

# The day Chennai went under, who did what — and who did not

Chembarambakkam reservoir raised its discharge suddenly on Dec 1 but govt failed to alert public, police or power utility. ARUN JANARDHANAN reconstructs how the flooding of Chennai unfolded

ON FRIDAY, acting on a PIL, Madras High Court directed the Tamil Nadu government to submit a report on the coordination among agencies engaged in relief work in the flood-hit state, saying it was "concerned" at the lack of it. In a memorandum to Governor K Rosaiah, DMK leader M Karunanidhi has alleged the same and sought an inquiry into the "mishandling" of the Chembarambakkam reservoir "causing the flood".

Here's what happened over four days of the flooding of Chennai.

## The days & nights before

All the reservoirs that cater to Chennai and its suburbs were empty before Diwali. Consistent rains started on November 8, lasting a week, and were followed by another spell on November 23, which was not forecast. By the end of November, the level in the reservoir had reached its limit. Water in the Chembarambakkam reservoir — one of the city's main water sources — stood at 22 ft at this time, against its capacity of 24 ft. Official data shows outflow from the reservoir, into the Adyar river, as 900 cusec then.

It started raining again on December 1, and continued into December 2. By December 1 afternoon, the water in Chembarambakkam had swollen to 3,396 million cubic feet — almost its full capacity. Engineers started to increase the outflow.

By around 10 pm, the water was being released at 29,400 cusec into the Adyar river, which was already in spate, as engineers feared a breach of Chembarambakkam's boundary. It took three to four hours for the water to reach the city from the reservoir 25 km away, but by midnight of December 2, land in more than a 4-km radius around Adyar, which flows through the heart of Chennai, had gone completely under.

The first warning of "heavy and very heavy rain" had been issued on November 28; the International Weather Forecast had predicted 500 mm rainfall. Amid questions why the outflow from Chembarambakkam wasn't increased gradually from that date, Chief Secretary K Gnanadesikan issued a statement on Sunday clarifying that the Met office had given only a "very heavy rainfall" warning and never forecast 50 cm.

Chennai was already waterlogged when the discharge came at 29,400 cusec.

## December 1

Starting morning, Chennai received 200 mm rainfall over 14 hours. Given the advance warning, and another by the Met department on November 30, the government had declared a holiday for schools and colleges. Following an increased outflow from Chembarambakkam lake and from over 40 tanks in its catchment area, low-lying areas in the city were already swollen.

On December 1 evening, a junior engineer at Chembarambakkam sent what was to be the most critical message during those four days. His message, to the office of PWD secretary NS Palaniappan, alerted him about water being discharged at some 29,000 cusec. At 5 pm that day, a statement by the Chennai Collectorate put the release at 7,500 cusec — a not-so-alarming figure. In hours, it rose to 29,400 cusec.

"Holding the shutters any further would

have breached the boundary walls of the reservoir. PWD secretary Palaniappan was alerted of the inevitable release at some 29,000 cusec, just about four hours before we released the maximum water," said a chief engineer in Chembarambakkam.

Palaniappan said he, in turn, alerted Chief Secretary Gnanadesikan. "Electricity, revenue, police and Chennai district administration must have been informed by his office," he said.

Asked if the chief minister was consulted ahead of such a huge release, Gnanadesikan said, "We do review situations on a daily basis," but added that he cannot recall any such meeting that evening.

In his statement, the chief secretary ruled out management failure and described the flooding as a rarest-of-the-rare calamity. The statement said flood warnings had already been given and an advance warning on the discharge wouldn't have helped. He added the rules for discharge balance the requirements for a scarcity and the safety of reservoirs, and no permission was required from senior bureaucrats for the surplus discharge.

Sources in the police, Electricity Board and revenue department were, however, livid that they were not made aware of such a huge release. "As on any other rainy day, our teams did the customary evacuation of a few families from the river banks that evening," said a revenue officer. He questioned why the excess water was released at night, catching many asleep and helpless.

An angry official, who claimed he would seek voluntary retirement, said, "They all took it lightly. At a meeting convened after the flood, members just blamed the unprecedented rain."

A police officer said, "Had they informed us by 7 pm at least, we could have sent our men to various localities to alert residents. All stations in the city have at least four or five vehicles."

A Coast Guard commander, whose team is equipped with choppers and divers, said the late warning damaged the choppers. "I myself got the news on TV. After the flood, the question we raised with government officials was why no one got flood alerts before the release of such a huge quantity of water. Why was the telecom department not involved in alerting the public?"

On questions why water was not released earlier, the chief secretary said he is not allowed to speak to the media. "I cannot speak about all that. Please contact the government PRO." The PRO said he was helpless.

The National Disaster Response Force, which had been active during rescue operations in November, was also informed late on December 1 night. "It took nearly 24 hours for them to gather the force and reach the city," said a police officer.

A Navy officer said there was no sharing of information by the police or government. "It was the public who contacted us through journalists and our own friends about people in need of rescue."

S Janakarajan, professor of the Madras Institute of Development Studies and president of the South Asia Consortium for Interdisciplinary Water Resources Studies, said what happened at Chembarambakkam was a major goof-up. "There were accurate



Pictures clicked by P S Sanjay from his terrace show (anticlockwise from top) the house of Colonel Venkatesan who drowned with his wife; the house after the waters receded; Maharajan sitting atop the vehicle he drove; then looking at a rescue boat after he had hauled himself to safety with a hose Sanjay had thrown him. © P S Sanjay

warnings of consistent and 'heavy and very heavy rainfall' on at least two days before the rain started. Moreover, after the goof-up was exposed... we couldn't access metro water data from the first week of December."

The data remains inaccessible.

## December 2

In one of the most shocking deaths of the tragedy, Colonel G Venkatesan drowned inside his house with his wife in Defence Colony near Guindy. On the flooded road, another person was trying to stay afloat that night. Maharajan, a driver with a private firm, refused to leave the car behind on the road, fearing he would be sacked. "In the morning (December 2), I saw him shivering on the vehicle partially under water," said a neighbour of Col Venkatesan, P S Sanjay.

Sanjay used a garden hose to force Maharajan off the car roof, into the water; he was eventually rescued.

Sanjay remembers rescue boats passing the area around 11 am, never reaching their lane though, and later 12 blasts, which he believes were set off by the Army as a warning.

Over the rest of the day, there was no sign of government machinery on the ground. Reports came of families of defence and police officials, including security officers of the chief minister, themselves being stranded. Communication remained down.

Health Minister C V J Baskar himself turned out to rescue patients from Global Hospital. Others at Tambaram Corporation Hospital were also rescued. However, at MIOT Hospital, a premium private hospital on the banks of Adyar, a tragedy brewing since December 1 night had come to a head. On December 2 midnight, at least 18 patients in the ventilator had died of oxygen failure.

## December 3

After more than 48 hours of downpour, flood waters finally started receding. Sanjay, his family, Maharajan and another neighbour were rescued on a boat. The previous night, additional Army and Navy teams had reached the city and launched more boats.

Communication systems, however, remained down due to shortage of power. Government rescue efforts remained absent, and it was volunteers who led the effort.

Around 8 pm, as police were at last retrieving the bodies of Venkatesan and his wife, Health Secretary J Radhakrishnan, who had made his reputation during Tsunami relief work in Cuddalore and Nagapattinam, told *The Indian Express* "the situation was completely under the government's control".

Asked about reports of a crisis at MIOT Hospital, he said, "There is just waterlogging in the hospital and that has been cleared."

## December 4

The city woke up to reports of the 18 deaths at MIOT. Ambulances raced around the city, trying to handle reports of dead. Royapettah government hospital alone received 45 bodies, including 14 from MIOT.

Fuel supplies and public transport were partially restored, but relief work was still being led by NGOs and individuals. There was a press briefing, but relief workers remained in the dark about people in need of help. Officials admitted they couldn't coordinate with volunteers due to lack of an order.

T K Ramkumar, a water resource management expert, says Chennai took some 30 years to reach this mess, including encroaching of the riverbed. "The fact that water discharged at 10,000 cusec after Diwali flooded the city shows the Adyar doesn't have that so-called carrying capacity of 60,000 cusec."



Monday, 14 December, 2015

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## The Greening of Asia

Andrew Sheng | 12 December, 2015



Representational Image (AFP)

There is a saying that China will grow old before she grows rich. The reality is that China may go grey before she goes green. Anyone living in Beijing today would feel the immensity of the air pollution, which is why China is putting so much effort in the negotiations on climate change

in Paris this month.

Paris was of course the scene of the terrorist attack that shocked Europe, if not the world, signaling an escalation in the war on terror. But the 21st meeting of the Conference of Parties (hence COP21) to the 1992 UN Framework Convention on Climate Change (UNFCCC) is a historic attempt to achieve global consensus on the threat of climate change. Specifically, COP21 seeks to get a legally binding agreement to limit global warming to below 2

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although the extent of legal commitment will not satisfy everyone. The latest draft agreement that I saw (more transparent than the TPP process where the draft agreement was published after the signing) had lots of drafting options, but my guess is that national concerns over difficulties of implementation will mean that the final agreement will be watered down.

Global negotiations always start with the highest noble aspirations, ending up with the lowest common agreed position. But an agreement even on key principles would be a major achievement indeed – an important signal to the end of a confusing year and some hope that the war on pollution could be just as important as the war on terror.

How is Asia going to be able to achieve its ambition of greening?

Two excellent new books come with different perspectives of how this can be achieved. Former South China Morning Post editor Mark Clifford and currently executive director of the Asia Business Council has written a great book on "The Greening of Asia" (Columbia Business School Publishing 2015).



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He eloquently points out that the Asian Miracle was achieved on the back of cheap labour and environmental expense. China is already the world's largest emitter of greenhouse gases (GHG), with Indonesian haze also a major problem, as everyone in Singapore and Malaysia will testify. Because of their population size, five countries – China, India, Indonesia, US and Russia – account for half of the global annual GHG emissions, which will only increase as Indian and Indonesian growths accelerate in the coming years.

There are of course three parties to blame for the current climate warming. The first is consumer lifestyle; the second business production; and last but not least, bad government policies and taxes/subsidies that encourage resource wastage and carbon emission.

Urbanization and higher income account for the bulk of the increase in carbon emission, because most cities generate higher income with larger consumption of energy and resources. As going forward, most mega-cities will be in Asia, the solution to climate change will rest largely with Asian solutions. For example, China's pollution problems will not be solved if every family has a car. Currently only one in four has a car. China and India cannot afford to go the path of resource consumption that the West went through during the Industrial Revolution without serious damage to the environment.

Lifestyles can change, but as Clifford rightly points out, business can point the way, since they can help educate the public on what is green and good. The Dutch discovered that if you put the electric meter near the main door which you look at everyday, you will save 30 per cent more on your electricity bill than if you tuck the meter in the closet.

Business in Asia is beginning to realize that green is not just a cost centre, but good for business opportunities. Clifford tells great tales about visionary business leaders in Asia who show the way on corporate social responsibility and making money from it.

Macquarie University Professor John Mathews tells another story of the "Greening of Capitalism: How Asia is Driving the Next Great Transformation" (Stanford University Press, 2015). His narrative is more technical, going back to the basics of sustainable economics of fossil fuel-driven industrialization towards a new transformation to a circular economy (where resources and energy are recycled).

As a keen observer of how China is transforming its industrial model from fossil fuel towards solar and alternative energy, Professor Mathews addresses the next Great Transformation. India, China and ASEAN's move into the industrial age involving ten times the speed, hundred times the people and a thousand times the energy intensity of the Western Industrial Revolution.

The scale and intensity of that journey is mind-boggling.

Governments can do a lot to help make the damage to the environment from this Transformation more tolerable and less risky. Getting the emission standards and the measurement of energy efficiency and pollution more transparent is the first step. Enforcing even the current legislation would also help a lot. Just cutting the petrol subsidies in Indonesia and Malaysia not only helped cut down consumption, but also reduced the fiscal deficits. Allowing civil society to take the lead in self-help and widespread education



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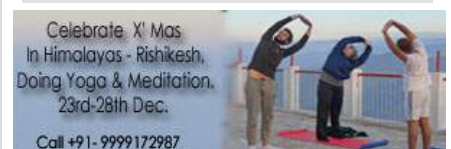
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about the need to combat pollution and change life-styles will generate a winning partnership between the consumer, business and the state towards a green, inclusive society, rather than a black, conflictive mess.

There is considerable hope about the greening of Asia, because the more advanced economies of Japan, Korea and Singapore already have proved that with the right political will, it is possible to deal with pollution and energy efficiency questions. Sharing that technology and know-how will accelerate the journey towards greening faster and smoother.

Which is why Paris COP21 is so important a signal, not just to the world, but particularly to Asia. If Asia cannot solve its journey to the Green, Open and Inclusive society, the world will go up in flames. The War on Pollution is only just beginning.

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**The Times of India**

**Title : Ganga Has Many Faces**

**Author : Ashok Malik**

**Location :**

**Article Date : 12/14/2015**

**India needs to repair its rivers while retaining hydropower as a vital part of its energy mix**

Whenever discussion takes place on pollution in the Ganga, as it does so often in the context of the Namami Gange project, the issue of upstream construction on the river obstructing the natural flow of waters comes up. Quite correctly, it is pointed out that this hindering of the river's course contributes to the muck in the plains and the fact that fresh-flowing water does not replenish the river, as has happened for centuries.

Recently an Inter-Ministerial Group of the Union government took a decision to deny permission to new hydroelectric projects on the Ganga and its tributaries. This is said to be a precursor to a formal ban on all construction on the river. It could go a long way in nurturing and repairing the Ganga.

While the intentions of those behind the decision are laudable, it is important that the messaging around this decision is nuanced, careful and thoughtfully explained. It would be a pity if it were to become an excuse for an all-out attack on hydropower in general. Indeed, even in the context of dams and hydropower projects on the Ganga, it is necessary to distinguish between what is absolutely not needed and what could be lived with.

Any water body, whether the Ganga or another river, is a force of nature. Harnessing its multiple energies will inevitably lead to human intervention with the natural order. A sensitive and sustainable cooperation with the ecology of and around a river system is non-negotiable, but also unavoidable.

In the past few decades, hydropower projects have become controversial. Much of the argument is about large reservoir or storage dam projects. Such projects are justifiably derided for their substantial social and environmental costs. On the other hand, run-of-the-river projects can be relatively more agreeable with nature. A run-of-the-river project diverts water more than obstructs it; submergence can be minimal.

Take the case of the government owned Vishnugadh Pipalkoti Hydroelectric Project on the Alakananda river, a tributary of the Ganga, in Uttarakhand. Meticulously designed, this project, construction for which began in 2014, sees submergence at a point where the river goes into a deep, narrow gorge.

As a result, there is zero displacement of population and no houses or fields are lost to submergence. Not only has this project found financial support from the World Bank, otherwise wary of big dam projects, it has also won validation from India's National Green Tribunal.

As such, it is important to differentiate between storage dam projects and run-of-the-river projects. Both do not merit equal treatment, especially as hydropower emerges as vital for India's energy mix, economy and security, and not just in the Ganga basin.

Hydropower is crucial because it is the one source of energy that can instantaneously respond to fluctuations in demand. It is an insurance policy against an accident or sudden surge. In some countries, hydropower potential is so high that it has become a major source of energy. Brazil and Norway fulfil some 80% of their energy needs using water.

In India, where coal and thermal power use is disproportionately high, the quest for renewables is critical to the emissions challenge. Here again, while solar energy and even nuclear energy will play a role, it would be imprudent to ignore hydropower. Blanket bans in one part of the country, especially if they are not thought through or contextualised, could become self-defeating precedents in other



regions.

A culture of protest and policy paralysis has anyway delayed realising the hydropower potential of Arunachal Pradesh, estimated at between 50,000 and 60,000 mw. In the northeast, particularly in the Brahmaputra basin, an inability to find the right ecological, social and economic balance has handed an advantage to China, which is going ahead with its upstream dam and hydropower plans. Eventually, these could be much more expensive for India.

No sensible hydropower policy can be wholly domestic. One of the motivations of the Bangladesh-Bhutan-India-Nepal (BBIN) framework of cooperation, among the Modi government's flagship foreign policy initiatives, is engagement on such issues with riparian neighbours. Two trajectories can be cited here: Bangladesh-Bhutan-India and Nepal-Bangladesh-India, both of which are part of the Ganga basin.


That India is such a big market for Bhutanese hydropower in effect sustains that country's economy . It is a win-win in that it contributes to India's energy security and the 3,000 circuit km transmission system from Tala (Bhutan) to Delhi uses Bhutanese hydropower to light up homes and businesses in north India. A similar arrangement with Nepal is essential. Other than raising prosperity levels in Nepal, it has national security implications for India.

The hydropower transmission corridors from Nepal cannot but run into India and seek customers here. This dependency on the Indian market will give New Delhi greater leverage in Kathmandu, at a time when Chinese influence in South Asia is growing and needs to be neutralised using economic tools.

As such, hydropower development in India and South Asia has multiple consequences. Any government and the Indian system as it were has to be mindful of all of these.

The author is senior fellow, Observer Research Foundation





**No sensible hydropower policy can be wholly domestic. That India is such a big market for Bhutanese hydropower in effect sustains that country's economy. A similar arrangement with Nepal is essential**



# जम्मू-कश्मीर और हिमाचल में कड़ाके की ठंड

नई दिल्ली, श्रीनगर, शिमला, (एजेंसी): जम्मू-कश्मीर और हिमाचल के मनाली तथा ऊपरी भागों में भारी बर्फबारी के बाद मैदानों में ठंड अपना असर दिखाने लगी है। पंजाब, हरियाणा के साथ-साथ दिल्ली-एनसीआर में कड़ाके की ठंड पड़ रही है और कोहरा छाने लगा है जिससे आम जीवन और विशेषकर वाहनों की स्पीड पर ब्रेक लग गई है।

**मनाली में बर्फबारी:** हिमाचल प्रदेश के पर्यटन स्थल मनाली में शुक्रवार को हुई बर्फबारी के बाद शनिवार को न्यूनतम तापमान शून्य से 1.6 डिग्री सेल्सियस नीचे पहुंच गया। मौसम विभाग के एक अधिकारी ने बताया कि राज्य के कई इलाकों में तापमान शून्य से नीचे

पंजाब, हरियाणा, एनसीआर में कोहरा



कश्मीर के शोपियां जिले की मुगल रोड के समीप भारी हिमपात के बाद इलाके से गुजरता भेड़ों का झुंड। (छाया : प्रैट्र)

पहुंच गया है। उन्होंने आगामी दिनों में मौसम के शुष्क रहने का अनुमान

जताया। लाहौल-स्पीति जिले के मुख्यालय केलांग में न्यूनतम तापमान

शून्य से 1.1 डिग्री सेल्सियस नीचे दर्ज किया गया। यहां 10 सेंटीमीटर तक बर्फबारी हुई। किन्नौर जिले के कल्पा में 11 सेंटीमीटर तक बर्फबारी हुई। यहां न्यूनतम तापमान शून्य से 2.6 डिग्री सेल्सियस नीचे दर्ज किया गया, जबकि धर्मशाला में यह 6.8 डिग्री सेल्सियस रहा। राज्य की राजधानी शिमला में 35.4 मिलीमीटर बारिश हुई और न्यूनतम तापमान 3 डिग्री सेल्सियस दर्ज किया गया। मनाली में 39 मिलीमीटर बारिश के साथ छह सेंटीमीटर तक की बर्फबारी हुई।

**जम्मू-श्रीनगर राष्ट्रीय राजमार्ग पर यातायात बहाल:** जम्मू-श्रीनगर राष्ट्रीय राजमार्ग पर शनिवार को वाहनों की आवाजाही बहाल कर दी गई।



# शनिवार सीजन का सबसे ठंडा दिन

नई दिल्ली, (ब्यूरो): शनिवार की सुबह दिल्ली और एनसीआर का आसमान कोहरे की चादर से ढका नजर आया। जिसके चलते कई स्थानों पर विजिलेंटी जीरो तक पहुंच गई और वाहनों की रफ्तार एक दम धीमी हो गई। लोगों को गंतव्य तक पहुंचने में खासी परेशानी हुई। कोहरे का असर ट्रेन व हवाई यातायात पर भी पड़ा है।

जानकारी के मुताबिक सर्दी का अहसास यूं तो पिछले कई दिनों से हो रहा है लेकिन आज पारा सिंगल डिजिट में पहुंच गया जिसके चलते अभी तक मफलर से परहेज कर रहे लोग मफलर में नजर आये। मौसम विभाग के मुताबिक शनिवार न्यूनतम तापमान आठ डिग्री तक पहुंच गया जो इस सीजन का सबसे कम न्यूनतम तापमान है। आज अधिकतम तापमान 18 डिग्री रहा जो सामान्य से कम है। शनिवार की सुबह कोहरे के साथ धुंध और ठंडी हवाओं से लोगों की कपकपी शुरू हो गई। जिसका खामियाजा सबसे ज्यादा स्कूल जाने वाले बच्चों पर



मौसम  
ने बदली  
करवट

फोटो : सुभाष चोपड़ा

पड़ा है। इसके अलावा कोहरे के चलते वाहनों की रफ्तार कम होने से लोग समय पर अपने दफ्तर नहीं पहुंच सके। मौसम विभाग ने रविवार को थोड़ी राहत की उम्मीद जताई है, रविवार को न्यूनतम व अधिकतम तापमान बढ़ेगा। हालांकि इस दिन कोहरे से निजात की संभावना से मौसम विभाग ने इनकार किया है।

**अचानक स्वेटर जैसी की खरीद बढ़ी :** अचानक कोहरे के साथ बढ़ी ठंड के बाद अभी तक ठंडे पड़े वूलन मार्किट

में लगता है जान आ गई है। राजधानी में जगह जगह बाजारों में खरीददारों की दस्तक बढ़ गई। लाल किला तथा मोनेस्ट्री मार्किट के अलावा राजधानी के विभिन्न बाजारों में रौनक बढ़ गई है।

**ठंड से बचने के लिए अलाव भी लगने लगे :** राजधानी में कचरा जलाने पर पाँवदी के बाद भी शीत लहरे से ठिठुरते लोगों के लिए अलावा राहत भरे नजर आये। दिल्ली देहात के इलाकों में लोग ठंड से बचने के लिए अलावा लगाते दिखे।



# दिल्ली, हरियाणा में ठंड बढ़ी

नई दिल्ली @ पत्रिका

patrika.com/india

उत्तर भारत में शनिवार को तापमान में गिरावट से ठंड बढ़ गई है। पर्वतीय राज्य हिमाचल प्रदेश और जम्मू एवं कश्मीर के कई इलाकों में पारा शून्य से नीचे पहुंच गया है। दिल्ली में सुबह से धुंध और बादल छाए रहने की वजह से ठंड बढ़ गई है। हरियाणा में नारनौल सबसे ठंडा स्थान रहा और यहां का तापमान 8.3 डिग्री सेल्सियस रहा।

उत्तरी कश्मीर के गुलमर्ग का स्की रीजॉर्ट शनिवार को राज्य का सबसे ठंडा क्षेत्र रहा। यहां का तापमान शून्य से 11 डिग्री सेल्सियस नीचे मापा गया। गुलमर्ग में शनिवार को न्यूनतम तापमान शून्य से 10.6 डिग्री सेल्सियस नीचे दर्ज किया गया, जबकि श्रीनगर में 0.6 डिग्री, पहलगाम में शून्य से 6.5 डिग्री नीचे और लद्दाख क्षेत्र के लेह कस्बे में शून्य से 4.6 डिग्री सेल्सियस नीचे दर्ज किया गया। पढ़ें दिल्ली @ पेज 8



फतेहपुर में सूखी घास पर ओस की बूंदें बर्फ बन गई।

**फतेहपुर में पारा -2.6 डिग्री** पत्रिका-14-12-15

राजस्थान में सर्दी ने रिकॉर्ड तोड़ने शुरू कर दिए हैं। सीकर के फतेहपुर में रविवार को न्यूनतम तापमान एक दिन में 5.8 डिग्री लुढ़का और शून्य से 2.6 डिग्री नीचे पहुंच गया। इससे पहले 13 दिसंबर 2005 को तापमान माइनस 1.5 डिग्री रिकॉर्ड हुआ था। जयपुर में न्यूनतम पारा

5.8 डिग्री रहासर्द हवा ने कंपकंपी बढ़ा दी। कोहरे से 11 ट्रेनें घंटों देरी से पहुंचीं तो 4 का समय बदला गया। दिल्ली में शनिवार सुबह धुंध रही। दिनभर धूप नहीं निकलने की वजह से ठंड बढ़ गई। न्यूनतम तापमान 11.5 डिग्री सेल्सियस दर्ज किया गया।



अनंतनाग



नव-14-12-15

## श्रीनगर में पहली बर्फबारी लेह में माइनस 12.1 डिग्री

■ एजेंसियां, श्रीनगर : श्रीनगर में इस मौसम की पहली बर्फबारी रविवार को हुई। इस कारण वहां ठंड बढ़ गई। शनिवार रात को श्रीनगर का टेंपरेचर माइनस 0.8 डिग्री रहा। वहीं जम्मू-कश्मीर के लद्दाख क्षेत्र में लेह का पारा माइनस 12.1 डिग्री तक पहुंच गया। देश में इस मौसम का यह सबसे कम तापमान रहा। अन्य पर्यटक स्थलों- गुलमर्ग और पहलगाम में भी पारा चार डिग्री से नीचे रहा।

हरियाणा और पंजाब के कई इलाकों में रविवार को शीतलहर जारी रही। हरियाणा का नारनौल 2.5 डिग्री सेल्सियस तापमान के साथ क्षेत्र का सबसे ठंडा स्थान रहा।

राजस्थान में माउंट आबू में शनिवार रात का तापमान जमाव बिंदु (जीरो) डिग्री सेल्सियस दर्ज किया गया।

जवाहर टनल



श्रीनगर में गर्म कपड़े खरीदने के लिए भारी भीड़ उमड़ी।



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

# Mullaperiyar: Kerala invokes 'precautionary principle'

GIRISH MENON

**THIRUVANANTHAPURAM:** Kerala has invoked the "precautionary principle" in the light of extreme rainfall witnessed in certain parts of the country, including Chennai, to present its case for the construction of a new dam in place of the centuries-old Mullaperiyar dam, besides seeking a review of its hydrological safety by a panel of international and national experts.

The new line, which has been prominently highlighted in Kerala's memorandum submitted by Chief Minister Oommen Chandy to Prime Minister Narendra Modi in Delhi, is expected help the State get a grip on the Mullaperiyar issue and pull it out of the impasse created by the Supreme Court verdict.

## Risk prevention

Apart from the usual issues related to the safety of the dam and the concerns of people living downstream, the State has contended that the precautionary principle warrants risk prevention through

## VEXED ISSUE

Kerala highlights its concerns over the safety of the Mullaperiyar dam in the context of excessive rains in T.N.



- Oommen Chandy urges Prime Minister to take steps to bring Tamil Nadu to the negotiating table for construction of a new dam
- Wants a review of the hydrological safety of the dam
- Quotes international covenant that says 'states must not wait for proof of harmful effects before taking action'
- Demands that the govt. revoke the suspension of EIA clearance given on the dam's "safety"

proactive measures against specific environment or safety risk. "When the scientific evidence of safety is insufficient, inconclusive or uncertain,

we should not hesitate to invoke the precautionary principle," the memorandum said and quoted the 1984 Bern Ministerial Declaration

The new line is expected to help the State get a grip on the Mullaperiyar issue

of the International Conference on the protection of the North Sea to contend that states must not wait for proof of harmful effects before taking action.

If unprecedented rain in an arid region like Chennai can cause unimaginable devastation, or the floods in Srinagar, Uttarakhand for that matter, one cannot rule out such occurrence in other places. In the context of such extreme rainfall events, the State now wants a review of the Probable Maximum Flood estimation of the Mullaperiyar dam. The earlier study conducted by IIT, Delhi, was on the basis of possible extreme rainfall of around 650 mm in a span of two days. The State's contention is that if Chennai could register 300 mm in a day, there is no way of predicting what is in store for Mullaperiyar. The

review of PMF is warranted in the light of the different conclusions of the Empowered Committee, the Central Water Commission and IIT, Delhi. The 1980 CWC study needed a fresh look since it was not based on any scientific principles. The values of PMF and levels of siltation and other basic parameters adopted by the CWC should be reviewed using latest data and modern meteorology standards.

Mr. Chandy also pressed for a proactive stand by the Centre to persuade Tamil Nadu to come to the negotiating table for a permanent solution — construction of a new dam.

"Safety is never been static and the judgment of the Supreme Court cannot be cited as a hindrance to take precautionary measures. Experts' expectations and calculations go awry when nature has its own way".

The State has also asked for resuming the clearance for environment impact assessment for the new dam, which had been revoked in December 2014.



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

# Coldest December 12 in four years

**NEW DELHI:** Chilly weather conditions amid winds prevailed in the national Capital on Saturday with maximum temperature plunging to settle at 15.7 degrees Celsius, the lowest recorded on this date in last four years.

While the maximum temperature was recorded seven notches below normal, the minimum was registered at 11.5 degrees Celsius, three notches above season's average, the Met department said.

The sky remained overcast and dense foggy conditions were witnessed in some parts of the city, reducing the visibility which ranged between 300 to 600 metres. The humidity oscillated between 98 and 86 per cent.

The MeT office has predicted clear skies for tomorrow.

"The skies will be mainly clear. Moderate to dense fog would occur at many places in



Dense fog disrupted normal life in Delhi on Saturday. PHOTO: V. SUDERSHAN

the morning and afternoon. Dense foggy conditions would be witnessed in isolated places," a weather official said.

"The maximum and minimum temperatures are likely to hover

at 18 and 18 degrees Celsius," said the weatherman.

Yesterday, the maximum temperature was recorded at 25.5 degrees Celsius and minimum was at 15 degrees Celsius. — PTI



# Roadmap for climate action yields a mixed bag for India

**GOING GREEN** Developing economies like India expected to benefit, clean energy to see major investment

hindustantimes

climate  
change

THE PARIS DIALOGUE

Chetan Chauhan

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**PARIS:** Ministers from the world over created history in Paris on Saturday by agreeing to a comprehensive climate change deal that may not only be ambitious to protect the planet but will also give a boost to clean energy business without compromising on developmental imperatives.

The deal will have a lot in store for economies in transition like India with over a trillion dollars in green investment set to be handed out in the next decade or so, enabling the adoption of greener technologies — an endgame that the agreement sets out to achieve.

Yet to be adopted, the global pact targets zero emissions by the end of this century and introduced carbon trading that can help Indian industry sell green credits abroad.

"India can be one the biggest beneficiaries as it has capability and mechanism to adapt investment for clean energy," said

Damandeep Singh, director of Carbon Disclosure Report, India.

India has already declared a target of setting 175 Gigawatts capacity of renewable by 2020 and Prime Minister Narendra Modi said he hoped the capacity can be doubled by 2030.

"Estimates by industry leaders show that trillions of dollars will be available for investment from companies in Europe and America. You just need the right policies," Singh said.

But, to get that the government may have to push for more predictable environment-friendly policies.

The five year review of climate action plans called INDCs will also help India to ramp up its green energy goals.

Developing countries like India also expect enhanced funds from the rich world — which has pledged \$100 billion in green funds — for post-2020 period when the deal comes into force.

For India, continuation of the existing firewall between the rich and the developing world in all elements of Paris agreement is an achievement and so is mention of sustainable lifestyle and climate justice. Paris is half battle won as a lot will be decided in subsequent climate conferences before 2020 when the agreement will come into force. Most experts termed the deal as a mixed bag for India.

they said

My concern is that the differentiation between the rich and developing world has been removed except in finance but I am happy the equity has been included. ...(But) the issue of carbon budget is missing.

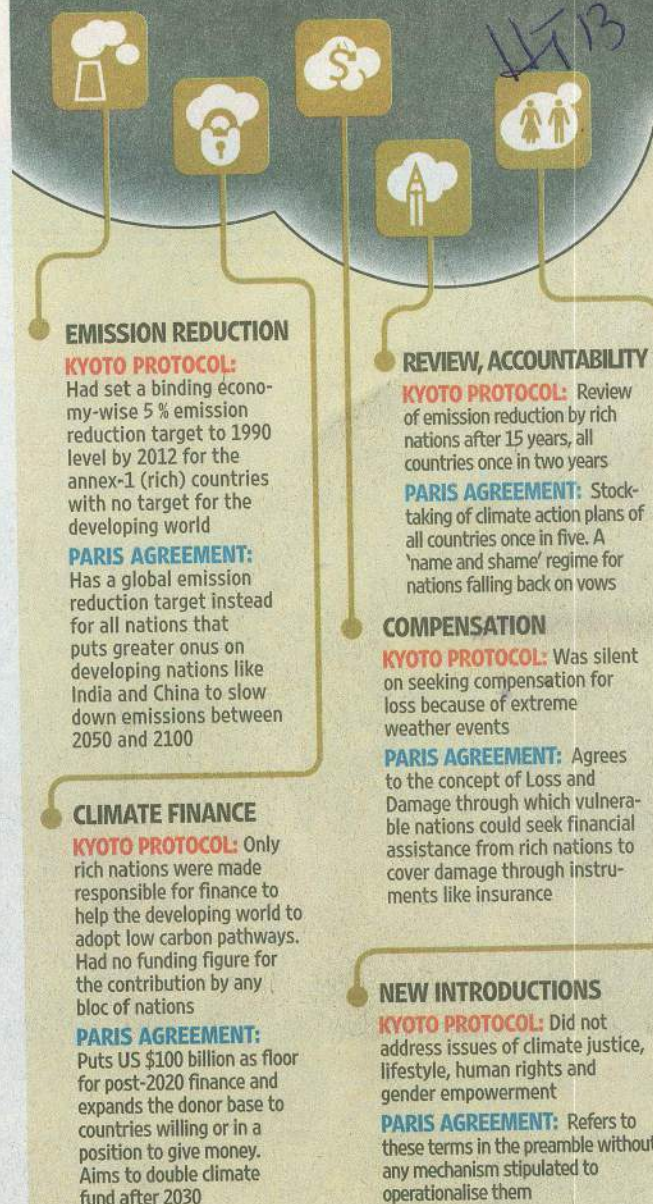
SUNITA NARAIN,  
director general, CSE

It is a mixed bag for India as it has got what it wanted on finance and transparency. But the battle on compensation mechanism has been lost and it will have future implications for vulnerable countries like India.

HARJEET SINGH, global head climate change at Actionaid International

## FROM KYOTO TO PARIS

How the new global agreement improves over the last one



## KEY ASPECTS OF NEW PACT

### GOAL

Long term goal of limiting temperature set at below 2°C above pre-industrial level by 2100 with efforts to enhance it to 1.5°C

### PEAKING

Global emission to peak as soon as possible, probably second half of the century, without any specific time frame

### CLIMATE ACTION

Efforts to be reviewed again in 2023 and then once every five years. They should reflect the highest possible ambition as per their respective capabilities of countries

### EMISSION REDUCTION

Developed countries to take economy-wise absolute emission reduction (no target) and developing countries should enhance their mitigation efforts

### LOSS AND DAMAGE

Developing world to be helped in setting up warning and preparedness systems. They will also get help in insurance coverage. No absolute liability for climate changed induced disasters.



# SUNDARBANS IN SALTY TROUBLE

Much of the world's largest mangrove is on its way to vanishing in 15-odd years because of rising salinity levels



■ Forest workers release a rescued tigress into the river Sundarikati in the Sundarbans, some 150 km south of Kolkata, in 2008.

HT FILE-PHOTO / ASHOK NATH DEY

## TIGERS IN TROUBLE

Vanishing mangroves would hit the Royal Bengal Tiger and its prey, the Chital deer. There are around 100 tigers left in the Sunderbans, 76 of them in the Sunderbans Tiger Reserve. "Chital deer loves to feed on the sour fruits of keora and byne tree leaves. But with salinity rising in the rivers, these are vanishing. This would have a direct impact on deer, which in turn would hit the tiger hard," said Raha.

## BEGINNING OF THE END

Satellite data of the last 15 years reveals rising salinity levels in the Sundarbans mangrove. "We apprehend that nearly half of the dense mangrove inside the Sundarbans Tiger Reserve could degrade into open forest by 2029 than what it was in the year 2001. By 2058, the entire dense mangrove could be degraded," said AK Raha, a former principal chief conservator of forests who headed the study. Raha was assisted by director of the Sundarban Biosphere Reserve PK Vyas, and scholars from Techno India University and the National Remote Sensing Centre.

## KOLKATA THREATENED

The development has special significance for Kolkata because the Sundarbans has traditionally been a bulwark against cyclones that originate in the Bay of Bengal, taking the sting out of storms, as it happened during Cyclone Aila. Experts say that should the mangroves and the thick vegetation get depleted, Kolkata and its adjoining districts will no longer be safe. The most affected areas are the northern and central parts of Sundarbans. Many rivers and canals that used to pump fresh water into the delta, keeping the salinity levels under control, have dried up due to years of siltation and human activities.

TEXT BY JOYDEEP THAKUR



# No relief for the makers of India

It is high time the government intervened and provided relief to the farmers crippled by severe drought and debt, writes JYOTIRADITYA SCINDIA



■ With no ray of hope in sight, farmers have grown despondent and with no alternative source of livelihood, they are being compelled to take drastic measures like suicide. The Marathwada region recently surpassed an unprecedented 1,000 suicides this year

PTI PHOTO

**T**here are two institutions that form the foundation on which this country has been built — a jawaan (the soldier) and a kisaan (the farmer). In this vein, former Prime Minister Lal Bahadur Shastri had proudly proclaimed, “Jai Jawaan, Jai Kisaan”. This government, within 18 months of being in power, has brutally cast aside both the jawaans and the kisaans of this country.

Agriculture forms the backbone of the Indian economy because not only does it contribute nearly 18% to GDP but, by a number of measures, also engages more than 50% of our labour force. In 2008-09, when global recession crippled even the most economically powerful nations of the world, demand and consumption in rural areas were able to pull India through and the country recorded 8% growth in GDP because of its rural population. Since the Modi government has come to power at the Centre, the state of agriculture and the rural economy have dwindled. In 2013-14, 4.7% growth was recorded in agriculture. After the UPA handed over the reins to the NDA, this figure has fallen to 1.1% in 2014-15. If the present condition persists, we may record negative growth in the agriculture sector. Since the prime minister often speaks of his ambition of “double-digit growth” for the country, it is perhaps important to offer him a reality check — according to official figures, 4% growth in agriculture is essential to 9% GDP growth and we are a far cry from it. Agricultural exports climbed during 10 years of UPA rule, from \$7.5 billion 2003-04 to \$42.6 billion in 2013-14. On the contrary, the Modi government's indifference is likely to lead to a decrease of nearly 29% in the exports of three crops alone i.e. wheat, rice and corn in 2014-15 itself. However, in the din of slogans to ‘Make in India’ and to ‘enhance the ease of doing business’, the government has abandoned the farmers in their most trying times as they head for a fourth consecutive crop failure.

Currently, almost 50% of the Indian land mass stands drought-affected, with 302 of the 640 districts having

## IN SUCH DIRE RURAL DISTRESS, THERE IS A NEED TO AUGMENT RURAL INCOMES BY GIVING GENEROUS MSPs FOR THE CROPS AND SUPPLEMENTARY EMPLOYMENT OPPORTUNITIES THROUGH THE MGNREGA

recorded 20% less than normal rainfall. On account of the El Niño phenomenon, this is the second consecutive year of drought with 12% less than average rainfall this year and 14% less than average rainfall last year across the country. On account of an unusually dry winter and low soil moisture, there has been a shortfall in the planting of rabi crops such as wheat (less by 20%) and pulses (less by 12%) in the coming season. With unseasonal rains having destroyed crops in March-April earlier this year, the farmers of this country are at the behest of the vagaries of nature. In the event of such dire rural distress, there is a desperate need to augment rural incomes by giving generous minimum support prices (MSPs) for the crop that is produced and providing supplementary employment opportunities through the MGNREGA.

This government has failed miserably on both counts. During the 2013-14 kharif season, the UPA government had offered MSP increases of ₹450, ₹135 and ₹300 for tur (arhar), maize and black soybean, respectively. Despite knowing these are unusual drought years, the MSP increases offered by the NDA government during kharif 2015-16 for the same crops were ₹75 (16.7%), ₹15 (11.1%) and nothing, respectively. During the 2014 election campaign, Prime Minister Narendra Modi had declared that MSPs of 50% over input costs would be provided to farmers. Instead, he has now announced that any state found giving bonuses over and above MSP would be disqualified from FCI procurement. The MGNREGA, despite being the largest employment generation scheme of its kind in the entire world, has been subjected to step-motherly treatment at a time when it is

perhaps needed most. The number of person-days generated under the scheme has fallen sharply from 2.2 billion in 2013-14 to 1.32 billion in 2014-15. The delay in the payment of wages, compensation and unemployment allowances has risen drastically from 39% in 2012-13 to 72% in 2014-15. So much so, that the Hon'ble Supreme Court felt the need to rap the Centre over improper implementation of the MGNREGA in November 2015.

With no ray of hope in sight, the farmers of the country have grown increasingly despondent. Burdened by crippling debt and with no alternative source of livelihood, they are being compelled to drastic measures such as suicide or ‘loaning’ their children for forced labour. The Marathwada region alone has recently surpassed an unprecedented 1,000 suicides this year. In such a situation, it is not an obligation but the dharma of the government to intervene and provide relief to the farmers. When a similar situation gripped the rural economy in 2006-07, the Congress government took the decision to waive loans worth nearly ₹72,000 crore. Nine states have officially declared drought and sought central relief to the order of ₹25,000 crore. The need of the hour is to ensure adequate compensation to farmers and compel insurance companies to pay amounts truly due to them on payment of premiums, and that loans are waived and electricity bills recovered from the next crop earnings. But what we have instead is a government refusing to acknowledge the problem, let alone discuss it. From my native Madhya Pradesh, a BJP-ruled state, there are heart-wrenching stories everyday of surveys being doctored and the state government introducing absurd conditions to exclude 90% of the people from claiming compensation. It is high time that the government woke up from its deep slumber, walked the talk and delivered ‘Acche Din’ for the ‘Makers of India’ — the farmers of this country.

Jyotiraditya Scindia is an MP and the Congress party's chief whip in Lok Sabha  
The views expressed are personal



# Many states yet to raise disaster relief forces

Prasad Nichenametla

■ prasad.n@hindustantimes.com

**HYDERABAD:** When vast swathes of Tamil Nadu, including capital Chennai, was battered by unprecedented floods last week, the first challenge for the authorities was to find enough trained personnel for rescue and relief operations. And this despite the fact that Tamil Nadu has its own State Disaster Response Force (SDRF) to tackle such situations.

Around the same time, neighbouring Andhra Pradesh — also hit by floods along its coastal areas — had to urgently seek out the National Disaster Response Force (NDRF) for rescue and relief as the state is yet to set up its own SDRF.

Despite the NDMA's (National Disaster Management Authority) urgent calls to all states to set up their own DRFs, most are yet to do so which, experts say, is a recipe for disaster in a country prone to natural calamities.

"Every state should have

## NO LESSONS LEARNT

**970km** Estimated length of the Andhra Pradesh coast line

**73** cyclones ravaged the state between 1891 and 2012

**23** people were killed in Nellore district in 2014's cyclone Hudhud

its specialised rescue force at their disposal. As disasters happen without any warning, it is important to have these local response teams," says Marri Sasidhar Reddy, former vice-chairman of the NDMA.

Official sources say Himachal Pradesh, Goa, Jharkhand, Chhattisgarh, UP, Andhra Pradesh and Telangana are yet to form their SDRFs. Andhra Pradesh's case is all the more stark as it was only a year ago that cyclone Hudhud devastated Vizag in October 2014.

CONTINUED ON PAGE 8

## Disaster relief

And exactly a year before Hudhud, former CM Kiran Kumar Reddy had announced plans to set up an SDRF when cyclone Phailin battered the coastal region in October 2013. An NDMA member pointed out that even in states that have set up the SDRFs, "there are not enough personnel recruited or trained to be efficient". A retired Chennai police official said though the SDRF was deployed promptly during the recent floods, the force's strength and training left a lot to be desired.

Disaster management experts point out that the nine states straddling India's more than 7,500 km-long coastline are constantly

# Krishna river dispute: Supreme Court refuses to examine Centre's stand

17 Dec - DT/

State terms  
Telangana's  
application  
delaying  
tactics



A view of River Krishna near Almatti dam in Bagalkot district.

**NEW DELHI:** The Supreme Court on Thursday clarified that it would not call for records to examine the reasons for the Centre's stand in the Krishna water dispute between Telangana and Andhra Pradesh.

The Centre contends that the Krishna river water dispute could be referred to the tribunal for determining the share of Telangana and Andhra Pradesh without disturbing allocations for Karnataka and Maharashtra.

A bench of Justices Dipak

Misra and Prafulla C Pant refused to entertain an application filed by Telangana, prompting its counsel to withdraw the plea.

"We will not call for records. It is a question of river dispute in the Andhra Pradesh Re-Or-

ganisation Act, 2014. Why should we probe into the Union of India's decision making? Why should we say why they are not referring the (entire) dispute to the tribunal," the bench asked senior advocate C S Vaidyanathan, ap-

pearing for Telangana.

"The court does not have even jurisdiction to ask why and how Union of India is dealing with the (your) request," the bench told him further.

The counsel submitted that the application was filed even prior to the Centre's affidavit, in which it sought to clarify the Union's decision.

In its affidavit, the Union government had stated "In view of the re-organisation of the state of AP, the Union of India vide letter Aug 25 has also clarified that it is the Krishna Water Dispute Tribunal II which would determine the respective shares of successor state of Telangana and the residual state of AP without disturbing the project wise allocation of other states of Karnataka and Maharashtra."

As the court made its intention clear, Telangana's counsel agreed to withdraw his application, but urged the bench to

keep its writ petition pending.

Appearing for Karnataka, senior advocate F S Nariman questioned the bona fide of interlocutory application, contending that it was delaying tactics, while another senior advocate T R Andhyarujina, representing Maharashtra, submitted that the river dispute already settled cannot be re-opened in this manner.

The court, however, posted the matter for further consideration on January 13 after Telangana's counsel sought time to ask for instruction to respond to the stand taken by the Centre. In its petition, Telangana sought fresh determination of the Krishna river water formula, claiming that its fair share has so far not been adjudicated by the Krishna Water Dispute Tribunal, affecting the needs of the State and making its inhabitants suffer.

DH News Service



12 DEC - T



A breach in the Dulhera minor canal which inundated 300 acres at Ismaila village in Rohtak district on Friday. TRIBUNE PHOTO

## Rohtak canal breach floods 300 acres

TRIBUNE NEWS SERVICE

ROHTAK, DECEMBER 11

Crop on nearly 300 acres were submerged following a breach in the Dulhera minor canal passing through Ismaila village in the district today.

Officials of the Irrigation Department rushed to the spot and started plugging the breach.

While farmers said the breach had been caused

due to the release of excessive water in the canal, field officials of the Irrigation Department said it occurred due to a hole in the sidewall of the canal.

The farmers said wheat and mustard crops they had sown recently would get damaged due to stagnant water. They said they would meet Deputy Commissioner and seek compensation for the loss.

# Sowing of Rabi crop hit amid rising temperature, poor rain

**VIBHA SHARMA**  
TRIBUNE NEWS SERVICE

**NEW DELHI, DECEMBER 11**

Above-normal temperature and deficient/scanty rain in key producing areas in north and central India are affecting the sowing of Rabi crops, including wheat, paddy and pulses.

Area under key winter crops, except coarse cereals which can do with less moisture, continues to be less than the same period last year. As per preliminary report from states, total area sown under Rabi crops as on date stands at 442.33 lakh hectares as compared to 486.69 lakh hectares in 2014-15 in the corresponding period.

With a drop in temperatures, officials hope for an improvement. They say sowing would soon pick up in key growing states such as Punjab and Haryana.

However, high temperatures are not the only reason for delay in sowing. According to experts, wheat sowing in particular has been delayed due to less soil moisture and no rains after monsoon.

The worry doesn't end there. While an unusual delay in planting could affect the final harvest, what is adding to the worry is the status of water storage in 91 major reservoirs of the country which, as on December 10, stands at 80.263 BCM — which is 51% of the total storage capacity.

According to the government data, this is 80% of the storage of corresponding



Experts say wheat sowing has been delayed due to less soil moisture and no rain after monsoon. FILE PHOTO

12-7

## Situation will improve soon: Officials

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- As per the preliminary report from states, total area sown under Rabi crops as on date stands at 442.33 lakh hectares as compared to 486.69 lakh hectares in 2014-15 in the corresponding period

## New crop insurance scheme on cards: Minister

- Union Agriculture Minister Radha Mohan Singh on Friday promised that a new crop insurance scheme is on the anvil under which farmers will have to pay lower premium and anomalies in claim settlement will be removed
- Replying to a discussion in the Lok Sabha on the drought situation, Singh said the review of the existing scheme was complete and the new one would be announced soon
- Attacking the previous UPA government, he alleged that the scheme was amended to benefit corporates and not farmers

period last year and 76% of storage of average of past 10 years. In the northern region, which includes Himachal, Punjab and Rajasthan, the six reservoirs under CWC monitoring have a total live storage capacity of 18.01 BCM.

The current live storage in these reservoirs is 11.37 BCM, which is 63% of their total capacity. While the storage during current year is better than the corresponding period last year, it is less than the average storage of past 10 years in the corresponding period.

States having better stor-

age than last year for corresponding period are Himachal, Andhra Pradesh and Tripura.

Farmers need to exercise extra caution and take remedial measures and this is because the terminal rainfall during the south-west monsoon was inadequate, resulting in poor residual moisture in the soil. No rains in North India after monsoon and the highest temperatures further exacerbated the situation. While irrigated regions will be able to cope, the maximum hit will be farmers in rain-fed areas.



# The Greening of Asia

12 Dec - SF

Andrew Sheng

There is a saying that China will grow old before she grows rich. The reality is that China may go grey before she goes green. Anyone living in Beijing today would feel the immensity of the air pollution, which is why China is putting so much effort in the negotiations on climate change in Paris this month.

Paris was of course the scene of the terrorist attack that shocked Europe, if not the world, signaling an escalation in the war on terror. But the 21st meeting of the Conference of Parties (hence COP21) to the 1992 UN Framework Convention on Climate Change (UNFCCC) is a historic attempt to achieve global consensus on the threat of climate change. Specifically, COP21 seeks to get a legally binding agreement to limit global warming to below 2 degrees Celsius by 2100.

There are encouraging signs that some kind of agreement will be reached, although the extent of legal commitment will not satisfy everyone. The latest draft agreement that I saw (more transparent than the TPP process where the draft agreement was published after the signing) had lots of drafting options, but my guess is that national concerns over difficulties of implementation will mean that the final agreement will be watered down.

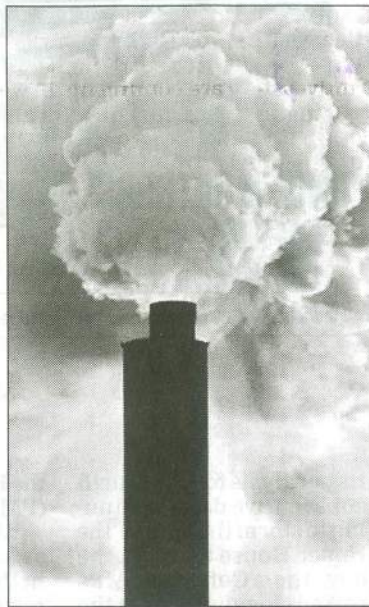
Global negotiations always start with the highest noble aspirations, ending up with the lowest common agreed position. But

an agreement even on key principles would be a major achievement indeed – an important signal to the end of a confusing year and some hope that the war on pollution could be just as important as the war on terror.

How is Asia going to be able to achieve its ambition of greening?

Two excellent new books come with different perspectives of how this can be achieved. Former South China Morning Post editor Mark Clifford and currently executive director of the Asia Business Council has written a great book on "The Greening of Asia" (Columbia Business School Publishing 2015). He eloquently points out that the Asian Miracle was achieved on the back of cheap labour and environmental expense. China is already the world's largest emitter of greenhouse gases (GHG), with Indonesian haze also a major problem, as everyone in Singapore and Malaysia will testify. Because of their population size, five countries – China, India, Indonesia, US and Russia – account for half of the global annual GHG emissions, which will only increase as Indian and Indonesian growths accelerate in the coming years.

There are of course three parties to blame for the current climate warming. The first is consumer lifestyle; the second business production; and last but not least, bad government policies and taxes/subsidies that encourage resource wastage and carbon emission.



Urbanization and higher income account for the bulk of the increase in carbon emission, because most cities generate higher income with larger consumption of energy and resources. As going forward, most mega-cities will be in Asia, the solution to climate change will rest largely with Asian solutions. For example, China's pollution problems will not be solved if every family has a car. Currently only one in four has a car. China and India cannot afford to go the path of resource consumption that the West went through during the Industrial Revolution without serious damage to the environment.

Lifestyles can change, but as Clifford rightly points out, business can point the way, since

they can help educate the public on what is green and good. The Dutch discovered that if you put the electric meter near the main door which you look at everyday, you will save 30 per cent more on your electricity bill than if you tuck the meter in the closet.

Business in Asia is beginning to realize that green is not just a cost centre, but good for business opportunities. Clifford tells great tales about visionary business leaders in Asia who show the way on corporate social responsibility and making money from it.

Macquarie University Professor John Mathews tells another story of the "Greening of Capitalism: How Asia is Driving the Next Great Transformation" (Stanford University Press, 2015). His narrative is more technical, going back to the basics of sustainable economics of fossil fuel-driven industrialization towards a new transformation to a circular economy (where resources and energy are recycled).

As a keen observer of how China is transforming its industrial model from fossil fuel towards solar and alternative energy, Professor Mathews addresses the next Great Transformation. India, China and ASEAN's move into the industrial age involving ten times the speed, hundred times the people and a thousand times the energy intensity of the Western Industrial Revolution.

The scale and intensity of that journey is mind-boggling.

Governments can do a lot to help make the damage to the

environment from this Transformation more tolerable and less risky. Getting the emission standards and the measurement of energy efficiency and pollution more transparent is the first step. Enforcing even the current legislation would also help a lot. Just cutting the petrol subsidies in Indonesia and Malaysia not only helped cut down consumption, but also reduced the fiscal deficits. Allowing civil society to take the lead in self-help and widespread education about the need to combat pollution and change life-styles will generate a winning partnership between the consumer, business and the state towards a green, inclusive society, rather than a black, conflictive mess.

There is considerable hope about the greening of Asia, because the more advanced economies of Japan, Korea and Singapore already have proved that with the right political will, it is possible to deal with pollution and energy efficiency questions. Sharing that technology and know-how will accelerate the journey towards greening faster and smoother.

Which is why Paris COP21 is so important a signal, not just to the world, but particularly to Asia. If Asia cannot solve its journey to the Green, Open and Inclusive society, the world will go up in flames. The War on Pollution is only just beginning.

THE WRITER, A FORMER CENTRAL BANKER, WRITES ON GLOBAL AFFAIRS FROM AN ASIAN PERSPECTIVE.

SPECIAL TO ANN.



# Drought-hit Maha's pulses output halved

State Asks Centre For ₹4,332Cr To Give Relief To Affected Villages, Gets ₹920cr So Far

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**Mumbai:** Even as the state reels under a shortage of pulses, estimates for the drought-hit kharif season which just ended show that the crisis could worsen. They show a steep 52% drop in the production of kharif pulses and a 30% fall in the production of kharif cereals for 2015-16 compared to a normal year. The overall production of kharif foodgrains is set to decline by an estimated 34%.

Toor dal production is set to fall by 42% and moong dal by a steep 71% compared to the normal kharif yield in the state, the estimates show.

The production of Urad dal is set to decline by as much as 74%. The coarse cereals are also set to take a major hit with jowar production set to de-

## ANOTHER PRICE PUNCH AHEAD?

Kharif season production estimates in Maharashtra in 2015-16 (compared to a normal year)



**Pulses**  
-52%

**Toor dal**  
-42%

**Moong dal**  
-71%

**Urad dal**  
-74%

**Oilseeds**  
-42%

**Foodgrains**  
-34%

**Cereals**  
-30%

**Jowar: -73%**  
**Bajra: -71%**

cline by 73% and bajra by 71% compared to a normal year.

The estimates are part of the memorandum submitted by the Maharashtra government in November to seek central government assist-

ance for the drought.

This is the second consecutive year of drought in the state. The drought covers 34% of the villages, with Marathwada and north Maharashtra being the worst hit. In the

months between June and September, the state received just 59% of the normal rainfall. Also, the rains were erratic with an initial burst of heavy rain followed by a long dry spell.

Maharashtra produces almost 10% of the foodgrains in the country. The kharif crop sown during the monsoon is the state's main crop.

Cash crops have also been impacted, the estimates show. The production of kharif oilseeds is set to fall by 42% compared to a normal year. The sugarcane yield is set to fall by 13% and cotton production by 23%, the estimates show.

The Maharashtra government has asked the Centre for aid worth Rs 4,332 crore for kharif villages hit by the drought in 2015. So far, Rs 920 crore has been provided for drought relief in the state.

Farm activists like Vijay

## Chhattisgarh CM instructs officials to disburse relief funds to farmers

The Chhattisgarh government has instructed all district collectors to immediately commence the distribution of relief funds to farmers affected by drought, chief minister Raman Singh said on Sunday. "I am also a farmer's son and I completely understand your pain. To bring relief to farmers in this difficult time, state government has instructed all the district collectors to immediately commence the distribution of relief funds to farmers under relevant provisions," Singh said during his radio programme 'Raman Ke Goth'.

"My government is committed to supporting farmers in this difficult time of natural calamity," he added. Singh also focused on World Soil Day, which was on December 5, and agriculture practices. Emphasising on the importance of 'soil health' for farmers, he said that his government has decided to open eight new laboratories in the state for testing soil samples to subsequently issue soil health cards. PTI

Jawandhia say the fall in the state's agricultural yield may end up being even worse lower than these initial estimates. "The state govern-

ment needs to go beyond rescheduling crop loans. Besides a loan waiver, a village-level crop insurance scheme is vital," he says.



# Manali shivers at $-1.6^{\circ}\text{C}$

**TRIBUNE NEWS SERVICE**

**SHIMLA, DECEMBER 12**

The higher reaches and tribal areas of the state experienced another spell of snowfall while the mid and lower hills were lashed by rain accompanied by strong winds, aggravating the cold wave conditions.

The mighty Rohtang Pass (13,050 ft) was closed following heavy snow while other high mountain passes such as Saach, Chansel, Kunzam and Baralacha turned white. Keylong and Kalpa in Kinnaur and Lahaul-Spiti recorded 11 cm and 10 cm of snow while Manali and Bharmour recorded 6 cm and 5 cm of fresh snow in the past 24 hours.

Mercury remained at the sub-zero level in the tribal areas with Kalpa being the coldest at minus 2.6 degree followed by Manali minus 1.6 degree, Keylong minus 1.1 degree while Shimla shivered at 3.0 degree. Thick fog engulfed the towns along the river banks while ground frost occurred in higher hills,



Manali turns white. PHOTO: JAI KUMAR

## Rohtang Pass closed

- Rohtang Pass closed following heavy snow
- Other passes such as Saach, Chansel, Kunzam and Baralacha turn white
- Mercury remained at sub-zero level in tribal areas
- Thick fog engulfed towns along river banks
- Ground frost reported in higher hills

freezing water pipes at some places.

Manali was the wettest in the region with 39 mm rain while Saloni and Sundernagar recorded 37 mm rain followed by Shimla 35 mm, Seobagh 31 mm, Jubbarhatti 30 mm, Dharam-

pur 29 mm, 28 mm, Bilaspur 24 mm, Bhuntar 22 mm and Kahu and Pandoh 20 mm and Kasauli and Chamba 19 mm.

The maximum temperature slipped by a few notches and Una was the hottest at 20.2 degree.