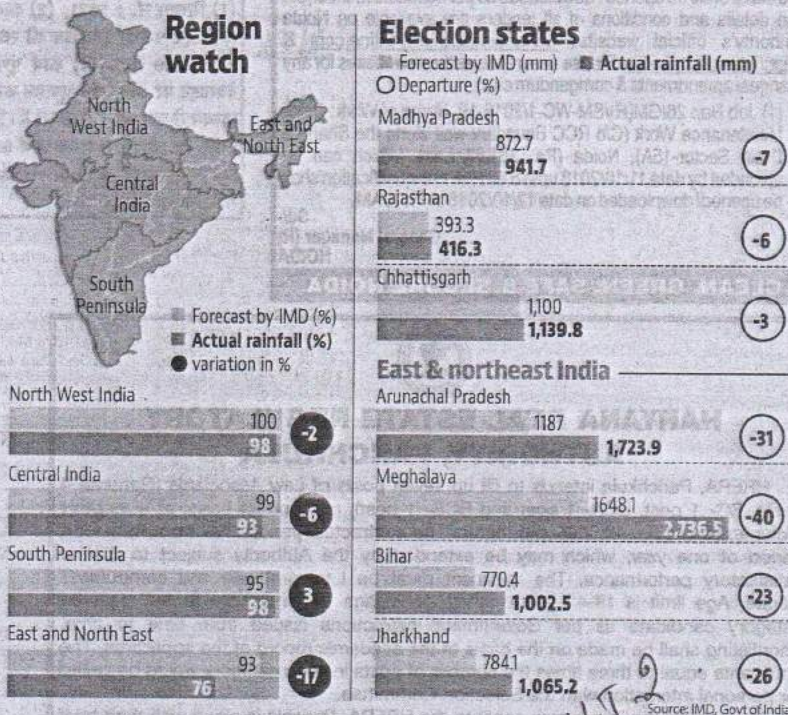
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MAPPING MONSOON JOURNEY

IMD says there is adequate soil moisture over northern states to help rabi (winter) crop. However, farmers say the uneven distribution of rain caused crop damage



IMD says monsoon may aid rabi, farmers say yield hit

Jayashree Nandi
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NEW DELHI: Even as the India Meteorological Department said the high moisture content in soil would ensure better summer and winter crops this year despite a slight deficiency in the monsoon rains, farmer groups said patchy rainfall and extreme events have affected their crops.

The overall crop acreage during Kharif (summer crop) season was 2.6% higher than in 2017 mainly because of good soil moisture distribution across the country, IMD said Monday. This is despite a deficiency of over 9% in the southwest monsoon rains between June and September.

The IMD said there was adequate soil moisture over northern states to help the rabi (winter)

lative rainfall will not make up for the damage, they said.

Aam Kisan Union's founder member Kedar Sirohi said the soya bean grain has grown only half its potential size because of lack of adequate rainfall in Madhya Pradesh's Malwa, Nimar, Mahakoshal and Bundelkhand districts. "The rains have not been regular. There was a good beginning and then there were long gaps. This also impacted moong and other lentils," he said.

"Farmers are not happy; procurement of crops at a fair price will be a major demand during elections," he added, referring to polls in Madhya Pradesh due this year. The Malwa-Nimar region includes Mandsaur, where five farmers were killed in police firing during the 2017 agitation by farmers seeking better prices for

One of them led to the Kerala floods in August.

Unexpected rains in mid-September hit states like Rajasthan the most. "We had a standing crop of bajra, urad and moong dal ready to be harvested. Most areas of east Rajasthan saw a huge damage to these crops due to sudden rains in September when it was time for monsoon withdrawal," said Badrinarayan of Bharatiya Kisan Sangh.

"Large parts of west Rajasthan did not get any rain and are absolutely parched..."

All India Coordination Committee of Farmers Movement spokesman Yudhvir Singh said monsoons may have been favourable in parts of central India, but Karnataka and Rayalaseema have drought-like situation. "There was a lot of damage to

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

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Monsoon withdraws from state; 12% excess rain

BHANU P LOHUMI
TRIBUNE NEWS SERVICE

SHIMLA, OCTOBER 1

As the southwest monsoon withdrew, Himachal experienced 12 per cent excess rains after a gap of eight years. The monsoon left a trail of destruction and rain-related mishaps claimed 260 lives while loss to property was pegged at Rs 1,400 crore.

The southwest monsoon have also withdrawn from

DEFICIT RAIN

Chamba	38%
Kinnaur	32%
Lahaul & Spiti	32%



EXCESS RAIN THIS SEASON

Una	59%
Kullu	49%
Bilaspur	38%
Kangra	34%
Hamirpur	29%
Shimla	27%
Mandi	24%
Solan	11%

SIRMAUR NORMAL

Rajasthan, entire Jammu and Kashmir, Himachal, Punjab, Haryana, Chandigarh, Delhi, Uttarakhand, West Uttar Pradesh and parts of Gujarat and East Uttar Pradesh, west and east Madhya Pradesh, Director of local MeT office Manmohan Singh said.

In 2010 the state recorded 13 per cent surplus rain. The monsoon withdrew from the state on September 30, 2017, with 15 per cent deficit. The

rain deficit was 24 per cent in 2016, 23 per cent in 2015, 37 per cent in 2014 and six per cent in 2013. The withdrawal of monsoon was normal this year while it withdrew on October 16 in 2013 and October 5 in 2016. Out of 12 districts, eight received excess, three deficit and Sirmaur normal rain. Chamba, Kinnaur and Lahaul-Spiti got 38 per cent, 32 per cent and 32 per cent deficit rains.

Water to be released from Pong dam

SHIMLA, OCTOBER 1

Excess water from the Pong dam on the Beas in Kangra district will be released from Monday for continuously 10 days, a Bhakra Beas Management Board (BBMB) official said.

Excess water up to 17,595 cusecs would be released from the dam daily, he said. — PTI

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The satyagrah for a free-flowing Ganga



SHIV VISVANATHAN

ACADEMIC WITH COMPOST HEAP

LOOKING at a picture of GD Agrawal, former professor of civil and environmental engineering at IIT, Kanpur, a child remarked that he looks like Moses and Gandhi. It is an apt description because Agrawal has the style of an Old Testament prophet in combination with the strategy of a *satyagrahi*. Agrawal is one of our great environmentalists. But unlike most scientists, he is both an exemplar and a paradigm of his ideas. He is a scientist full of ideas about the Ganga and he embodies a lifestyle in consonance with his ideas. He is now famously known as environmentalist Swami Swaroop Sanand.

Agrawal is today in hospital under protective custody because he has been on a hunger strike for over a month, protesting about the way his beloved river, the Ganga, is being treated. He has objections against the way the Ganga is being conceptualised and administered.

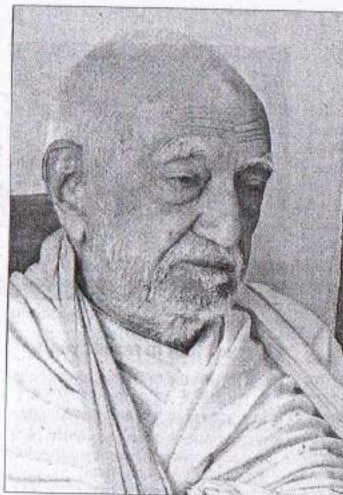
For him, the Ganga is special and a special kind of river. One has to think of the river as more than a physical entity. The Ganga embodies

a sense of sacrament and displays special properties. It has bactericidal properties which fight contamination. Ganga jal, unlike ordinary water, does not deteriorate.

Yet, the government treats it shoddily. True, the National Ganga River Basin Authority has been created. But, as Agrawal remarks, ironically the attribute "national" belongs to the bureaucratic structure and not the river. He says the Ganga should be seen in civilisational terms, as a site where myth and scientific rationality coexist.

Agrawal claims that his sadness stems from the 'governmentalisation' of the river. The Ganga, despite its sacredness, is treated like a PWD department. There is no sense of the myths, the sacredness or the ecological logic of the river. What the Ganga needs, to minimise pollution, is an unimpeded flow. But what the bureaucracy has done is impose 600 dams on it. The river is being choked by pollution and encroachments. Agrawal claims that the Modi government is both illiterate and indifferent to the situation. He argues in the languages of both myth and science. He says that he is fasting to death because the Ganga is his grandmother, even while summoning arguments from science.

The BJP government does not know what to do with a man who claims that the emperor has no clothes. Agrawal is an oxymoron—a *satyast* who speaks science, an ecologist who understands the mythology



TENACIOUS ACTIVIST: GD Agrawal

of the river, a Gandhian who has little respect for the ecological claims of the regime. His authenticity, unlike the regime's pretensions, is potent. With quite a tenacity, Agrawal claims that saving the Ganga is the sole purpose of his life.

Helpless before his arguments, the regime has resorted to brutality. When he was in the third week of his fast in a Haridwar ashram, a posse of policemen dragged him out, forced him into an ambulance and rushed

Agrawal exposes the hypocrisy and illiteracy of a regime which stands confused before him, a *satyagrahi* and *sanyasi* who contends that the BJP has no sense of science or the sacred. He is on fast as he has objections against the hydroelectric projects that he believes are choking the life of the Ganga.

which stands confused before a *satyagrahi* and *sanyasi* who contends that the BJP has no sense of science or the sacred. Agrawal is objecting to the hydroelectric projects choking the life of the Ganga. In fact, Agrawal resigned from the National Ganga Basin Authority, dubbing it a sham.

For Agrawal, rivers and the Ganga, in particular, are both a vocation and a career. A trained engineer from Roorkee, he was the dean of civil engineering at IIT, Kanpur, and a member-secretary of the Central Pollution Control Board. Agrawal's fascination for ecology has rubbed on to many of his student disciples, including the late Anil Agarwal of the CEE and Rajender Singh, who are pioneers and exemplars of ecology in their own right. But he does not need these testimonials or certificates. His very presence and the moral impact of his struggle capture many an imagination.

Agrawal has been a persistent dissenter when dissent, especially environmental dissent, is at a discount. His protests over the Ganga have earned him insults and labels such as 'CIA puppet'. But the government's hostility has not impacted the 80-year-old professor's integrity. He is brutally frank, claiming that the Ganga Action Plan is the chip of the old clerical blockhead, the Mission Clean Ganga. Neither institution, according to him, has a sense of accounting, accountability, responsibility or trusteeship. The bureaucratisation of the Ganga has led to a failure of ethics and scientific competence, he laments.

GD Agrawal is as impatient with the citizen as he is dismissive about the epidemic of tourism, which, he says transforms the sacred centres of pilgrimage into picnic spots of ecological destruction. An old-style prophet, he has no respect for a populism which banalises the sacredness of the Ganga. His demands are specific and immediate. He suggests that the environmental flow of the river be maintained as an antidote to pollution, that encroachments along the river be dismantled and that special legislations be enacted to sustain these requirements.

Agrawal's struggle has moved beyond an individual protest to an epic struggle, which is quietly stirring the moral imagination of many activists. His critique, like that of Madhav Gadgil's critique of development, needs to be acknowledged and acclaimed. Both bring the much-needed moral imagination to the Indian scene.

Agrawal is no prophet crying in the wilderness. His earlier protests made Jairam Ramesh cancel the dam on the Bhagirathi.

Narendra Modi, however, seems to have forgotten that restoring the Ganga to its pristine self was one of his much-advertised electoral planks. When a concerned citizen protests, the Modi regime has no answer. The onus now is on the people reading about his struggle. Agrawal's is a moving story. The challenge is whether people will rise to the occasion and back the great *satyagrahi* by joining him in his battle.

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डॉक्टरों की टीम ने बदली यमुना घाट की सूरत

लोगों की बीमारियों को ठीक करने वाले डॉक्टर और वैज्ञानिक गंदगी के खिलाफ भी अभियान छेड़े हुए हैं। पिछले पांच वर्षों से इन चिकित्सकों और वैज्ञानिकों का दल हर शनिवार यमुना के घाट की सफाई में जुटा है। इनके प्रयासों को देखकर अब स्थानीय लोग भी इनके साथ जुड़ गए हैं।



डॉ. विवेक दीक्षित डॉ. रिषी सोलंकी

परिचय

- एम्स में हड्डी रोग विभाग में वरिष्ठ वैज्ञानिक डॉ. विवेक दीक्षित ने मौलाना आजाद मेडिकल कॉलेज में हार्मोन रोगों पर शोध किया है। उन्होंने डजरडल के हिब्रू विश्वविद्यालय में भी अध्ययन किया है।
- लेडी हार्डिंग मेडिकल कॉलेज के फॉरेंसिक मेडिसन विभाग में एसोसिएट प्रोफेसर रिषी सोलंकी ने मौलाना आजाद मेडिकल कॉलेज से फॉरेंसिक मेडिसन की पढ़ाई की है।

पहले वर्ष सफाई के बाद जब हर शनिवार वे वहां पहुंचते तो फिर पहले जैसी गंदगी होती। धीरे-धीरे उनके



दिल्ली सचिवालय के नजदीक वाले आईटीओ घाट को साफ करता चिकित्सकों और वैज्ञानिकों का दल । • हिन्दुस्तान

“

हम लोगों के प्रयासों को देखकर अब स्थानीय लोग भी हमारी मदद करते हैं। पांच साल में काफी लोग साथ जुड़ गए हैं और आईटीओ घाट पहले से साफ रहने लगा है।

- डॉ. विवेक दीक्षित, एम्स

प्रयासों और समझने से स्थानीय लोग भी उनसे जुड़ने लगे और अब घाट पहले जैसा गंदा नहीं रहता है।

पोलैंड की नदी देखकर किया यमुना साफ करने का इरादा

डॉ. विवेक ने बताया कि वह कुछ साल पहले पोलैंड गए थे। वहां एक डॉक्टर से पोलैंड घुमाने को कहने पर उसने सबसे पहले वहां की नदी देखने को कहा। साफ नदी के पास लोग कॉफी की बुरकी ले रहे थे। विवेक को लगा कि हम भी अपनी नदी को साफ बनाएं। उन्होंने कहा कि हमारे शहरों में नदियां साफ हों तो हम भी यहां आने वाले पर्यटकों को बिना शर्मिंदगी उठाए वहां ले जा सकते हैं।

बच्चों को इस्टबिन अफसर बनाकर प्रोत्साहित किया

डॉक्टर विवेक ने बताया कि उनका दल हर शनिवार सफाई के लिए जाता है। गोताखोर, स्थानीय दुकानदार एवं बच्चे भी घाट की सफाई में मदद करते हैं। उन्होंने वहां रहने वाले बच्चों को इस्टबिन ऑफिसर नियुक्त किया है जो घाट या यमुना में पॉलीथीन फेंकने वाले लोगों को रोकते हैं। बच्चों को प्रोत्साहन के रूप में कॉपी, किताब, बैग आदि सामान भी दिया जाता है।

(समाप्त)

नई दिल्ली | हेमवती नंदन राजौरा

विदेश में भ्रमण के दौरान वहां की साफ-सुथरी नदी देखकर एक डॉक्टर के मन में यमुना और उसके घाटों की सफाई का विचार आया। वर्ष 2013 में प्रशासन से किसी प्रकार की उम्मीद के बिना एम्स के डॉक्टर विवेक दीक्षित ने लेडी हार्डिंग मेडिकल कॉलेज के डॉक्टर रिषी सोलंकी और साथी चिकित्सकों और पीएचडी शोधार्थियों के साथ मिलकर यमुना के घाटों की सफाई शुरू की।

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Farm Policy will Be in Sync with Global Rules: India to WTO

Proposed policy aims to do away with min export prices & outright bans

Following Norms

- INDIA'S FARM POLICY aims to double exports to over \$60b
- WTO MEMBERS concerned over its impact on global markets



EU sought details on instruments to be used for this goal

India says national agri policy will be consistent with WTO rules

India ninth largest exporting nation, as per 2015 WTO data

Kirtika.Suneja@timesgroup.com

New Delhi: India has informed the World Trade Organization (WTO) that its proposed national agriculture export policy would be consistent with global trade rules.

In a meeting held last week to review farm policies of various countries, India's proposed policy drew attention owing to concerns over its potential impact on global markets.

The policy aims to do away with restrictions such as minimum export prices or outright bans as it seeks to double India's farm exports to more than \$60 billion by 2022.

The European Union sought details on the type of instruments that would be used to reach this goal and how these measures would not increase trade distorting support to India's farmers. The EU also asked India whether the targeted doubling concerned average farm income and whether the country intended to use 'green box' support to this end. Green box subsidies are non-distorting subsidies, permitted by the WTO.

India's green box support declined to \$18.3 billion in 2015-16 from \$20.8 billion in 2014-15, as per the country's latest submission to the WTO in May.

Of this, the amount spent on public stockholding for food security purposes (allocation for distribution and buffer stock) was \$15.6 billion in 2015-16, down from \$17.1 billion in the previous year.

According to India's submission, the financial support provided through various state policies was intended to compensate farmers for marketing, handling, distribution and associated costs, which are allowed by the global trade regulator. "The proposed national agriculture policy is still under consideration but would be consistent with WTO rules," India told the WTO.

The policy is under inter-ministerial consultation, after having received the go-ahead from the Prime Minister's Office, and is likely to be placed before the Union Cabinet soon for approval.

"This gives us the flexibility to take into account other countries' genuine concerns about the policy," said an official aware of the matter.

India is ranked the ninth largest exporting nation, as per the latest WTO trade data for 2015. Its share in global exports of agriculture products increased to 2.2% in 2016 from 1% a few years earlier.

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Govt's attempt to boost ethanol capacity finds many takers

More than a hundred applications approved in three months

SANJEEB MUKHERJEE & AJAY MODI

New Delhi, 2 October

The government's attempts to boost the country's ethanol capacity has met with encouraging response from the industry.

More than a hundred applications from leading sugar companies to set up new boilers and distilleries have been approved in the three months since announcement, shows data sourced from the Department of Food and Public Distribution.

Officials at the department said leading sugar firms have sought approval for setting up additional capacities to make 1.25 billion litres of ethanol.

The companies include Triveni Engineering, Dhampur and DCM Shriram, Renuka Sugars, EID Parry and Dwarkesh Sugar and the applications — around 114 — involve subsidised loans worth ₹62 billion. In most cases, leading companies have sought to set up or expand at more than one location. India currently has around 2.75 billion litres of ethanol capacity. To fulfill the mandatory 10 per cent blend-

“The applications are proof that if the government comes up with an attractive policy, investments will follow. The atmosphere for investments in the domestic ethanol industry has never been better. If there was some clarity on a multi-year pricing of ethanol, response would have been even better”

TARUN SAWHNEY, VICE-CHAIRMAN AND MANAGING DIRECTOR, TRIVENI ENGINEERING



ing, it needs an ethanol capacity of 3.25 billion litres.

Tarun Sawhney, vice-chairman and managing director at Triveni Engineering, said the applications are proof that if the government comes up with an attractive policy, investments will follow.

“The atmosphere for investments in the domestic ethanol industry has never been better. If there was some clarity on a multi-year pricing of ethanol, response would have been even better,” he said.

Triveni Engineering, he said, is investing in expanding its existing ethanol capacities as well as setting up new capacities that will allow flexibility

to convert not just C-heavy molasses but also B-heavy molasses into ethanol.

Officials said once the new capacities come on stream in the next 2-3 years, India will have sufficient ethanol to undertake a 10 per cent blending with petrol. The total approved loan amount under the subsidised loan programme announced in June totals around ₹62 billion as per available record, while more is expected. In June, the Central government for the first time fixed a separate price for ethanol produced from B-heavy molasses and C-heavy molasses. The former along with ethanol produced from

sugarcane juice command a higher price than ethanol produced from C-heavy molasses.

Besides, in order to bail out the loss-making sugar industry and help the companies clear cane dues, the government had announced a ₹70 billion relief package of which ₹44.40 billion was in the form of soft-loan for upgradation of existing distilleries attached to sugar mills by installing incineration boilers and setting up new distilleries in sugar mills.

The Central government will bear an interest subvention of a maximum ₹13.32 billion over a period of five years including a moratorium period of one year on estimated bank loan amounting to ₹44.40 billion to be sanctioned to the sugar mills by the banks over a period of three years.

Meanwhile, to further incentivise sugar mills, the Centre has enhanced the monthly domestic sales quota for the sugar mills that produce ethanol from B-heavy molasses or sugarcane juice. Ethanol produced from these two methods, also called intermediary processes, contains some amount of sugar.

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Cleaner India

But Swachh Bharat mission has a long way to go

The government completed the fourth year of one of its flagship initiatives — the Swachh Bharat Abhiyan (SBA) — yesterday. The SBA's target is to achieve rural and urban cleanliness by the 150th birth anniversary of Mahatma Gandhi in 2019. According to the government's estimate, the SBA has been a roaring success so far and India would achieve the status of being open-defecation free (ODF) in just five years, achieving the United Nations' Sustainable Development Goals on sanitation 11 years before the deadline. The government says India's rural sanitation coverage has gone up from just 39 per cent four years ago to over 93 per cent now even as 450,000 villages have been declared ODF. This has meant that India's share of global open defecation has shrunk from an embarrassingly high 60 per cent in October 2014 to under 20 per cent in September 2018.

Given these achievements, it is hardly surprising that India just hosted ministers of sanitation, heads of various multilateral organisations, led by the secretary general of the UN, and other field experts from around the world at the Mahatma Gandhi International Sanitation Convention to showcase how this dramatic transformation was brought about. No surprise, therefore, that other countries such as China and Pakistan have similar campaigns now. Without a doubt, then, the SBA is a highly commendable initiative and improvements in India's sanitation and health metrics, which have been an embarrassment, were urgently required.

However, this rosy picture contrasts with some of the independent assessments of the SBA. For instance, the ODF data, which has become synonymous with the SBA, has been questioned by researchers. Nikhil Srivastav of the University of Texas and Payal Hathi of the University of California, Berkeley have characterised the findings of the National Annual Rural Sanitation Survey (NARSS) data — showing that open defecation is being eliminated from rural India — as “unfortunately premature”. They have pointed out that, in practice, this survey was designed to agree with government claims, which, in turn, are based on MIS (management information system) reports. The trouble is that MIS reports take into account only toilet construction, not toilet use. Moreover, given the political weight behind the scheme, there is tremendous pressure among officials at village level to overstate the success of the initiative.

Indeed, there are other results that suggest government claims may have been overstated. For instance, the findings of the latest round of the National Family Health Survey (NFHS-4), which is a high-quality, internationally comparable survey, contrast sharply with that of the NARSS. Both were conducted within months of each other. Moreover, beyond the ODF targets, the SBA success has been middling on other parameters such as management of liquid and solid waste. For instance, of the 62 billion litres of sewage generated in our cities daily, only 23 billion litres gets treated, contributing to the demise of several rivers. Similarly, only 37 per cent of the municipal waste gets treated. The other challenge is to sustain the changed rural sanitation behaviour and to ensure that the toilets that have been built are used. While over 450,000 grassroots motivators are dealing with the task in rural areas, clearly, there is a long way to go.

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Farmers reject govt's assurances

Rajnath assures action;
protesters want more

SANJEEB MUKHERJEE & AGENCIES
New Delhi, 2 October

Thousands of farmers marching towards Delhi as part of the Bhartiya Kisan Union's "Kisan Kranti Padyatra" were stopped at the Delhi-UP border on Tuesday. This led to violence, with police using water cannons and tear-gas shells, injuring several of them. This, and opposition parties' criticism, prompted the central government to send Union home minister Rajnath Singh to directly talk to the stir leaders. Three hours of talks resulted in an official statement of intent on action. It was not enough to end the protest, though.

The *padyatra* began on September 23, from Haridwar's Baba Tikait Ghat, named after the once-famous farmer leader of western UP, Mahendra Singh Tikait. It passed through the main sugarcane and wheat growing belts, including Muzaffarnagar and Meerut, before reaching Ghaziabad on Monday. UP chief minister, Yogi Adityanath, had met the protesters in Ghaziabad late on Monday, but could not satisfy them.

BKU's march came almost 30 years after farmers led by Tikait brought central Delhi to a standstill for a week and was the first big national protest by BKU since Tikait died in 2011. Today's protest was led by Nareish and



An elderly farmer clashes with police at the Delhi-UP border on Tuesday

PHOTO: PTI

Rakesh Tikait, sons of Mahendra Singh Tikait. Though a shadow from its heydays of the late 1980s and early 1990s, BKU still has considerable influence among farmers of western UP, particularly Jats.

They are demanding lower petrol and electricity bills, legal status to the Minimum Support Price (MSP) mechanism and its full implementation, in line with Swaminathan committee's proposals. They also sought full waiver of all crop loans, changes in Kisan Credit Card (KCC) norms and directing the National Green Tribunal (NGT) to lift the ban on use of diesel vehicles that are over 10 years old in the National Capital Region that

has impacted farmers who use tractors. They also want widening of the Prime Minister's Crop Insurance Scheme to include damage from stray animals and immediate payment of all sugarcane dues, along with raising the MSP to ₹40 a kg for sugar.

Police action

The Delhi Police had imposed a ban on assembly in the city's east and northeast on Monday itself. However, thousands of farmers tried to break police cordons around the Ghazipur border, prompting use of water cannons and teargas. The police said seven of those on duty, including an assistant com-

missioner, were injured after a section of crowd turned violent as police tried to persuade them not to break the barricades.

Centre steps in

With the situation threatening to go out of control, Rajnath Singh, himself from western UP and with some influence over the region's politics, met the agitating leaders, along with minister of state for agriculture Gajendra Singh Shekhawat, and two ministers from the UP state cabinet. After three hours of talks, the government issued a statement, saying the majority of the demands had been discussed and a plan prepared. The Centre will file a review petition at the NGT to lift the ban on diesel vehicles over 10 years in use. And, have farmer representatives on the committee of chief ministers to link MGN-REGS, the rural jobs scheme, with farming.

Centre will also approach the Goods and Services Tax Council to fix no more than a 5 per cent levy on items used in agriculture. And, work with states to ensure full implementation of MSP, ban import of such farm goods that are in excess production in the country and have a panel under minister of state Gajendra Shekhawat to solve the problems related to PMFBY and Kisan Credit Cards, and include attacks by animals into PMFBY on an experimental basis.

"We have got the response from the government but will continue with our agitation and *dharna*, while talks with the government are still on," a BKU leader said.

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KERALA FLOODS

IMD under-reported rainfall intensity: Govt

Jayashree Nandi

• letters@hindustantimes.com

NEW DELHI: The India Meteorological Department (IMD) under-reported the intensity of the rainfall that triggered unprecedented flooding that left more than 400 people dead and caused a trail of devastation across Kerala in August although it had accurately predicted heavy rain, according to a draft government report.

The report, prepared by the ministry of earth sciences (MoES), was an evaluation of the accuracy of IMD's model in predicting the Kerala floods. A final version of the report will be released by October-end.

The immediate cause of the flooding was the formation of low-pressure weather systems over the Bay of Bengal, said the report, which added that the unprecedented rainfall could be linked to the impact of climate change.

"The report documents the unprecedented rainfall as an impact of climate change. In fact, we are seeing these events across the country and they will have to be documented," said M Rajeevan, secretary, MoES.

Climate change has been blamed for extreme weather events across the world. Around 10,000 km of highways were destroyed because of the floods and landslides that affected Kerala in August. Over 45,000 hectare of farmland were damaged. As per the revenue ministry, 11,000 houses were wrecked, and 111,000 houses partially damaged.

More than a million people were displaced by the floods.

The MoES report has cautioned that such events may happen again in Kerala. "We are forecasting extremely heavy rain in Kerala and parts of Tamil Nadu



• Kerala floods left more than 400 people dead and caused a trail of devastation across the state in August HT PHOTO

between October 5 and 10 due to a weather system over the south-east Arabian Sea. There will be more such events in future," said Rajeevan.

The draft report indicates that IMD's model did predict the transition from normal monsoon rain to very heavy rainfall well but couldn't predict the extreme volume of rain that pounded some districts.

"Weather transitions are being picked up very well by our model but it's not picking up how high the rainfall can be during the transition phase. Even before the floods in Kerala this August, the model predicted that there is going to be a sharp rise in rainfall," said Rajeevan.

IMD data released on Monday reveals that Kerala received about 24% excess rainfall this monsoon. Between August 1 and August 19, the state received 164% excess rainfall.

"Climate change is increasing the frequency and intensity of extreme temperature and rainfall events across the world. There is no doubt about it. This is

based on both data and scientific models," said SK Dash, a professor at the Centre for Atmospheric Sciences in the Indian Institute of Technology-Delhi.

Dash, who specialises in climate modelling, said: "Our models are not able to predict an extreme weather event 10 to 15 days in advance. But our weather forecasting models are able to read these events about three to four days in advance. But I agree with Rajeevan that the intensity is often not reflected well in these models. It's also difficult to pinpoint exact location which will experience the event but identifying a 30 to 40 km radius may be possible. It's up to the local administration and state governments on how quickly they can respond to such alerts."

With very heavy rain expected in Tamil Nadu, Puducherry, Kerala and coastal Karnataka between October 4 and 10, fishermen have been advised not to venture into southeast and central Arabian Sea from October 6 onwards, according to an alert issued by the IMD.

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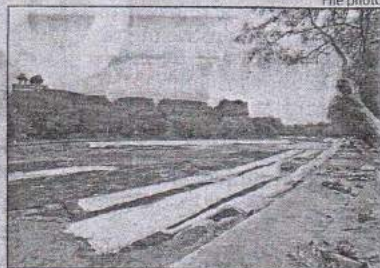
Purana Qila lake ⁷⁰³ revival gets NGT nod

New Delhi: National Green Tribunal has given its nod to the revival of the iconic Purana Qila lake by laying impermeable plastic lining on its bed and has rejected the claim that the project was being undertaken in a manner that would damage the environment. A bench headed by NGT chairperson justice A K Goel said that there may be different opinions on the subject but once an informed decision has been taken on expert advice for the use of impermeable plastic lining, it is difficult for the tribunal to reject the view.

The green panel took note of the submission of the state-owned construction firm NBCC that development work of the iconic Purana Qila lake was being done as per the suggestions of the IIT-Roorkee and rainwater harvesting structures were being built for ground water recharge. The NBCC had said that drawings for development works at Purana Qila lake were approved by the Archaeological Survey of India (ASI) and it was directed to seek expert advice from a reputed institute such as IIT for laying of the ethylene propylene diene terpolymer (EPDM) membrane in the lake and send the same to ASI.

"The applicant in person states that the opinion of the IIT is not sound. Recharge of ground water has to be a priority. If there is any apprehension that the recycled water may not be convenient for the recharge, option of obtaining regular supply of treated water could be explored.

The NBCC had told the tribunal that IIT Roorkee report states



File photo

NEW LIFE: The lake will be revived by laying impermeable plastic lining on its bed

that the benefits of maintaining a perennial source of surface water of good quality over an area of approximately seven acres outweigh minor concerns on ground water recharge and rain water harvesting structures can be built within the area.

The tribunal had earlier directed the NBCC to submit a report on the question whether plastic lining should be removed or whether alternative options for lake revival should be preferred. It was also asked to respond on the plea against chlorination of the water body.

The direction came on a plea filed by city-resident R K Gupta who contended that NBCC and the Archaeological Survey of India (ASI) have put a plastic sheet on the bed of the lake, preventing groundwater recharge by both treated recycled water and rainwater.

The plea said that the method of concretisation and laying down of the sheets will lead to damage to the lake. The petitioner sought directions to restore the lake to its natural condition by removing impermeable plastic lining and explore alternative revival techniques for the water body.

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Equip farmers to deal with markets

Rural distress could destabilise India's economic performance

The symbolism involved in the use of force by the Delhi Police to prevent thousands of protesting farmers from entering the national capital is difficult to miss. The political-economy of rural distress is threatening to destabilise India's otherwise laudable

economic performance in the post-reform period. An overwhelming majority of India's farmers practise

ourtake

what can be described as subsistence agriculture. According to the latest agriculture census, which was conducted in 2015-16, more than 86% of farmers own less than two acres of land. The average size of an operational holding is just around one acre. These numbers have been falling over time. Non-farm jobs have not grown at the desired pace. This basically means that there is a large reserve of economically insecure population in the villages which believes that the state has an obligation to bail out the crisis-ridden agriculture sector.

Positioning on issues such as farm loan waivers, subsidised electricity to run irrigation pumps, ensuring procurement prices or clearing arrears for sugarcane farmers — many of which were included in the demands of UP's farmers marching to Delhi — is driven more by Machiavellian considerations rather than any considered policy. Angry farmers are just a one-sided effect of this malice which spans the political spectrum. Diversion of scarce resources often overrides the need to enhance capital investment in agriculture, which hampers long-term productivity gains. Indiscriminate use of pumps and fertilisers has seriously undermined ecological sustainability. Last but not the least is the question of achieving some sort of a synergy between the market and the State while making agricultural policy.

There is merit in the argument that the government should do something to bail out distressed sugarcane farmers. But such a policy should not perpetuate the current disconnect between domestic production decisions and international market conditions. This government has launched important initiatives to improve the conditions of farmers. But the bigger challenge lies

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88 million-year-old isle and crater to be geoparks

Geological Survey chooses heritage locations in Maharashtra and Karnataka for UNESCO site status

MOHIT M. RAO
BENGALURU

In a first, an ancient circular lake created by a meteorite strike in Maharashtra and a hexagonal mosaic of basaltic rocks in an island off Udupi are poised to become global geoparks, under a Geological Survey of India (GSI) plan.

Lonar Lake in Maharashtra and St. Mary's Island and Malpe beach in coastal Karnataka are the GSI's candidates for UNESCO Global Geopark Network status.

The road to recognition, however, is long. An aspiring Global Geopark must have a dedicated website, a corporate identity, comprehensive management plan, protection plans, finance, and partnerships for it to be accepted. In mid-August, GSI moved ahead with the plan, setting a follow-up time frame of 100 days.

The Geopark tag is akin to that of a 'World Heritage Site' for historical monuments that can bring India's famed geological



St. Mary's Island in Udupi, with hexagonal basaltic rocks, is to get Global Geopark status.

• K. MURALI KUMAR

features to the global stage.

"These are spectacular to look at even for the general public who may not

understand that they are also geologically important. Lonar lake is the only known meteorite crater in basaltic rock and is world famous, while St. Mary's island is a unique phenomenon that has been preserved well," says Asit Saha, Director, Geodata, at the GSI Headquarters in Kolkata.

St. Mary's Island, declared a national geo-heritage site in 1975, is estimated to be an 88-million-year-old formation that goes back to a time

when Greater India broke away from Madagascar.

Relatively young

Lonar crater became a geo-heritage site in 1979. It is relatively young geologically, at just 50,000 years old. A meteorite estimated to weigh two-million-tonnes slammed into the Earth, creating a 1.83-km diameter crater where the lake formed. It is distinguished by a near-perfect, circular ejecta blanket, which refers to earth thrown up during the collision, around it.

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City received 19% excess rain in this year's monsoon

HT Correspondent

letters@hindustantimes.com

NEW DELHI: Monsoon bid adieu to Delhi on Monday, with the national capital receiving 19% excess rainfall this year. The last time monsoon withdrew this early from the city was in 2015, retreating on September 30 that year.

"Monsoon withdrew from Delhi on October 1. The last rain was received on September 24. We are now in the transition phase before winter sets in," said BP Yadav, deputy director general of the IMD.

The capital receives the heaviest rains in August. This time, though, while August was dry, Delhi received twice the rainfall in September than usual.

Monsoon withdraws from Delhi after 19% surplus rainfall, wet September

WINTER NEAR In Sept, Delhi usually gets around 125mm rain, this time it was nearly double

HT Correspondent

letters@hindustantimes.com

NEW DELHI: The monsoon bid adieu to Delhi on Monday, leaving behind an excess rainfall of 19%.

The last time monsoon withdrew so early from the national capital was in 2015, when it retreated on September 30.

"Monsoon has withdrawn from Delhi on October 1. The last rain was received on September 24. We are now in the transition phase before winter sets in," said BP Yadav, deputy director general of the India Meteorological Department (IMD).

Monsoon had hit Delhi one day ahead of its scheduled date of arrival this year. While the scheduled date of arrival for monsoon in Delhi is June 29, this year it arrived on June 28.

Usually Delhi receives the heaviest rains in August, followed by July. But this time, August was rather dry in the city. Instead, Delhi received double the amount of rainfall in Sep-

tember than it usually receives.

"In September, Delhi usually receives around 125mm rain. But this time the amount of rain received in September was almost double the amount. September recorded 237.8mm rain, which is around 90% more," said a senior IMD official.

Delhi receives 648.9mm rain between June and September, which are taken to be the monsoon months. This time, the city recorded 770.6mm rain, which is around 19% more.

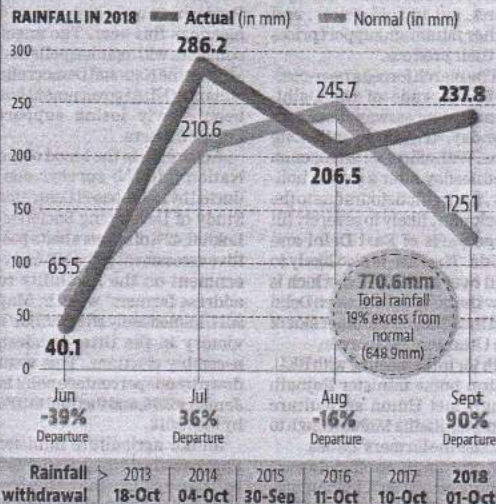
The maximum 286.2mm rain was recorded in July. It was 36% above the normal. In August, however, there was a deficit of 16% as Delhi received only around 206mm rain compared to the normal of 245.7mm.

After the last rains of the monsoon hit Delhi on September 24, IMD scientists started to look for its withdrawal symptoms.

"We would now be preparing for our winter forecast, which would be issued expectedly by the first week of November," said a senior official.

Rains bid adieu

Delhi last received rain on September 24 and is now in the transition phase before winter sets in



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• PAGE ONE ANCHOR

How Wet Is The Ground After Rain? FOR FIRST TIME, INDIA GETS SOIL MOISTURE MAP

SOWMIYA ASHOK
NEW DELHI, OCTOBER 2

WITH THE rabi season around the corner, a countrywide forecast prepared at the end of the monsoon season suggests deficit soil moisture conditions are likely in Gujarat, Bihar, Jharkhand, Tamil Nadu and southern Andhra Pradesh.

This forecast, following a joint exercise by IIT Gandhinagar

and the India Meteorological Department (IMD), for the first time, provides a country-wide soil moisture forecast at seven and 30-day lead times.

The analysis also indicates that soil moisture conditions in western Uttar Pradesh, Bundelkhand, and Chhattisgarh are likely to be normal or surplus at the start of the rabi sowing season. Soil moisture is crucial for agriculture since it directly affects crop growth and

how much irrigation is required for the area.

A team led by Vinay Mishra, associate professor at IIT Gandhinagar, uses the 'Variable Infiltration Capacity' model to provide the soil moisture prediction. The product, termed 'Experimental Forecasts Land Surface Products', is available on the IMD website and has been developed using the hydrological model that takes into consideration soil, vegetation, land

use and land cover among other parameters.

Forecasting of soil moisture holds significance for the rabi season. As per official data, the total area sown under rabi crops is around 625 lakh hectares of which wheat takes up 300 lakh hectares. Timely soil moisture forecasts will help target interventions, in terms of seed varieties for better planning in agriculture.

"India has been working on

its own high-resolution soil database that is essential for soil parameters used in the modelling. However, the database is not available for the entire country currently. Once available, we will replace it with that information," Mishra told *The Indian Express*. At present, the IIT Gandhinagar team is using the IMD's grid-level observations and forecast products of rainfall and temperature.

CONTINUED ON PAGE 2



PROJECTION FOR OCT 25

Levels lower than -0.5 suggest deficit soil moisture content (shown as yellow/orange/red). Above 0.5 suggests surplus (green to blue) and between 0.5 and -0.5 or white is normal.

IIT Gandhinagar/IMD

New Delhi

IMD-IIT forecast

"Based on observed conditions present, Gujarat, parts of Maharashtra, Chhattisgarh, Jharkhand, Tamil Nadu and parts of Andhra Pradesh are deficient in terms of soil moisture right now. This means that if there is not enough rainfall in one or two months, these are regions which will demand heavy irrigation, whether that comes from groundwater or surface water storage (reservoirs)," Mishra said.

"In Gujarat, a look at the monsoon season rainfall this year shows rainfall deficit while the Narmada basin also received inadequate rainfall. The Sardar Sarovar reservoir may not have received enough storage and since the catchment of the reservoir did not receive normal rainfall. In these conditions, the state may face water stress, which can result in excessive groundwater pumping for irrigation."

Mishra said that forecasts for the Bundelkhand region look favourable at the moment. "In Uttar Pradesh and northern Madhya Pradesh, this year, the rainfall was good. Tamil Nadu is showing dry conditions but if the state gets good rain from the Northeast monsoon, the current soil moisture deficit is likely to go away," he said.

In Bundelkhand, most farmers keep their land fallow or just grow some fodder crop during the kharif season since the rains are unpredictable and there could be extended dry spells after sowing. They then mainly cultivate the rabi crop using the soil moisture left behind by the monsoon rains. It is a similar trend in Bihar, in low lying areas of Seemanchal and Kosi belt, where no crop is grown during kharif because of inundated lands.

Mishra pointed out that soil moisture provides crucial information needed for crop growth in different parts of the country. Through this joint project, the IMD has

provided this information from mid-July onwards. The product has become operational on an experimental basis that will be further enhanced based on the inputs from the stakeholders.

"Crucial information needed for agriculture is not revealed only through rainfall data," said Mishra. "Even if you have a normal rainfall, if the temperature is abnormally high, it can rapidly deplete the soil moisture. So essentially soil moisture gives us more information on what is needed for crop growth in different parts of the country."

Ministry of Earth Sciences Secretary Dr M Rajeevan said that the link between rainfall data and soil moisture is extremely important. "The IMD is collaborating with IIT Gandhinagar which uses a land surface model to forecast soil moisture content," he said. The team from IIT Gandhinagar will train IMD officials to take over the project, according to said.

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Indonesia toll tops 1,200

WORST SINCE 2006 Casualty figures likely to rise as rescuers are unable to extricate many people

Associated Press

• letters@hindustantimes.com

PALU: Trucks carrying food for desperate survivors of the earthquake on Indonesia's Sulawesi island rolled in with a police escort on Tuesday to guard against looters, while the death toll from the disaster soared past 1,200.

Four days after the magnitude 7.5 earthquake and tsunami struck, supplies of food, water, fuel and medicine had yet to reach the hardest-hit areas outside Palu, the largest city that was heavily damaged. Many roads in the earthquake zone are blocked and communications lines are down. "We feel like we are stepchildren here because all the help is going to Palu," said Mohamad Taufik, 38, from the town of Donggala, where five of his relatives are still missing. "There are many young children here who are hungry and sick, but there is no milk or medicine."

The death toll reached 1,234, national disaster agency spokesman Sutopo Purwo Nugroho said in Jakarta, the capital. Hundreds of other people were injured, and scores of uncounted bodies could still be buried in collapsed buildings in Sigi and Balaroa under quicksand-like mud caused by Friday's quake.

More than 25 countries have offered assistance after Indonesian President Joko "Jokowi" Widodo appealed for international help. Little of that, however, has reached the disaster zone, and increasingly desperate residents grabbed food and fuel from damaged stores and begged for help.

An aircraft carrying 12,000 litres of fuel had arrived, and trucks with food were on the way with police escorts to guard against looters. Many gas stations were inoperable either because of quake damage or from people stealing fuel, Nugroho said.

The frustration of waiting for days without help has angered some survivors.

"Pay attention to Donggala, Mr Jokowi. Pay attention to Donggala," yelled one resident in a video broadcast on local TV, referring to the president. "There are still a lot of unattended villages here."

The town's administrative head, Kasman Lassa, all but gave residents permission to take food — but nothing else — from stores.

"Everyone is hungry and they want to eat after several days of not eating," Lassa said on local TV. "We have anticipated it by providing food, rice, but it was not enough. There are many people here. So, on this issue, we cannot pressure them to hold much longer."

Nearly 62,000 people have been displaced from their homes, Nugroho said.

Most of the attention has been focused so far on Palu, which has 380,000 people and is easier to reach than other hard-hit areas.

More aid was being distributed, but "we still need more time to take care of all the problems," Nugroho said.

Teams continued searching for survivors under destroyed homes and buildings, including a collapsed eight-story hotel in Palu, but they needed more heavy equipment to clear the rubble.



• A ship stranded on the shore after the earthquake and tsunami in Taipa beach, near Palu.

REUTERS

Dad, daughter in last embrace

PALU: For two days, Edi Setiawan helped pull the dead and the living out of a sea of mud and debris, all of them victims of one of Indonesia's deadliest earthquakes in years.

And then, half-buried in the brown sludge, he saw two motionless bodies that broke his heart.

"I could see my father still embracing my sister," Setiawan said Monday, recounting the devastating moment he found the pair entombed in mud near their home in the city of Palu.

"I just cried," he said. "I was able to save other people, but I

was unable to save my own family."

Friday's magnitude 7.5 quake killed more than 840 people and destroyed thousands of homes, triggering a humanitarian crisis with survivors now in desperate need of food, water and fuel.

Most of the casualties were caused by the quake itself and a deadly tsunami that slammed into the coastline around Palu. But hundreds of others were buried alive by a phenomenon called liquefaction, in which loose soil shaken by a quake gives way and collapses.

Disaster agency spokesman

Sutopo Purwo Nugroho said Palu's Petobo neighborhood, where Setiawan lived, was especially hard-hit. "There are still hundreds of victims buried in mud" in the area, he said.

On Monday, newly arrived rescue teams were confronting the behemoth task of trying to dig them out.

Palu, a city of 380,000 on the western coast of central Indonesia's Sulawesi island, stood in ruins. Toppled cellphone towers have cut off communications, while downed power lines leave the city in darkness after the sun sets.

AP