

# India and the threat of environmental fault lines



The excessive rain in Chennai and the floods in Uttarakhand and Jammu and Kashmir are all examples of the consequences of global warming that is directly linked to the emission of greenhouse gases. PTI

MAJ-GEN J.S. KATARIA (RETD)

*The Earth provides enough to satisfy every man's needs, but not every man's greed.* — Mahatma Gandhi

THE unprecedented rain that eclipsed the last 100 years' record virtually submerged Chennai. In the last decade India has witnessed a host of other such natural calamities, such as the floods in Jammu and Kashmir (2014), Uttarakhand landslide (2015 and 2011) and Kedarnath floods (2013), floods in Bihar (2008), Assam floods and earthquakes. The magnitude of Chennai's calamity rightly took away everyone's attention from the parleys in the Paris Climate Change Conference. Amidst this, how many of us took note of the issue raised by the critically acclaimed Indian writer Amitav Ghosh who said, "We need to be more worried over the climatic changes vis-à-vis the issue of intolerance in India". It makes one wonder, are we genuinely thinking and working to protect our environment?

Consequent to the first satellite image of the earth in the early 1960s the world seriously started thinking of environmental protection. The first UN Earth Summit was held at Stockholm in 1972, leading to the formation of the United Nations Environment Programme — UNEP. Around that time, the Indian population was pegged at 400 million. Today our pop-

ulation has increased to 1.2 billion. There was a depletion of 26 million hectares of forest areas and 20 million hectares of grasslands/ scrubland. In contrast, the built-up area increased five-fold. There has been an unmitigated encroachment of water bodies, lakes and river flood plains. It is a direct derivative of our flip-flop policies, lack of implementation and inherent corruption. The encroachment of Okhla Bird Sanctuary's protected zone of 10-km radius by big builders is one such example. With the public outcry, these projects were stalled for some time. Dramatically, the restriction has now been reduced to as low as 100 metres. Is it not a mockery of our system and a direct failing to protect our ecologically sensitive zones?

The importance of a strong infrastructure for the economic development of a nation is imperative. At the same time it is vital to ensure that the trees and grasslands which constitute the lungs of a nation and keep the carbon emissions in check are not washed away in the rush of development. Today, while driving along most of our national highways, one only sees concrete jungles on either side. The thick treeline of the 1960s-70s is a thing of the past. Who is responsible for this?

Our cities and towns lack the requisite public transport system and infrastructure to meet the challenges posed by the exponential growth of population. The pollution testing stations are

other contributing factors in India's environmental degradation. Construction material and garbage piled on the roads gets blown into the atmosphere by prevailing winds.

Many banned polluting industries continue to flourish in various colonies of Delhi. A similar situation prevails in other cities of India. Our administration remains blissfully oblivious of their existence. There are officials on the government rolls whose job is to ensure that garbage and construction waste are cleared regularly, but no one questions them and holds them accountable. Ironically, we continue to indulge in political gimmickry at the cost of our environment.

The occurrence of excessive as well as untimely rain (e.g. Chennai), floods and global warming is directly linked to the emission of greenhouse gases. The constant emission of these by the developed nations over a prolonged period in the past has depleted the ozone layer leading to global warming and environmental changes. Today, the leading emitters of greenhouse gases are China with 28 per cent of the world's overall emission followed by the USA 16 per cent, EU 10 per cent, Russian Federation and India with 6 per cent, respectively. The developing nations are demanding a major contribution from the developed nations in cutting carbon footprints owing to their excessive emission in the past. The

The importance of infrastructure in the economic development of a nation cannot be disputed. At the same time it is vital to ensure that the trees and grasslands which constitute the lungs of a nation and keep carbon emissions in check are not swept away by development

population of 1.2 billion. We are the youngest nation with approximately 45 per cent of our population between the ages of 15 and 29 years. It is a great demographic advantage. The youth bulge is expected to make India's economy grow at a much faster pace than before.

The flip side of this is that it has added tremendous pressure on our natural resources, land, water and infrastructure. Looking at the world land mass population statistics of 2014, India has 2045 sq metre per capita land mass, which is one of the lowest in the world. A study undertaken by an independent body in the 1990s had revealed that over the last century when our population quadrupled,

with the population being so young, it is more of a farce. The existing transport system is poorly managed. No attention is paid to their timely running, proper maintenance and optimal utility during the peak traffic hours. The bus-stops are ill-designed and the drivers ill-trained. Improper parking and stopping at an unauthorised place or red lights often leads to choking of traffic. Our autorickshaws/ e-rickshaws and even cars or taxis stop at will, with utter disregard to traffic rules or public safety. It often leads to traffic jams and contributes to air pollution. The non-implementation of norms by the construction industry, the lack of drinking water supply (increasing dependence on ROs) and an inept garbage-disposal system are

successive challenges at the post. The outcome of the Paris Conference notwithstanding, it will remain a matter of conflict between developed and developing nations.

India needs to learn from the developed nations how they have managed clean air and potable water supply in their cities. Most of our cities are facing air pollution with more than 200 PM2.5 and even going as high as beyond 400 PM2.5 — that puts the air quality between "very unhealthy" and "hazardous". We need to act with speed and alacrity to prevent this level of highly polluted air and environmental degradation before our youth bulge becomes a victim of respiratory and other diseases and our advantage turns into a huge disadvantage.



# बर्फानी सर्दी से धूजणी

## हरियाणा और चंडीगढ़ में शीत लहर

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हरियाणा, चंडीगढ़, दिल्ली और राजस्थान में शीत लहर का प्रकोप जारी है जबकि हिमाचल प्रदेश, जम्मू कश्मीर, सौराष्ट्र, कच्छ के कुछ हिस्सों तथा हरियाणा, चंडीगढ़ और दिल्ली के शेष हिस्सों में रात का तापमान सामान्य से काफी नीचे रहा। हरियाणा, चंडीगढ़, पंजाब, राजस्थान और दिल्ली में शीत लहर की संभावना है। मौसम विभाग के मुताबिक पूर्वी उत्तर प्रदेश, मध्य प्रदेश, गुजरात, कोकण, गोवा के कुछ हिस्सों में तथा सौराष्ट्र और कच्छ के शेष हिस्सों में तापमान सामान्य से नीचे रहा। ओडिशा, मध्य महाराष्ट्र, विदर्भ, गांगेय पश्चिम बंगाल, झारखंड, मध्य महाराष्ट्र, छत्तीसगढ़, तेलंगाना, उत्तरी आंतरिक कर्नाटक, असम, मेघालय, नागालैंड, मणिपुर, मिजोरम, त्रिपुरा, तटीय आंध्र प्रदेश, तमिलनाडु, दक्षिणी आंतरिक कर्नाटक, केरल और पूर्वी मध्य प्रदेश में तापमान सामान्य से काफी ऊपर रहा। पश्चिम बंगाल के पर्वतीय क्षेत्र, सिक्किम, रायलसीमा, तटीय कर्नाटक, कोकण, गोवा और पश्चिमी मध्य प्रदेश के कुछ में तापमान सामान्य से ऊपर रहा। देश के मैदानी इलाके पश्चिमी राजस्थान के चूरू में सबसे कम तापमान 0.4 डिग्री सेल्सियस दर्ज किया गया। पश्चिम बंगाल के पर्वतीय क्षेत्र, सिक्किम, बिहार, उत्तर प्रदेश और उत्तर पूर्वी मध्य प्रदेश में अगले 24 घंटे में घना कोहरा छा सकता है।



फतेहपुर के खेतों में सोमवार सुबह सात बजे ऐसे दिखी बर्फ।

- कफिल पारीक

## रात में ओस की बूंदें बन गईं बर्फ

चूरू-फतेहपुर क्षेत्र में रात में ओस की बूंदें बर्फ बन जम गईं। फसलों पर बर्फ की चादर बिछ गई, जो सुबह धूप के साथ हटी। माउंट आबू में रात को खुले में खड़े वहनों की छतें, मैदान, सोलर प्लेट, उद्यान, फसलों पर ओस बर्फ में तब्दील हो गई। सुबह कोहरा छाया रहा।



जम्मू-कश्मीर, हिमाचल प्रदेश और उत्तराखंड के पहाड़ी इलाकों में हो रही बर्फबारी का असर पूरे उत्तर भारत पर नजर आ रहा है। पंजाब, हरियाणा, नई दिल्ली समेत उत्तर भारत में शीतलहर का असर दिखने लगा है। फोटो उत्तराखंड के रुद्रप्रयाग में बर्फबारी का है।

## जयपुर : सत्र की सबसे सर्द रात

मौसम विभाग के अनुसार, जयपुर में रविवार रात का न्यूनतम तापमान 0.4 डिग्री गिरकर 5.4 डिग्री रहा, जो सत्र में सबसे कम है। वहीं दिन का पारा 0.04 डिग्री बढ़ 23.4 डिग्री पहुंच गया। फतेहपुर में सोमवार को न्यूनतम पारे में 0.6 व अधिकतम में 0.2 डिग्री सेल्सियस की वृद्धि रही पर तापमान फिर भी माइनस दो डिग्री रहा।

## 2-3 दिन रहेगा जोर

जयपुर मौसम विभाग के अनुसार, तेज सर्दी का असर अगले 2-3 दिन और रहेगा। रात में पारा गिरने का असर दिन के तापमान पर भी दिख रहा है। प्रदेश के उत्तरी हिस्से में कोहरा रहने की संभावना है।



AFTER THE CHENNAI FLOODS

# Revisiting the Natural Catastrophe Pool



**CITY ON ITS KNEES:** Residential areas are seen surrounded by floodwaters in Chennai on Saturday. PTI

Chennai floods have exposed our financial unpreparedness against natural disasters and calls for a unified insurance coverage

GEORGE MATHEW

WHILE THE country has suffered heavily in terms of human fatalities and economic losses due to natural catastrophes like Chennai floods, a proposal by the insurance industry to bring the entire population and houses under insurance cover has been hanging fire for the last eight years. The proposal for an insurance catastrophe pool (IN-CIP) which would have mitigated the sufferings has been stuck with the government with no decision taken about charging of premium and the complex issue of implementing the scheme across the country.

Whenever a natural catastrophe strikes the country, the cry to form a Natural Catastrophe Insurance Pool (Nat Cat Pool) becomes louder only to fizzle out after a few months once normalcy returns. "For example, there were reports that the general insurance industry was in dialogue with the National Disaster Management Agency (NDMA) to form such a pool with the Insurance Regulatory and Development Authority (IRDA) regulatory support a year ago. Insurance is an issue for the poor class of citizens and small traders who cannot afford to buy it. Hence, a Nat Cat Pool is ideally for protecting this vulnerable class. For the insurers, a pool can be viable only if the premiums are adequate," said KK Srinivasan, former Member, IRDA.

Over 10,000 claims have already reached insurance companies after the Chennai floods played havoc with life and property, leading to losses of around Rs 1,500-2,500 crore to insurers. More claims are expected to come in the coming weeks. However, thousands of poor citizens and petty traders who can't afford to buy insurance cover have lost

everything in the floods. Who will compensate for their losses?

In 2010, after cyclone Nilam hit Tamil Nadi, the insurance industry and the finance ministry joined hands to set up an exclusive catastrophe pool to cover the losses that occur in natural disasters. The proposal submitted by the industry through the General Insurance Council, the representative body of the general insurers envisages a pool on the lines of the Terror Pool and Third Party Motor Pool (now converted into a Motor Third Party Declined Risk Insurance Pool). As per the proposal, there should be a stand-alone policy — with a minimum cover of Rs 1 lakh for small premium — covering all natural catastrophe perils with the benefit of cover going to those or their kin who are directly affected by the disaster. The plan which was developed with the active involvement of National Disaster Management Authority (NDMA) and GIC Re has been floated by the insurance regulator since at least 2007, but has got deferred over administrative issues, said an official involved in the process.

Once implemented, a large percentage of house owners across India will have to start paying a premium for the insurance cover with the balance being financed by the Centre or states. The proposal for the IN-CIP could cost up to Rs 5,000 crore if applied across India but will bring down the present undefined bill to rebuild lives after the catastrophes, providing a big comfort to citizens, the government and the insurance sector.

R Chandrasekaran, secretary general, General Insurance Council, said, "the proposal is with the government. It's needed. At the current level of low insurance penetration, Indian insurers have capacity to retain the risks to their balance sheets. Also the reinsurance can help in dealing with these risks."

## TOTAL ECONOMIC AND INSURED LOSSES

IN H1 2015 AND H1 2014 (US \$ bn)

	H1 2015	H1 2014	CHANGE	10-YEAR AVERAGE
<b>ECONOMIC LOSS (Total)</b>	37.4	59	-37%	107
Natural catastrophes	33	54.1	-39%	99
Man-made	4.4	4.9	-9%	8
<b>INSURED LOSS (Total)</b>	16.5	23.6	-30%	29
Natural catastrophes	12.9	19.7	-35%	25
Man-made	3.6	3.9	-6%	4

Source: Swiss Re Economic Research & Consulting and Cat Perils

Currently, India doesn't have a single cover for all catastrophic incidents. IRDA is considering such a policy as a separate category.

Two years ago, non-life insurance companies had presented a concept paper on catastrophe insurance to the NDMA. It cited the need for a pool to deal with losses from natural disasters. In absence of such a pool, both insurers and reinsurers have to bear the cost, leading to a big hit on their profitability.

Besides, the government spends taxpayers' money to rebuild the devastated areas which can be easily paid by the insurers. However, there has been no consensus between insurers and the NDMA on who would fund the process and how the pool would function. Though the paper was subsequently presented to the finance ministry, no formal decision was taken on the matter.

An official privy to the discussions said that this may be only available for free for those below poverty line, while others have to bear a cost. Also, all areas may not be covered and only those prone to natural disasters would be given the cover. If imple-

mented, India will join several countries like Turkey, Norway and others which have set up such funds to share the cost of reconstruction after large scale disasters. Cities like New York too are now planning similar policies to cover its inhabitants. Typically, policies taken out by individuals do not cover such calamities, excluding them under the clause "act of God".

## No protection for poor

Heavy rains and flash floods ravaged Chennai with initial estimates suggesting a loss of Rs 15,000 crore. However, insured losses could be a fraction of this amount, possibly less than 10 per cent of the total losses. This means poor people end up suffering huge losses which, otherwise, would have been paid up by insurers.

Insurance against such catastrophes is not an issue for the medium and large-scale business or industry or the middle and upper class citizens. Insurance against such catastrophes is not an issue for the medium and large-scale business and industry and the middle and upper class citizens. But the fact

remains that many of them don't go in for insurance ..., he said. In dealing with Chennai floods, the country is back again to the age-old model of government funding 'reliefs' to the victims of the natural disaster.

"Since poorer classes cannot afford to pay premium, the government may have to fund the premium (for Nat Cat Pool). However, for the government, funding premiums will still be far cheaper — and budgeted for — than shelling out unbudgeted reliefs when a calamity strikes," Srinivasan said.

India witnessed the world's largest and third largest catastrophes of 2014 — Cyclone Hudhud and the Kashmir floods respectively — in terms of overall damage and losses. Hudhud led to a loss of \$7 billion and an insured loss of \$530 mn and losses in J&K floods were \$5.1 bn and insured loss of \$330 mn. Flash floods in Uttarakhand took 5,500 lives and cyclone Phailin led to huge losses in 2013. When the cyclone Hudhud hit Andhra Pradesh, insured losses amounted to just 7.5 per cent of the total loss. J&K flood insured losses were just 6.5 per cent of the total loss. In comparison, the proportion of insured losses to overall losses was 52.5 per cent for winter damage in Japan in February 2014, 74 per cent for storm damage in USA in May, and 80 per cent for severe storm damage across western Europe in June 2014, says Prudential Insurance Brokers.

Had the government implemented the IN-CIP policy, Chennai citizens would have got claim for damage. As per the proposal, the sum insured for *kutcha* construction was proposed at Rs 50,000 per house and Rs 10,000 for contents and for pucca construction at Rs 100,000 for house and Rs 25,000 for contents. For loss of lives, the sum insured was proposed at Rs 1,00,000 per life (maximum 4 per family).

## Nature's Fury

**J&K FLOODS:** In September 2014, monsoon rains in Jammu and Kashmir in India and the neighbouring region in Pakistan resulted in the worst flooding in 60 years. At least 665 perished and over 200,000 houses were destroyed. Together, the total losses in India and Pakistan were \$5.9 billion, and insured losses were at least \$0.2 billion. The total losses from the destruction of housing in India were at \$4.4 bn.

**CYCLONE HUDHUR:** The biggest storm of the Pacific and Indian Ocean season was Cyclone Hudhud in October. Hudhud made landfall near Visakhapatnam in Andhra Pradesh with winds of up to 200 km/124 miles per hour and a storm surge of up to three metres in some areas. The total losses were estimated at \$7 billion, the largest of all natural catastrophes in the world in 2014. However, the insured losses were a fraction of the total at just \$0.6 billion.

**SUMMER HEAT:** At the close of the first half of the year 2015, there was an exceptionally strong heatwave in India and Pakistan that caused the deaths of 3,600 people.

**CHENNAI FLOODS:** Heavy rains and flash floods ravaged Chennai city with initial estimates suggesting a loss of Rs 15,000 crore. However, insured losses could be a fraction of this amount, possibly less than 10 per cent of the total losses.

**INDIA PRONE TO STORM ACTIVITY:** In Asia, the bulk of the severe convective storm activity occurs in India and Bangladesh, most often in the pre-monsoon period from March-May. The storms are classified by wind speed, with speeds of 42 meters per second/151 km per hour or higher referred to as tornadoes, and below that as "nor'westers". The four deadliest tornadoes on sigma records were all in Bangladesh and the fifth and sixth in India, says a Swiss Re study.

**INSURED LOSSES IN 2014:** Global insured losses from natural catastrophes and man-made disasters were \$35 billion in 2014, down from \$44 billion in 2013 and well below the \$64 billion — average of the previous 10 years. Around 12,700 people lost their lives in all disaster events, down from as many as 27,000 in 2013, making it one of the lowest numbers ever recorded in a single year, Swiss Re says.

**ECONOMIC LOSSES:** Globally, total economic losses from all disaster events were \$110 billion in 2014, where Asia contributed 47 per cent to the total global losses. Out of the total loss, only \$5.2 billion worth of losses were insured in Asia.



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**THE TIMES OF INDIA**

# 87% of Himalayan glaciers stable since 2001: Javadekar

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The minister also informed Rajya Sabha that 248 of the 2,018 glaciers observed for a study had been found to be retreating.

NEW DELHI: As many as 248 of 2,018 or 12.3% of Himalayan glaciers are "retreating" while 18 are advancing, environment minister, Prakash Javadekar told the Rajya Sabha on Monday in a written reply. The minister's reply, however, also revealed that a majority or about 86% of glaciers have remained stable.

The minister said the Indian Space Research Organisation (ISRO) in collaboration with the ministry of environment and forests (MoEF) had conducted a study on a part of the glaciated region of Himalayas between 2004 and 2011 which threw up these results.

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The results were also published last year in Current Science journal which stated that 2018 glaciers "representing climatically diverse terrains in the Himalaya were mapped and monitored. It includes glaciers of Karakoram, Himachal, Zaskar, Uttarakhand, Nepal and Sikkim regions. Among these, 1752 glaciers (86.8%) were observed having stable fronts or having no change in the snout position."

The study had also inferred that the number and rate of glacier retreat have come down in the last decade compared to the results of other studies conducted before 2001. The authors from Space Application Centre in Ahmedabad, GB Pant Institute of Himalayan Environment and Development and many others had concluded that one reason for their findings could be that an interval of one decade is too small for the changes in glaciers to be reflected.

AL Ramanathan, professor of environmental geology and glaciology laboratory, school of environmental sciences at Jawaharlal Nehru University (JNU) who was part of a similar study with ISRO said the findings are based on remote sensing data. "Only two or three field observations were conducted for the study and they definitely showed partial retreat. We have not yet studied the impact of black carbon on our glaciers. We know for sure several Tibetan glaciers are retreating because there are published studies in various journals. I think the government should start ground studies now to verify the remote sensing findings."

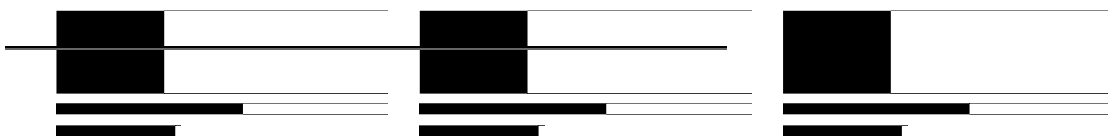
Responding to a separate question on the impact of biomass burning on air quality in cities, especially Delhi-NCR, Javadekar said, "There is no conclusive study available that biomass burning in neighbouring states would always impact quality of air in Delhi."

He, however, agreed that biomass, stubble or agriculture burning impacts air quality in the vicinity. However, movement of plume of fine particles or various gaseous pollutants from biomass burning depends upon meteorological factors such as wind speed, wind direction, mixing height and humidity, he explained.

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# By 2100, global temperatures may rise by 8°C

By PTI | 15 Dec, 2015, 06.25AM IST

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LONDON: The global land surface temperatures may rise by an average of almost 8° Celsius by 2100, if significant efforts are not made to counteract climate change, a new study has warned.


Such a rise would have a devastating impact on life on Earth. It would place billions of people at risk from extreme temperatures, flooding, drought and food shortages, researchers said. The study by researchers at the University of Edinburgh, UK, calculated the likely effect of increasing atmospheric levels of greenhouse gases above preindustrialisation amounts.

It found that if emissions continue to grow at current rates, with no significant action taken by society, then by 2100 global land temperatures.

will have increased by 7.9°C Celsius compared with 1750. This finding lies at the very uppermost range of temperature rise as calculated by the Intergovernmental Panel on [Climate Change](#) (IPCC). It also breaches the United Nations' safe limit of 2°C, beyond which the UN says dangerous climate change can be expected, researchers said.

Researchers first created a simple algorithm to determine the key factors shaping climate change and then estimated their likely impact on the world's land and ocean temperatures. The study was based on historical temperatures and emissions data. It accounted for atmospheric pollution effects that have been cooling Earth by reflecting sunlight into space, and for the slow response time of the ocean.

"Estimates vary over the impacts of climate change. But what is now clear is that society needs to take firm, speedy action to minimise climate damage," said Roy Thompson, a professor at the University of Edinburgh. The findings were published in the journal Earth and Environmental Transactions of the Royal Society of Edinburgh.

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The finding breaches the UN's safe limit of 2°C, beyond which dangerous climate change can be expected. (Getty images)

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## Natural disasters almost spell death for the elderly in India's mega cities



• [Vidya Krishnan](#)



With no support system, India's greying population is defenseless against natural calamities. Photo: R. Ragu

*Experts maintain that the senior citizens are likely to constitute a significant chunk of the total deaths in Chennai floods.*

On December 1, heavy rainfall doused Chennai. Over the next few hours, the city had received 50 cm worth of rainfall in the suburbs (Tambaram) and nearly 30 cm inside Chennai. This should put the numbers in perspective: that's how much rain Chennai got during two weeks in November.

The rains lashed relentlessly as rivers swelled, breached banks and the [Chembarambakkam reservoir](#) was opened without much warning.

As the [surge swept through the city](#), it swallowed everything in the way — cars, bridges, airports, hospitals, hutments and devoured the metropolis.

As the Chennai floods showed, Indian cities are barely capable of dealing with emergencies of any scale, let alone natural disasters. This is the second of a six-part series on disaster preparedness in large metropolises, engines of India's economic growth. The series — **'Fix Our Cities'** will look at existing safety standards and policies in place but not implemented properly. It is time to demand the safer cities we deserve.



The State government declared Chennai as disaster zone; Army rescue teams were deployed to evacuate survivors in the worst-hit areas — where floodwaters threatened second floor houses.

In Ekkattuthaangal, Lt. Col. (retired) G. Venkateshan and his wife Geetha were increasingly getting nervous. With Adyar river rising, literally inside his dining room, the 72-year-old ex-army officer and his wife stood up on the dining table. When that was not enough, they put chairs on top of the table and climbed on top. But the water consumed everything, their entire single storey apartment went under — taking them with it.

I read about the couple on social media. Later, the image of the elderly couple kept coming to me: splashing through waters in their own living room. Screaming for help for hours at a stretch — and later, much later, with doors still firmly locked and no help coming, the shrieking died down. The house now filled with eerie silence — an image of perfect, urban isolation.

### Safety net during emergencies

In India, the safety net, insurance against disaster is parivar- the Hindi word for family but means something more visceral. It encompasses everything from heirlooms to ancestors to actual living relatives who can/will help with emergency response.

In Chennai, however, the idea of parivar is transcontinental- it depends on Skype. And many other such fickle things, like electricity, telephone networks, internet connections, battery—all of which failed that day when Col Venkatesan was drowning.

For senior citizens in India's megacities, natural disasters, are a near certain death warrant. For the poor, across age groups this is true. But for the upper middle class families- the Chennai floods were a rude awakening. At last count, the total number of deaths stood at 540 as per police estimates. With the state government yet to release the death toll, break-up of children and senior citizens the floods claimed, it is necessary to quibble with this number. Experts maintain that the senior citizens are likely to constitute a significant chunk of the total deaths.

The floods exposed a fatal flaw in the administration: the complete lack of ward-level data on vulnerable populations, says Meenakshi Balasubramanian of Equals, Centre for Promotion of Social Justice. "We needed to locate households with vulnerable people and we simply did not have the information. Such data is vital for any relief and rescue work to be successful especially in susceptible areas such as those near water bodies."

According the National Health Profile, released by the health ministry last year, the elderly in India i.e. the population above 60 years comprise 8.6% of the population (103.8 million) and they are also a vulnerable section. Those above 75 years (20.52 million) are most vulnerable and almost 8% of the elderly population is bed ridden or homebound. According to census 2011, 10 per cent of Tamil Nadu's population is above the age of 60 years- 4,64,122 people to be specific. By conservative estimates, as many as 5% of older individuals are living alone.

For this population, the national health policy envisages an effective capacity for routine emergency and, "an army of community members trained as first responder for accidents and disasters." However, as things stand, the institutional capacity for this is next to nothing.

Over the past week, The Hindu asked different experts a simple question: what is the most efficient, simplest way to keep senior citizens safe during disasters. The answer, unanimously was this: be a good neighbour. "The first point of contact for the elderly who stay alone is generally a neighbour. But during a disaster of this magnitude those you count on for help may be battling for survival themselves," says V Siva Kumar Joint Director, HelpAge India, Tamil Nadu.

Further, the policy envisages a network of emergency care that has an assured provision of life support ambulances linked to trauma management centers- one per 30 lakh population in urban and one for every 10 lakh population in rural areas will form the key to a trauma care policy.

Sudha Ramamoorthy of Chennai Rain Relief, a volunteer's group that came together when the monsoon began last month, says she was not surprised by the number of elderly people she found stranded -- some for days without any access to relief or rehabilitation. In Nakeeran Nagar and MK Radhanagar, low income colonies by the Cooum river where her team visited, she met a middle aged couple - one of them a stroke patient - who had survived three days without food or water.

With every natural disaster, this is section gets least access to relief. What is more worrying is that this section is growing rapidly. Not only has the share of the elderly to the total population increased from 6.5% in 1981 to 7.4% in 2001, but also the old age dependency ratio has risen from 89 to 119 in the same period of time. Meaning, that with every passing decade, the number of older persons to be supported by every 1000 young people in the commonly categorized as 'productive' is increasing.

With no support system, a sizable chunk of India's greying population is at defenceless in the face of natural disasters. As flood waters crashed against refrigerators and sofa sets and turned the city's, supposedly, most benign environment- peoples homes- into death traps, one thing is amply clear- Mrs and Mr Venkatesan were beyond hope, beyond help- even before water breached their threshold.

*(With inputs from Divya Gandhi)*

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## सोमवार मौसम का सबसे ठंडा दिन रहा

नई दिल्ली | प्रमुख संवाददाता

दिल्ली में सोमवार को मौसम का सबसे ठंडा दिन दर्ज किया गया। पहाड़ों से आने वाली ठंडी हवाओं के चलते न्यूनतम तापमान 06 डिग्री सेल्सियस के करीब पहुंच गया। तीन वर्षों के बाद 14 दिसंबर के दिन न्यूनतम तापमान इतना कम दर्ज किया गया है। वर्ष 2011 में इस दिन न्यूनतम तापमान 6 डिग्री सेल्सियस दर्ज किया गया था।

मौसम वैज्ञानिक बीपी यादव ने बताया कि पश्चिमी विक्षोभ के प्रभाव के चलते पहाड़ों में बर्फबारी हो रही है। ऐसे में पहाड़ों की ओर से आने वाली ठंडी हवाओं से दिल्ली सहित उत्तर भारत के मैदानी इलाकों में तापमान में गिरावट दर्ज की जा रही है। आसमान साफ होने के चलते अगले दो से तीन दिनों में न्यूनतम तापमान में 2 से 3 डिग्री की और कमी दर्ज की जा सकती है। उन्होंने

### जाफरपुर सबसे सर्द इलाका

बाहरी दिल्ली के जाफरपुर इलाके में सबसे अधिक ठंड दर्ज की गई। यहां न्यूनतम तापमान 4.6 डिग्री सेल्सियस के करीब पहुंच गया, जबकि अधिकतम तापमान 19.5 डिग्री सेल्सियस के करीब रहा।

बताया कि मंगलवार को सुबह आसमान साफ रहेगा। हवा में नमी के चलते सुबह के समय घना कोहरा दर्ज किया जा सकता है। अधिकतम तापमान 21 डिग्री सेल्सियस व न्यूनतम तापमान 6 डिग्री सेल्सियस के करीब दर्ज किए जाने की संभावना है।

सोमवार को न्यूनतम तापमान 6 डिग्री सेल्सियस रहा। वहीं, अधिकतम तापमान 21.3 डिग्री सेल्सियस दर्ज किया गया। हवा में आर्द्रता का अधिकतम स्तर 94 प्रतिशत दर्ज किया गया।

### दिल्ली में न्यूनतम तापमान

इलाके	तापमान
जाफरपुर	4.6
लोधी रोड	5.2
अक्षरधाम	5.3
पूसा	6.0
नरेला	6.1
नजफगढ़	6.6
पालम	6.8

### 14 दिसंबर को पिछले पांच वर्षों में न्यूनतम तापमान

वर्ष	तापमान
2014	12
2013	08
2012	13
2011	06
2010	06





सोमवार रात 9 बजे तक

पार्टिकुलेट मैटर 2.5 और 10 हवा में  
मौजूद प्रदूषित कणों का पैमाना है।

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# गिर रहा है तापमान, और बढ़ेगी ठंड

■ नगर संवाददाता, नई दिल्ली

दिल्ली में आने वाले दिनों में ठंड और भी बढ़ सकती है। वहीं सोमवार को इस सीजन का सबसे कम मिनिमम टेंपरेचर दर्ज हुआ। मिनिमम टेंपरेचर नॉर्मल से तीन डिग्री सेल्सियस कम के साथ 6 डिग्री तक जा पहुंचा। यह रविवार से भी कम रहा। आने वाले दिनों में दिल्ली के आसपास के राज्यों में शीत लहर चलने की संभावना है, जिससे वहां से दिल्ली की तरफ ठंडी हवाएं पहुंचेंगी। यह मौसम को ठंडा बनाए रखेंगी।

सोमवार को दिन भर मौसम सामान्य रहा। ठंडी हवाओं के साथ खिली हुई धूप निकली। मैक्सिमम टेंपरेचर नॉर्मल से दो डिग्री कम के साथ 21.3 डिग्री रहा। कई इलाकों में ठंडी हवाएं भी चली। मैक्सिमम ह्यूमिडिटी 94 पसेंट दर्ज हुई। मौसम विभाग ने अपने बुलेटिन में कहा कि मंगलवार को धुंध छा सकती है। मैक्सिमम टेंपरेचर 21 डिग्री और मिनिमम टेंपरेचर 6 डिग्री रहने का अनुमान है।

स्काइमेट के मौसम वैज्ञानिक महेश पलावत ने कहा कि दिल्ली में अगले पांच से छह दिनों में मिनिमम टेंपरेचर 5 से 6 डिग्री के आसपास रह सकता है। इसकी वजह है कि उत्तर भारत के पहाड़ी इलाकों में बर्फबारी हो रही है। इसकी वजह से उत्तर पश्चिमी दिशा से हवाएं नमी लेकर दिल्ली में दस्तक देंगी। मौजूदा मॉडल्स से जानकारी मिली है कि अगले चार से पांच दिनों तक घना कोहरा दिल्ली में नहीं छाएगा। अभी दिल्ली में ठंडी और ड्राय हवाएं चल रही हैं। वहीं ह्यूमिडिटी भी कम रह सकती है। इसके कारण घना कोहरा छाने की संभावना कम है। 17 दिसंबर को एक और नया वेस्टर्न डिस्टरबेंस उत्तर भारत में पहुंचेगा।

पलावत ने बताया कि पंजाब और हरियाणा जैसे इलाकों में शीत लहर चल रही है। आने वाले दिनों में इन दोनों राज्यों में शीत लहर चल सकती है। इसके कारण ठंडी हवाएं दिल्ली की तरफ भी पहुंच सकती हैं। इससे दिल्ली में भी शीत लहर जैसी स्थिति बनने का अनुमान है। मौसम वैज्ञानिकों के मुताबिक ठिठुरने वाली सर्दी ने दिल्ली में दस्तक दे दी है। सुबह और रात के समय और भी ज्यादा ठंड महसूस हो सकती है।

## दिल्ली में दिखेगा शीत लहर का असर

मैक्सिमम  
टेंपरेचर 21  
डिग्री और मिनिमम  
टेंपरेचर 6 डिग्री  
रहने का अनुमान  
है



आने वाले दिनों में दिल्ली के आसपास के राज्यों में शीत लहर चलने की संभावना है, जिससे वहां से दिल्ली की तरफ ठंडी हवाएं पहुंचेंगी

नव-15-12-15



## थोड़ी राहत

■ सोमवार को पल्यूशन लेवल 14 दिनों में सबसे कम दर्ज किया गया

■ धूप निकलने और नमी के साथ ठंडी हवाएं चलने का असर



# खिली धूप ने पल्यूशन को 'डराया'

■ नगर संवाददाता, नई दिल्ली

सोमवार को पल्यूशन का लेवल थोड़ा कम हुआ। हवा में मौजूद प्रदूषित कणों के साथ टॉक्सिक गैस में भी कमी आई। मौसम वैज्ञानिकों ने बताया कि अगले दो दिनों में पल्यूशन का लेवल खतरनाक स्तर तक नहीं पहुंचेगा। वहीं सोमवार को नैशनल एयर क्वालिटी इंडेक्स में सबसे कम पॉल्यूशन लेवल दर्ज किया गया। इंडेक्स में दो स्टेशनों में पीएम 2.5 और पीएम 10 की इंडेक्स वैल्यू 206 दर्ज हुई। यह दिसंबर के 14 दिनों में सबसे कम है। 1 से 13 दिसंबर के दौरान यह 270 से ज्यादा थी। नॉर्मल इंडेक्स वैल्यू 50 होती है। मौसम वैज्ञानिकों ने बताया कि सोमवार को सूरज निकला और ठंडी हवाएं नमी के साथ चलीं। इसकी वजह से बढ़ रहे पल्यूशन लेवल पर थोड़ा असर पड़ा और इसमें कमी आई। मिनिस्ट्री ऑफ

अर्थ साइंसेज के प्रोजेक्ट सफर में दिल्ली का एवरेज पीएम 2.5 का लेवल 146.6 माइक्रो ग्राम क्यूबिक मीटर (एमजीसीएम) दर्ज किया गया। अगले दो दिनों में पीएम 2.5 का लेवल सामान्य ही रहेगा। हालांकि, अब भी पीएम 2.5 का लेवल नॉर्मल से ज्यादा है, इसका नॉर्मल लेवल 60 एमजीसीएम होता है। वहीं पीएम 10 का लेवल मॉडरेट रहा, इसका लेवल 233.4 एमजीसीएम रहा। अगले दो दिनों में पीएम 10 जैसे प्रदूषित कण का स्तर सामान्य ही रहने वाला है। मौसम वैज्ञानिकों ने कहा कि हवा में नमी बढ़ने की वजह से धूल और प्रदूषित कण उसमें मिल रहे हैं। अच्छी धूप निकलने से भी पल्यूशन लेवल पर असर पड़ रहा है। पल्यूशन इन कारणों से कम दर्ज हो रहा है। मौसम वैज्ञानिक के मुताबिक, अगले दो से तीन दिनों में मौसम की कंडिशन ऐसी रही तो लोगों को पल्यूशन से राहत मिल सकती है।



# नवभारत टाइम्स

नवभारत टाइम्स । नई दिल्ली । मंगलवार 15 दिसंबर 2015

## कैसे बचेगी धरती

जलवायु परिवर्तन को लेकर हुआ पैरिस समझौता कोई बहुत उम्मीद भले न जगाता हो, पर इसके तहत ग्लोबल वार्मिंग के खतरे और इसके समाधान को लेकर बनी विश्वव्यापी सहमति खुद में एक ऐतिहासिक उपलब्धि है। अभी तक तो कई वैश्विक सम्मेलनों के बावजूद यही तय नहीं हो पा रहा था कि इस तरह का कोई संकट वाकई दुनिया के सामने है या नहीं। विकसित देश अपनी दलीलें देते थे तो विकासशील देश अपनी। इन दोनों से अलग ऑटोमोबाइल इंडस्ट्री और तेल उद्योग से जुड़े थिंक टैंक यह साबित करने में लगे रहते थे कि ग्लोबल वार्मिंग एक कागजी बाघ है। अपने-अपने आंकड़ों के जरिए हर कोई बताना चाहता था कि भरसक तो



पैरिस समझौता

ऐसा कोई संकट है ही नहीं, और अगर हो भी तो इसके लिए वह नहीं, कोई दूसरा जिम्मेदार है। पैरिस में यह बात साफ हो गई कि आगे की बहस कार्बन उत्सर्जन की मात्रा और उसे रोकने पर ही केंद्रित रहेगी। भारत की अगुआई में विकासशील देशों की यह बात मानी गई

कि विकसित देश सिर्फ नसीहत देकर निकल नहीं सकते, अगर उन्हें पृथ्वी की चिंता है तो इसे बचाने का बोझ भी उन्हें बाकी मुल्कों से ज्यादा उठाना होगा। पैरिस समझौते के मुताबिक इक्कीसवीं सदी बीतने तक वैश्विक तापमान को औद्योगिक क्रांति से पहले के समय की तुलना में दो डिग्री सेल्सियस से ज्यादा ऊपर नहीं जाने देना है। यह लक्ष्य कानूनी रूप से बाध्यकारी होगा, लेकिन कोशिश यह की जाएगी कि तापमान 1.5 डिग्री सेल्सियस से अधिक न बढ़ने पाए। हर पांच साल पर प्रगति की समीक्षा की जाएगी। कार्बन उत्सर्जन घटाने में विकासशील देशों की मदद के लिए 100 अरब डॉलर का हरित कोष बनाने की कार्ययोजना भी बनी है। विकासशील देशों को दी जाने वाली राशि को दस साल बाद बढ़ाने पर विचार किया जाएगा, हालांकि इसे कानूनी रूप से बाध्यकारी नहीं बनाया गया है। समझौते में बहुत सी बातें महज आदर्श के तौर पर शामिल की गई हैं और ये देशों की सदृच्छा पर निर्भर करती हैं। पर्यावरण सम्मेलनों में बड़ी-बड़ी बातें होती रही हैं; बड़े देश भारी-भरकम वादे भी करते रहे हैं, पर वे पूरे होते नहीं दिखे। देखना है आगे यह माहौल कितना बदलता है। भारत की जिम्मेदारी भी बढ़ गई है। उसे पर्यावरण लक्ष्यों को लेकर अपनी वचनबद्धता दिखानी होगी वरना, विश्व में यही संदेश जाएगा कि हम केवल जबानी जमाखर्च करते हैं। हमारे बिजली घर मुख्यतः कोयले पर ही आश्रित हैं। उनका कार्बन चिमनियों पर ही रोका जा सके, ऐसी तकनीक हमें खोजनी होगी। एनटीपीसी और दूसरी बड़ी ऊर्जा कंपनियों के लिए विश्व बाजार से पूंजी जुटाना कठिन हो सकता है। हमें वैकल्पिक ऊर्जा और उससे जुड़ी तकनीक के विकास के लिए युद्धस्तर पर काम करना होगा और पर्यावरण चिंता को नीति-निर्माण से लेकर क्रियान्वयन तक का हिस्सा बनाना होगा। हमारे राजनेताओं से लेकर ब्यूरोक्रेसी तक को इसके मुताबिक ढालना घरेलू मोर्चे पर सबसे बड़ी चुनौती साबित होने वाली है।