

Farm pond as response to climate change

MANU MOUDGIL

Many appreciate how Punjab and Haryana always have green fields no matter the amount of rain. They don't acknowledge rumblings of the vault down under, and the carbon footprint that comes with pumping groundwater. Farm ponds are time-tested structures that can serve both as an adaptation and mitigation step, as discovered by a few farmers in Punjab

CLIMATE change can be as big as the world and as local as your backyard. In North India, it manifests mainly through erratic rainfall. In Punjab and Haryana, the unseasonal downpour in March damaged crops over 55.5 lakh acre while the monsoon season saw a deficit of around 35 per cent. Data shows that the two states have consistently registered below normal rainfall since 1998, putting immense strain on the groundwater resource. The erratic weather has also been linked to the whitely outbreak which damaged the current cotton crop.

Last year, the rainfall deficit was over 50 per cent and Punjab had asked for a Central assistance of Rs 2,350 crore due to a 15 per cent rise in irrigation cost. The state bought extra power and the farmers extra diesel to extract groundwater. Deepening of dried-up borewells was another expense. All this adds to the input cost of cultivation, leading to farm distress and suicides. On the pollution front, groundwater pumping in India contributes 16-25 million tonne carbon, which is 4-6 per cent of the country's total emission.

Traditionally, North India was gifted with rich soil and sufficient rainfall, besides large riverine regions which nurtured the crops. Monsoonal flood would be diverted into small reservoirs for later use. Dug wells filled the gap in dry season.

Introduction of new technology to pump out groundwater in 1960s helped in expansion of the irrigated area. Thanks to easier availability of groundwater, crops got drought-proof, resulting in a rise in crop production and farm income. But the declining water table has now set the reverse trend in motion. Most blocks of Haryana and Punjab are in the dark zones and yield low-quality water, impacting crop production.

In fact, the deteriorating groundwater quality is also making people migrate to better-off areas, a rerun of times when tribes moved in search of water.

At Sandharsi village in Patiala district, many original inhabitants have sold off their lands and migrated to other areas of Punjab in search of better water and soil.

Here, the good quality groundwater is



Harmesh Singh has taken to rainwater harvesting in his farm. Ponds and wells have been a lifeline of Indian agriculture. PHOTO BY WRITER

able to access. Farmers make do with water at 600 feet but that impacts productivity. Former sarpanch Surinder Singh gave up farming after his all four borewells failed. He is now growing eucalyptus trees, running the family flour mill and selling milk.

But Sandharsi also has farmers who refused to be pinned down. When pushed to the wall, they decided to do something more than selling off and leaving.

Harmesh Singh has two borewells but for six months he relies on a pond spread over half an acre on his farm. Once filled during monsoon, the pond holds over 37 lakh litre, enough to irrigate 13 acre of paddy fields twice. The consumption of diesel for irrigation also drops by one-fifth as the pump needs less power to lift pond water. This is

ic. In case of heavy rain, the pond again cushions the impact of flooding.

The idea has also spread to neighbouring villages and around 15 farmers are known to have ponds in their fields in this area, thus reducing the constant dependence on government subsidy and the bore rig industry for irrigation.

What's more important is that the initiative has come from individual farmers without any push from the government or non-governmental organisations.

Ask Harmesh, one of the first to dig a farm pond, about how he got the idea, and he responds with another question: "Isn't it common sense that a farm pond will help with irrigation?" Sadly, this common sense has become a rarity.

Ponds and wells had always been the

serving companions were encroached upon overnight and were filled up to increase the cropped area. Today, dug wells are beyond redemption as water levels have receded to great depths. But ponds are still valid and irrigating fields in many parts of the country. In fact, they are more valid in present times of erratic rainfall patterns.

Lessons can also be learnt from Dewas district in Madhya Pradesh, which turned almost barren as borewells started failing. Today, 5,000 ponds in the district irrigate two crops a year. The movement, inspired by a single farmer digging a pond in his fields, got support from the state agriculture department, which started holding training sessions for large farmers who owned tractors and

financial support from the government.

Later, a subsidy was announced to take the initiative to small and marginal farmers. The chance of fake beneficiaries was little as the big farmers had already got ponds for themselves. The water harvesting structures also helped raise the groundwater table, thus reviving many a defunct borewell which had dried out.

In Marathwada, the region facing continuous drought, the Maharashtra government has now launched a farm pond scheme on a large scale to permanently deal with scarcity.

The Centre, on its part, has formed a committee to suggest restructuring of the Central Groundwater Board and Central Water Commission. The main purpose is to hasten the process of aquifer mapping and irrigation reforms to reduce dependence on an increasingly erratic monsoon. While aquifer mapping will quantify the country's groundwater, irrigation reforms are meant for last-mile connectivity through decentralised water harvesting like farm ponds and check dams, besides water-efficient irrigation technologies like sprinklers and drip systems.

But instead of looking for government schemes, can the farmers themselves take up farm ponds? The few farmers at Sandharsi and surrounding villages are testimony to the resilience that comes with independent initiatives. Instead of doling out subsidy schemes, the state government can organise field visits for farmers to Sandharsi and Dewas. Farmers can spare a few bighas to collect rainwater, which will also recharge the defunct borewells.

It's not a quick task but not as costly and distressing as deepening of a borewell every few years. Many commentators appreciate how Punjab and Haryana always have green fields no matter the amount of rainfall. They don't acknowledge rumblings of the vault down under, and the carbon footprint that comes with groundwater pumping. Farm ponds will not only make this region water sufficient in the true sense but also reduce emissions, thus serving as both a climate change adaptation and mitigation measure.

The writer is a consultant with India

available at a depth of over 1,000 feet, which only a local distillery has been a boon especially when monsoon is delayed and the power supply for irrigation is erratic. As ground-water became accessible, these long-lifeline of Indian agriculture. As ground-water became accessible, these long-lived ponds could afford to excavate ponds. Around 600 such ponds were dug without any cost.

Water Portal, a knowledge repository on water and sanitation

'Tweaking UN climate pact unacceptable'

The Times of India (New Delhi edition) · 7 Dec 2015 · 10 · Vishwa.Mohan@

Paris: A day before the highlevel segment of climate talks starts, environment minister Prakash Javadekar, who is representing the country in this crucial round over the next five days, said any attempt to rewrite or overwrite the UN convention would not be acceptable to anybody.



“The United Nations Framework Convention on Climate (UNFCCC) is a global climate constitution. It is fundamental. Any attempt to rewrite or overwrite it will not be acceptable to anybody. Our collective decision should be based on science, CBDR and collective conscience,” Javadekar said on completion of the preliminary round that ended on Saturday with an approved draft text of the Paris climate agreement being released.

Though the draft, approved for the ministerial round, has been streamlined a bit by reducing it from 55 pages to 48 pages after discussions during the first week of the summit, the high-level segment will still have a major task to remove differences over key issues and come out with an agreement.

Various proposals of different countries and groups are in the approved draft text as brackets. After negotiation, various proposals except the agreed ones will be removed.

Whether it is the contentious issue of climate finance, common but differentiated responsibilities (CBDR) — which holds rich nations responsible for their historical emissions and seeks a higher degree of action from them — or the review and monitoring mechanism of the proposed agreement, each issue will see intense debate next week.

Javadekar said, “For

India, it is a question of present and future lives of our 1.27 billion people with aspirations to develop. We will not let this meeting fail to reach its objectives. India is here to ensure that the seminal principle of CBDR is respected, and rich countries pay back their debt for overdraft that they have drawn on the carbon space.”

His remark assumes significance in view of some rich countries’ attempt to dilute the provisions of CBDR and their insistence that some developing countries like India should also contribute to the Green Climate Fund (GCF).

On developments in the first week of the summit, Javadekar said, “We are at this time midway on our journey to reach a new climate agreement, but substance-wise we are not midway but at a crossroad. India is ready and committed to work with French presidency which has done a monumental job to build political momentum.”

CHENNAI RAIN HAVOC

DISASTER ZONE

Massive relief ops launched, technical flights resumed

TO THE RESCUE Efforts to provide food, water to maximum survivors have been stepped up

Press Trust of India
@indiatrustsindia

CHENNAI/NEW DELHI: The National Disaster Response Force (NDRF) on Saturday said it has launched its "most massive" deployment, pressing into service 50 rescue and relief teams with over 200 boats in Chennai and rescuing over 16,000 people marooned by floodwaters in the city.

"This is our most massive deployment in any flood disaster till date. Now we have close to 1,000 personnel with 21 officers and 300 rubberised inflatable boats. We have rescued over 16,000 people to safer locations till now," NDRF director general OP Singh said.

Singh further said that the force is stepping up its operations, aiming to provide water and food to as many people as they can.

In Delhi, a meeting of the Crisis Management Group (CMG) under the chairmanship of Union home secretary Rajiv Mehrotra was held to review the ongoing operations being undertaken by multiple agencies. Meanwhile, technical flights have begun operations from Chennai Airport, three days after operations had been suspended due to flooding.

"We started technical flights from Chennai airport. But we are unable to resume commercial flights as the basement of the airport is still waterlogged and power supply of the terminal building has not been restored completely," minister of state for civil aviation Mahesh Sharma said.

The Met office on Friday had withdrawn its warning of heavy rains in the city but heavy rains have been forecast for south coastal and interior districts and Puducherry. Power has been restored in many parts of the city and telephone network too has seen an improvement. The situation remained tough for thousands living in low-lying areas that are still having knee-to-waist deep waters.



An armyman gives biscuits to a dog during the relief operations in Velachery on Saturday. The area is one of the worst flood-hit regions in Chennai. PTI PHOTO

Airfares go through the roof as people flee flooded city

HT Correspondent
@hthindia

NEW DELHI: Spot air fares out of Bengaluru, one of the nearest airports from Chennai, have shot through the roof with the cheapest available ticket going for over ₹20,000 on many sectors.

The cheapest ticket on travel portals for Bengaluru-Delhi flights on Saturday was priced at ₹21,081; for Bengaluru-Mumbai, it was ₹22,323; Bengaluru-Ahmedabad ₹28,430 and Bengaluru-Kolkata for ₹12,086.

Spot fares indicate prices of tickets booked at short notices, around four-six hours before

travel. However, fares for travel for later days were considerably lower.

People stranded and desperate to get out of Chennai have been travelling around 300km to Bengaluru after incessant rains and floods forced aviation authorities to shut down operations at the airport till December 6 and allow only limited operations.

"This was bound to happen. However, airlines need to have a heart and not overcharge people in distress," said Rajji Rai, former president of the Travel Agents Association of India. The Directorate General of Civil Aviation (DGCA) is monitoring the situation and the

government might intervene if fares continue to skyrocket, said sources.

"Limited commercial flight operations from Rajaji naval air station in Arakkonam started on Friday. ₹1,000 as fare will be charged for travelling to southern states and ₹2,000 will be charged for northern states," an aviation ministry official said.

To clear stranded passengers, the Airports Authority of India (AAI) is likely to start limited operations from Chennai airport from Saturday. It, the state-run operator said, would be carried during the day while night operations could begin in a couple of days.

IAS officer shifted for opposing city's road cartel

HT Correspondent
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NEW DELHI: Had authorities in Chennai paid heed to the warnings of an IAS officer who had cried hoarse over the shoddy work of corporators and road contractors, the situation may not have been as terrible as it is today.

The story of an IAS officer, who was transferred just three days after he named contractors who botched up road work in the city has gone viral. Vijay Pingale, joint commissioner (Works) of Chennai Corporation, who dared to take on the corrupt road contractor and his cartel, was on 14 November transferred to industries department. Pingale not only made the mistake of naming and shaming the cartel but he also imposed fines on corrupt contractors. On 11 November, Pingale made public the names of nine contractors who were asked to reimburse the civic body ₹2 crore for repairs the corporation carried out on stretches laid by them.

The move infuriated the contractors and Pingale was transferred three days later.

Jaya photo on relief packages receives flak from Chennaites

HT Correspondent
@hthindia

NEW DELHI: The AIADMK party workers' decision to stick photographs of Tamil Nadu chief minister J Jayalithaa on relief material supplied to flood victims faced severe criticism from the residents of Chennai and the city and its suburbs battled hard to pick up pieces of their lives.

Some rescue workers claimed on social media that Jayalithaa's photos are also being pasted on relief materials that are not even being supplied by the government.

"Six trucks coming from Coimbatore. Stopped at Sriperumbudur. And Anna stickers stuck on every pack and sent in. This is absolutely ridiculous," Vinod Dwarikani, a rescue worker, raged on Facebook.

Several people posted scathing comments on social media to register their anger.

PARTY VOWS ACTION

Following criticism on social media the AIADMK top brass sprung into action and vowed to take action against party workers who impeded volunteers carrying out relief work.



Images of Tamil Nadu chief minister J Jayalithaa have been pasted on relief aid which is being supplied to flood victims. TWITTER

"Rescue workers can send their complaints via email to info@aiadmk.com, tweet to @aiadmkofficial or call 044-28130787, 044-28132266, 044-28133510. Action will be taken" an official told The Hindu.

AIADMK party workers have also started putting up hoardings in praise of Jayalithaa in several parts of the state.

One such poster, below, shows Jayalithaa as a character from the blockbuster movie Bahubali.

One of the initial scenes in the film shows an outstretched hand of Sivagami saving a child from drowning in a river. The poster likened the Tamil Nadu CM to Sivagami and the child to the flood victims to stake a claim that she has done all to save the people. Meanwhile, relief work was stopped in suburban Chennai on Saturday after fresh showers hit the city which is grappling with the aftermath of deadly floods.

Amateur radio proves to be a vital lifeline

Ravik Bhattacharya
@ravikbhat

KOLKATA: A steady stream of messages and news relayed from a home in suburban Kolkata kept many anxious people posted about relatives stuck in flood-ravaged Chennai, not with 21st-century technology but through its forefather — the radio.

HAM radio operator Anuragish Nag Biswas of Sodopur became a vital lifeline for many people keen to know about family members held incommunicado in the southern metropolis after record

rains snaffed all forms of communication there.

Amateur radio, popular as HAM, cracked to life after smart phones and laptops gave up in the face of power outages and a clogged grid. Biswas, an employee with a private dairy firm, has been coordinating with fellow HAM operators in Chennai working round-the-clock to locate "missing" people despite language barriers.

"Somehow through friends people are getting to know about me. Calls are pouring in to find people in Chennai," he said.

more stories

TOLLYWOOD COMES TO CHENNAI'S AID

HYDERABAD: The Telugu film industry — popularly known as Tollywood — has come together to help Chennai and its stranded people. Bahubali — fame actor Rana Daggubati is leading the initiative to collect all the donations at his family-owned Ramanaidu Studios. "Please send whatever you feel like to Ramanaidu studios Film Nagar. We will ensure that it is sent to Chennai," Rana tweeted. Meanwhile, around a dozen actors including Nani and Lakshmi Manchu would visit malls in the city to collect money for Chennai.

Southern Railways operates special trains

MADURAI: In order to clear the passengers stranded in Chennai due to flooding and heavy rains, Southern Railway operated special trains from the capital city to Madurai, Tiruchirappalli, Tiruchendur, Karaikal and Tirunelveli on Saturday.

IAF to transport stranded passengers, students

CHENNAI: Indian Air Force has come to the rescue of stranded passengers at the airport by deploying 13 helicopters, C17s and C130s for relief and rescue operations in Chennai following the flooding. IAF Southern Air Command PW Pradhan said.

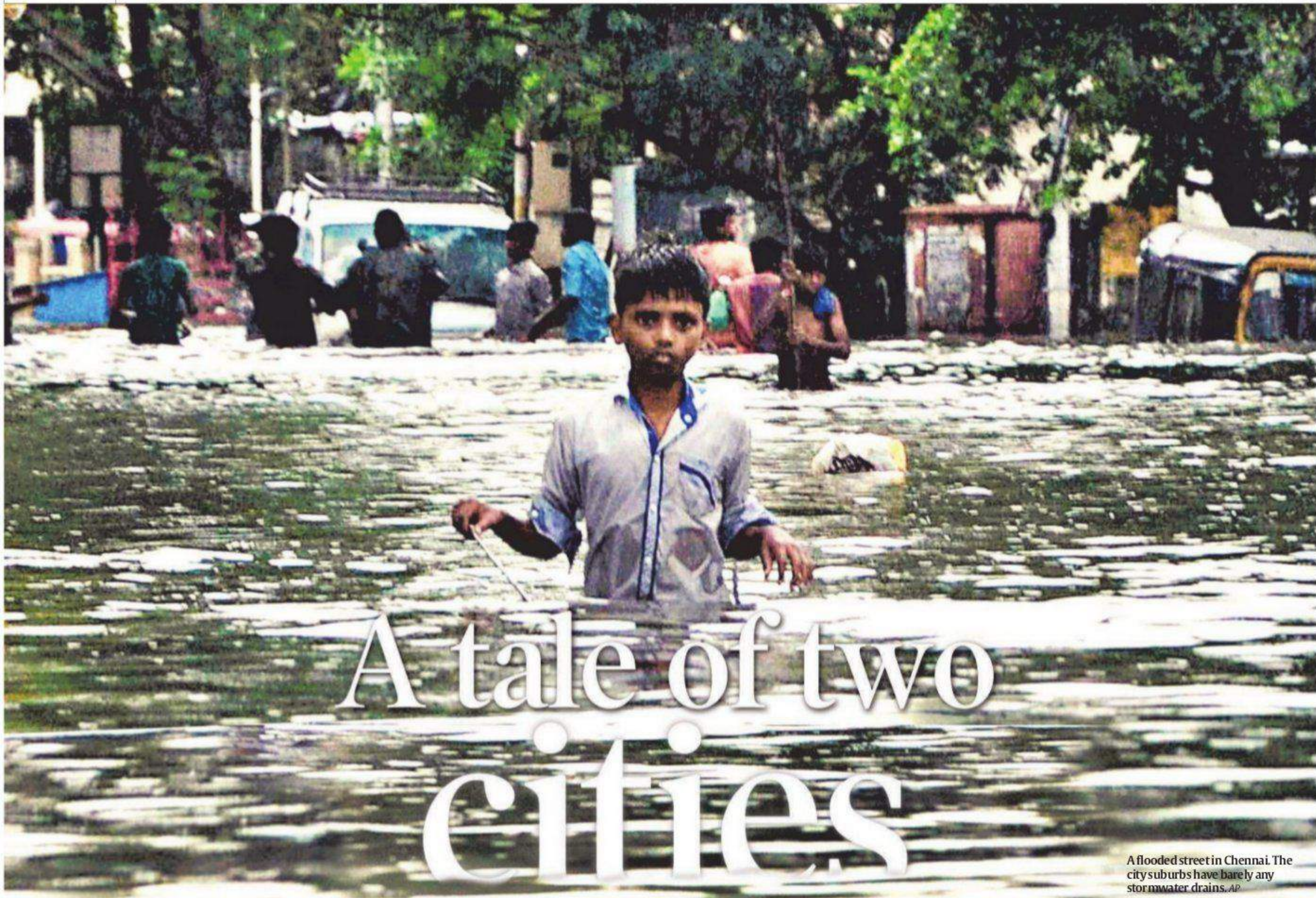
PEOPLE'S MOMENT

Chennai makes an effort to rise
above the flood waters

THE GOVERNMENT IN Tamil Nadu may appear to have drowned in the surging waters of the Adyar and the Cooum, but the people of Chennai seem to have pulled themselves up to face the worst. Though navy, police and national disaster management teams have undertaken a massive rescue mission, the city's residents have become the real heroes as Chennai's infrastructure crumbled under the record rain. Most housing colonies have been inundated with the flood waters and roads have turned into rivers. With the city cut off from the rest of the state, food supply and distribution have been affected. People in many parts of the city have been forced to flee after flood waters entered their homes. The government-run relief camps could not have coped, given the scale of the rain and displacement. In this scenario, Chennai's civil society has stepped in to make relief available to the needy.

In this time of crisis, social media became the forum for the back-and-forth of messages offering help. SMSs began to do the rounds with phone numbers to call for food and shelter. People across the city opened up their homes and offered refuge to the less fortunate. Malls and multiplexes were transformed into shelters for the flood-affected. Temples, mosques, gurdwaras started to prepare food packets. Of course, like other big cities, Chennai too can be a merciless, violent urban jungle where survival is a daily battle. But as these last few days have shown, when disaster strikes, the city can become a village, sheltering and enfolding an otherwise fragmented mass of residents.

As a landing point for cyclonic storms raging in from the Bay of Bengal, Chennai knows from past experience that the government is often too slow in responding to natural disasters and even more so to one of its own making. An early start to relief and rehabilitation helps to put life back on track. The current civic activism also reflects a sense of ownership of the city, which has been nurtured by state propaganda. Singara Chennai (Beautiful Chennai) was a campaign slogan, but it is also a state of mind for many Chennaiites. That, however, should not become an excuse for the government to slip up.



A flooded street in Chennai. The city suburbs have barely any stormwater drains. AP

A tale of two cities

SHALINI NAIR tells the story of two floods, 10 years apart. Both the 2005 Mumbai floods and the Chennai deluge tell a similar story: of urbanisation and encroachments, of clogged drains and ignored warnings. With ARUN JANARDHANAN

KASHMIR, 2014

No report, no funds, no concrete plans

MORE THAN a year after the flood that marooned Srinagar and some parts of Kashmir Valley, there is no report yet fixing responsibility or listing the causes, no funds still to plan flood prevention, and no feasibility report to implement projects even if the money does come through.

The floods had killed more than 300 people across the state and damaged at least 2.5 lakh structures.

With no solutions in sight anytime soon, the Valley may be looking at more catastrophes, with a 20 per cent increase in intensity of downpour expected in the coming years.

While the Irrigation & Flood Control Department says it has submitted a report to the government blaming heavy and unexpected discharge of water as the main reason for the September 2014 floods, this has not been made public. The Meteorological Department attributed the heavy rains to "the interaction of western disturbances and monsoon currents".

"The discharge was three times that of the capacity of Jhelum. That resulted in breaches in river embankments," said Chief Engineer, I&FC, Javed Jaffer.

Recently, the pre-feasibility report submitted by the state government to the Centre, for Rs 18,000 crore to create an alternative flood spill channel from south Kashmir in Sangrama to Wular lake, bypassing Srinagar city, was returned by the Centre which wanted a more detailed report. Jaffer admits it would take them almost a year to submit the report again.

Among the other measures the government has been considering are constructing mini-dams on the tributaries of Jhelum.

But the only practical step taken in the past year has been de-silting of the flood spill channel, and only at the dry spots. Jaffer says they will start deep-water dredging soon. With Rs 400 crore sanctioned under the recent PM's package, work would now be done through the year, he says.

BASHAARAT MASOOD

MUMBAI, 2005: It took all of 24 hours in a single day in July for a cloudburst that spurted 944 mm of rain on Mumbai's suburbs for the financial capital of India to be brought down to its knees. The deluge and its aftermath – landslides and outbreak of diseases – claimed 698 lives. The casualty list also included 24,000 animal carcasses, 20,000 damaged cars, 2,500 buses and more than 1 lakh houses.

Chennai, 2015: Ten years later, another coastal city, Chennai, is plummeted by incessant rains and the death toll has crossed 280 so far. It might be a long way off before the city is done with fire-fighting and takes stock of its actual losses.

The two metros have been casualties of torrential rains of the unprecedented kind but the extent of the havoc wreaked is more an indictment of the myopia that characterises urban planning in India.

The tale of two cities, separated by a distance of more than 1,000 km, and the floods that submerged them, are eerily similar.

In Chennai, much of the fury was unleashed by the Adyar river. As water from the Chembarambakkam reservoir was released into the river, whose depth and width had shrunk due to rapid urbanisation and encroachments, it disgorged water into the neighbourhoods along the banks.

It was only after the floods that Mumbai woke up to the fact that the thick slush-filled stench-emanating rivulet, the Mithi, which stretches from Powai lake in the eastern suburbs to the Mahim Creek in the western part, was once a river that flowed out into the Arabian Sea. Like Adyar, Mithi too was lined with encroachments that were a testimony to the planning body's sins of omissions (slums that came up owing to lack of affordable housing) and commissions (real-estate developments). The flood basin of Adyar was where the Chennai airport was built as is the runway of the Mumbai airport that was built across the Mithi. The other river in Chennai, Cooum, has been reduced to a stagnant cesspit.

Owing to massive concretisation of roads and unplanned constructions that have flattened the natural topography, almost 90 to 100 per cent of the rainwater in both cities drains off into the stormwater drains instead of being absorbed into the ground. In Mumbai, only the city area has a semblance of an efficient drainage system built over a century ago by the British; the suburbs have to contend with open drains layered with debris, garbage and sewage. The Chennai suburbs have barely any stormwater drains to boast of while those in the city also double as carriers of sewage waste. Likewise, the British built the 400-kilometer-long

Buckingham Canal, which now serves as a drain and is heavily silted. The canal has now been further blocked by a mass rapid transport system that has been built upon it.

Over 600 water bodies, wetland and lakes such as Velachery in Chennai have metamorphosed into IT parks, malls and residential areas, reducing the city's natural holding ponds for water. In land-starved Mumbai, mudflats and mangrove zones have been stealthily devoured by the city's real estate frenzy. And then there is the issue of multiplicity of planning agencies – the municipal corporations, metropolitan development authorities and the state urban development department – that work at cross purposes, making it difficult to coordinate but easy to shrug off responsibility.

"As cities expand and land values rise, planning agencies have allowed rapid land-use changes over areas that serve as natural drains and holding ponds. Moreover, there is a lack of domain expertise in urban flood management. City planning today fails to integrate public health engineering which looks at issues such as design of water supply, sewerage and drainage lines from the health and environment perspective," says PSN Rao, an urban planner who teaches at the School of Planning and Architecture, Delhi.

The lack of this is clearly evident in Chennai which is prone to frequent floods and yet faces a water scarcity – less than half of the urban households have water supply connections and the sea too receive only 81 litres per capita daily as against the norm of 135 lpcd.

Before every monsoon, the Chennai corporation carries out routine maintenance works of clogged drains, desilts them and issues half a dozen statements on the work. But every rain that floods the city shows that the city corporation does little beyond calling for tenders, issuing contracts and spending money on preparatory measures.

Sometime in July 2014, a Chennai Metropolitan Development Authority (CMDA) engineer wrote a "confession letter" to his boss, detailing how his superiors executed a multi-crore stormwater drain project at Koyambedu without concrete reinforcements or cement but with quarry dust.

Kapil Gupta, urban flooding expert from IIT Mumbai, says the problem is of effective water management considering that Chennai receives ample rainfall, 1,200 mm annually, from both the Southwest and Northeast monsoon. Gupta was the convener of an expert panel, under the National Disaster Management Authority, set up in the aftermath of the Mumbai floods. The panel came up with India's first-ever urban flooding report that stressed on the need to recognise urban flooding as a distinct cate-

gory that requires "to be treated holistically in a multi-disciplinary manner".

"We had recommended that for planning the drainage system in urban areas, watershed (catchment) should be the unit of planning rather than administrative boundaries," says Gupta. He added that the antiquated drainage system was designed by the British to carry only 25 mm per hour rainfall in Mumbai and 6 mm per hour in Chennai. On July 26, 2005, a maximum of 190 mm per hour rainfall was received in Mumbai and Chennai saw a maximum per hour rainfall of 47 mm this November.

The report notes how a host of human factors such as land-use changes, occupation of the flood plain, crumbling infrastructure, climate change and indiscriminate disposal of solid waste are among causes of urban flooding. It recommends drastic changes in the institutional framework, early warning systems, design of stormwater drains and urban planning norms.

Former NDMA vice chairman Shashidhar Reddy says that typical of most government responses to disasters, the report too was forgotten with time. "Cities are centres of economic growth and development and any damage to urban infrastructure and ecology will not only have local implications but far-reaching global implications. For instance, floods in Bangkok adversely impacted the supply of computers internationally. Even UK has seen bad flooding despite compliance with most urban planning norms. Indian cities, where pressures are mounting on land use, can no longer ignore the issue of urban flooding. Better planning and improved disaster response systems will at least reduce the extent of destruction and lives lost," says Reddy.

MS Mathews, a senior professor of civil engineering at IIT-Palakkad who has conducted several studies on disaster preparedness during his 15 years at IIT-Madras, says that while "disasters cannot be prevented", better planning is the least that can be done. "Chennai is highly prone to floods as it is in a flat zone where water doesn't drain naturally. Moreover, the clay in the soil doesn't allow water to be absorbed fast enough. What we need is simply an efficient administration that rises to such occasions. For instance, there should have been a dedicated control room with 50 administrators and 50 computers who would have had a good grasp of the city topography. Each of these administrators can then respond effectively depending on the warnings," he says.

Reddy says that while Mumbai has implemented many of the forecasting and early warning systems recommended by the panel, he isn't sure the warning systems in Chennai were effective enough. "The Doppler Weather Radar in Chennai should

have issued more accurate warnings three to six hours before the rains. I wonder if it was even functioning," he says.

"Of course, it was functioning," says Thambi Narayanan, deputy general, meteorological department. "The doppler radar warned of light moderate rain and that's just what happened. But it ended up being such a big disaster because this 'moderate rain' continued for more than 24 hours."

Mumbai had upped its ante on the flood prediction and warning system following a report by a state fact-finding committee under Madhav Chitale, set up after the floods. It has installed 60 automatic rain gauges, prepared contour maps, identified chronic flooding spots and built a state-of-the-art disaster control room that transmits real-time data to all.

However, Mumbai has failed to deliver on city planning and infrastructure. Builders have been allowed to go ahead with their diluted interpretation of stringent Coastal Regulation Zones while there are plans afoot to allow private developers to construct 'affordable housing' on 5,500 acres of salt-pans lands. Based on recommendations of the Chitale committee, the municipal corporation took up a project to double the water receding capacity of the drains to 50 mm per hour by 2011. It is now staring at a 2019 deadline and a two-fold cost escalation.

Over Rs 1,200 crore have been spent in the last 10 years on desilting, widening and deepening the 1784-km Mithi river by the Mithi River Development Authority that was formed soon after the 2005 floods. But the river is a far cry from the pristine state to which it was planned to be restored. This year, with just 300 mm of rains in a day in June, Mumbai went down under again. "The authority has built walls along the river's length to contain the water but this has been built over the river's floodplain. Now during high tide, when sea water rushes into the river, there is no space for the water to disperse into the ground, leading to more flooding," says D Stalin whose organisation Vanashakti has procured orders from the National Green Tribunal on the illegality of the walls built along the river.

At a time when countries are negotiating their response to combat the impact of climate change in Paris, Gupta states, "The Intergovernmental Panel on Climate Change has identified that in future we are going to witness higher rainfall intensities in lesser amount of time and any such incident in urban areas, by virtue of their densities, will affect the largest numbers of people. We urgently need to make our urban centres flood-resilient and base its master plans on hydrological studies."

Another warning and some sound advice, but is anyone listening?

ODISHA, 2013

How Odisha got it right

FORTY-FIVE people died in Cyclone Phailin, one of the most intense tropical cyclones to make landfall in India since the 1999 Odisha Cyclone. The toll could have been far worse if it wasn't for the early warnings and the quick response by the state administration.

Close to a million people were evacuated from coastal areas and arrangements for food and packaged water were made at the shelter homes.

Rescue teams with heavy equipments, choppers and boats were deployed in the storm-prone areas and the Army, Navy and Air Force were on standby for relief operations.

Trains and flights were cancelled, roads barricaded and helplines and control rooms were set up across the state. District officers sent out specific warnings to fishermen not to venture out into the sea and put their boats in safe places, while farmers were advised to harvest their standing crops. Holidays of all government officers were cancelled and heads of all districts were given satellite phones to remain in constant touch with the capital. Even the power and telecoms companies were asked to restore damaged infrastructure immediately after the storm.

Odisha's disaster management department had helped build hundreds of shelters across the coast after the 1999 cyclone, in which 10,000 people died. So when Phailin struck, this machinery simply came together.

Besides, there are regular drills organised in the state to prepare people in case of a storm and train them about what to do when an alert is issued, like locking up their homes, keeping their cattle in safe places and taking only a few clothes and important documents with them. The state's MET department also uses an innovative forecasting model that allows it to accurately predict weather for seven days in advance.

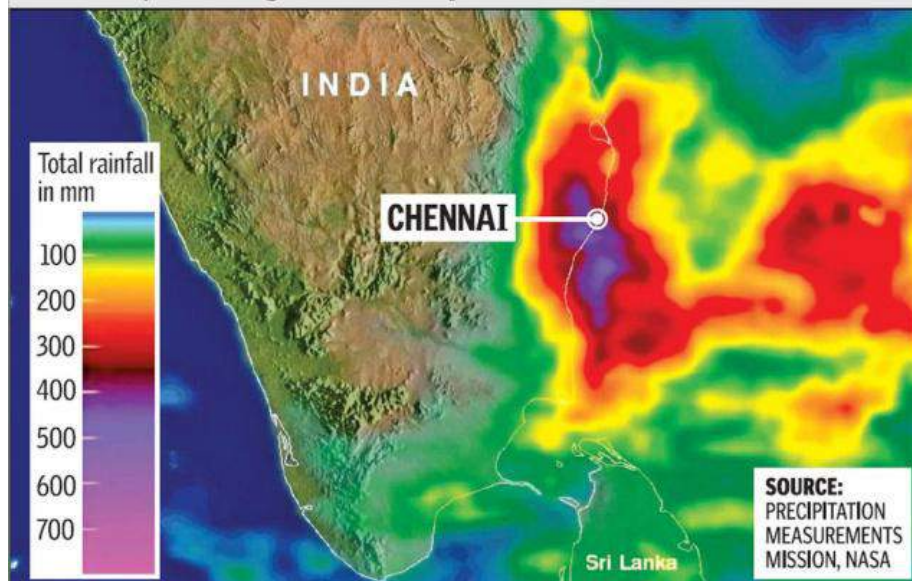
Apart from the government, several NGOs have been working with the coastal communities of Odisha since the '99 cyclone, training them in life-saving skills and rescue activities.

Freak weather whipped up a perfect storm

- [Rukmini S](#)
- [B. Aravind Kumar](#)

EXTREME DOWNPOURS

NASA map showing rain intensity between Nov. 28 and Dec. 4



2015's El Niño on course to being the strongest ever.

The highest daily rainfall in a century. Freak weather conditions on one day. The hottest-ever Indian Ocean. The strongest-ever El Niño. The hottest year on record.

The bad news is that a perfect storm of meteorological conditions combined to create Chennai's worst-ever deluge last week, exacerbated in no small part by civic infrastructure pushed to its limit and systemic dysfunction. The worse news is, that could happen again, and soon; 2015's El Niño is on course to being the strongest ever recorded.

The El Niño is a weather phenomenon resulting in warmer than expected ocean temperatures in the central and eastern parts of the tropical belt of the Pacific Ocean.

Parts of this oceanic zone have already hit record temperatures this year, setting the 2015-16 El Niño well on its way to a record intensity, with potential impacts across the world encompassing the range of events, including searingly high temperatures, droughts and intense rainfall.

Chennai's wettest season comes in hottest year

On December 1, 2015, freak weather conditions all came together on one single day to swamp Chennai with the heaviest rainfall in a century. If that was bad news the worse is that it could all happen again. The World Meteorological Organisation has been producing regular updates on the scale of this year's El Niño, and its expected impact was a significant contributor to the India Meteorological Department's forecast of a deficient south-west monsoon, a forecast that was spot on.

The same weather system was also expected to have an opposite impact on the north-east monsoon — the one that southern India experiences in its winter months — but the impact on the southern monsoon is much less clearly established, said G.P. Sharma, vice-president of meteorology with the private forecaster Skymet Weather.

A positive Indian Ocean Dipole — warmer sea temperatures in the western Indian Ocean and a cooler eastern Indian Ocean — kept ocean temperatures high in the south Bay of Bengal resulting in strong weather systems in the South Andaman Sea, Skymet Weather assessed.

What happened on December 1, however, when clouds dumped up to 490 mm of rain on parts of Chennai over 24 hours went beyond El Niño. El Niño affects the whole season and is not responsible for individual episodes of intense rain, according to B. Mukhopadhyay, additional director-general of meteorology (research), IMD (Pune). "An individual episode like that on December 1 is a combination of several factors and in every such episode, the combination changes. On December 1, the lower-level moisture supply was high and upper air evacuation of the moisture was also strong. We call this phenomenon upper air divergence, and the effect is that the cloud becomes very intense. Both coincide very rarely," he said.

At the same time, 2015 is on course to being the hottest-ever year recorded both globally, and as was recently confirmed by the IMD. The same holds for ocean temperature. The United States' National Oceanic and Atmospheric Administration has established that the Indian Ocean's temperature in October 2015 was the record hottest.

“One of the most confidently predicted consequences on warming land and oceans is an increase in evaporation that could provide more fuel for more intense rainstorms on land. The recent extreme rains in Chennai surely seem to fit that trend,” the U.S.-based meteorologist, Eric Holthaus, explained in an email to *The Hindu*.

Such episodes of intense episodic rainfall are only going to become more frequent. In 2009, an Indian Institute of Tropical Meteorology study found an alarming rise in the number and intensity of “extreme point rainfall events” and the 2011 Intergovernmental Panel on Climate Change, too, predicted an increase in the probability of extreme weather events as a result of climate change.

If these phenomena explain to some extent the intensity of the rainfall, the flooding is also substantially explained by the civic disrepair that has left nowhere for the water to go, and little means of conveying information.

On December 2, PWD officials were releasing 30,000 cusecs from the Chembarambakkam reservoir. Consequently, the Adyar was in spate, flooding most parts of the southern and even central parts of the city. PWD officials insist that the discharge was necessary as they could not afford to risk the safety of the reservoir.

While the flooding of the southern parts is recurring during winter, the flooding in the heart of the city exposed the government’s unpreparedness in anticipating the floods based on water release into the Adyar and in disseminating information in advance for the residents to act.

The worst affected were the southern suburbs that witnessed an unplanned real estate boom in the last decade with unapproved layouts springing up adjacent to wetlands and water bodies. Since the panchayats are unable to regulate unauthorised construction, residential development in low-level areas has mushroomed. Since the channels are also blocked, the inundation lasts longer.

Some time ago, there was talk of delineating river corridors and mapping of flood plain zones to enable the residents to know the flood risk factor of their localities but it did not materialise.

Added to this was the inadequacy of drains. Most parts of the old city were relatively safe from flooding this time. Of the Corporation’s area, the 172 sq. km of the old city have storm water drains while the remaining 254 sq. km have no storm water drains but only drains constructed by the local bodies that are not connected to the rivers.

As of now, civic officials say the storm water drains could handle only 3 cm of rainfall an hour. With expertise from the Netherlands and other European nations, they are working on a design to handle 6.8 cm of rainfall. The city is also getting World Bank funding to the tune of Rs. 1,000 crore for developing watersheds in the Adyar and Cooum basins. Thirty-nine packages have been finalised, and work orders issued. Work on the Kosasthalaiyar and Kovalam basins has been delayed as no agency has come forward to fund the projects, officials say.

IMERG data shows rainfall that fell from November 28 to December 4, 2015 reached over 400 mm (15.7 inches) of rainfall in areas south of Chennai.

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» TODAY'S PAPER » NATIONAL

Published: December 5, 2015 00:00 IST | Updated: December 5, 2015 05:50 IST HYDERABAD, December 5, 2015

Fleeing those fleeing Chennai floods

- [Ravi Reddy](#)
- [Suresh Krishnamoorthy](#)

People were charged Rs. 3,000 to Rs. 5,000 for ticket from Chennai to Hyderabad



People yearning to get out of a rain-battered Chennai are forced to pay exorbitant rates.— File Photo: CV. Subrahmanyam

Come festival or a calamity, hell or high water and the bus operators begin their act — of fleecing passengers desperate to leave a destination and reach the safety of their homes. This has been amply demonstrated yet another time in the past four days.

Telugu-speaking people yearning to get out of a rain-battered Chennai are forced to pay exorbitant rates just to board private buses bound for Hyderabad and other places across Andhra Pradesh and Telangana. Cashing in on the misery of passengers, suffering because of power cuts, lack of food and essential commodities, drinking water and milk, leading private bus operators running Hyderabad-Chennai-Hyderabad services are literally minting money.

A normal ticket between the two cities cost about Rs. 900 to Rs. 1,200, but considering the situation arising out of buses, flights and trains being cancelled, some bus operators jacked up the prices abnormally. The going rate on Wednesday was Rs. 3,000 to Rs. 5,000 per ticket from Chennai to Hyderabad depending on the demand. The private operators are running shuttle services from Chennai to Sullurpet from where another bus of the same company would transport the passengers to Hyderabad.

"We reached Koyambedu bus station at 2 p.m. and saw at least six private luxury buses bound for Hyderabad. The first two were packed so we tried getting a ticket in the third bus. The bus belonging to a leading operator from Hyderabad demanded Rs. 3,000 per seat. We paid Rs. 6,000 for two tickets and got into the bus, irritated but with a lot of relief," said Jutike Preethi Sharan, who shifted to Chennai after marriage some time ago.

The operators were so "ruthless" and unrelenting that even when some girl students pleaded that they be accommodated in buses bound for Hyderabad, the staff of the private operators said the price for each ticket was fixed at Rs. 3,000, even if somebody had to get down in Nellore or Ongole.

"I saw at least two college girls, who had no money because ATMs were not functioning, who wanted to go back home in Ongole. They were allowed into the bus on the ground that the bus would stop en route so they could withdraw money. The bus was stopped at Sullurpet twice just to ensure that the girls withdrew money and paid Rs. 6,000 to the driver," said T. Balabalaji, who was travelling in the same bus from Chennai to Hyderabad.

Interestingly, the scene is not so bad for someone wishing to go to Chennai from here. A Chartered Accountant, Mohan bound for Chennai on Friday said he had booked tickets for himself and family at Rs. 900 each. However, on the return, it was clearly stated in the website of the operator that the fare was Rs. 1,200. "I wondered at the dichotomy but considering the situation I shrugged my shoulders and went ahead with my booking for the return journey on Sunday," he said.

Although the Hyderabad-Chennai sector is not as busy as Hyderabad-Bengaluru, on an average there are at least 19 buses between Hyderabad and Chennai every day. This includes two services of the Ranga Reddy region of Telangana State Road Transport Corporation (TSRTC) and two from Nellore of the APSRTC.

Most services run with full occupancy, with a high demand on weekends.

When contacted, TSRTC Managing Director, G.V. Ramana Rao said depending on the day's situation, they were operating services to Chennai from Hyderabad. "On Wednesday though, we were forced to suspend Chennai operations and last month too, on four or five days in the 3rd week we could run our buses with road breaches beyond Nellore. As for fares, only on twice or thrice a year, during the festive season, we charge extra between 30 to 50 per cent and that is also because they are special buses," he explained.

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PARIS CLIMATE CHANGE SUMMIT

Demand to cut temperature target rises



PARIS: India hit back at developed nations on Friday over criticism of its coal dependence while asking them to provide "effective solutions", but faced a possible setback with demands growing for a tougher temperature goal to combat global warming.

India had insisted for a 2°C limit for temperature rise by the turn of the century, but many countries are now pushing for a 1.5°C goal, which New Delhi considered just an aspiration.

A senior Indian negotiator expressed concern that the issue could drive a wedge between India and the most-vulnerable developing nations who are campaigning for the more aggressive target. "As far as we are concerned, there is an agreed political text that the world will move towards a 2°C rise or less. Neither 1.52°C nor 2°C is scientifically backed," he said, adding that there would be more clarity on all outstanding issues for India in the next couple of days.

Countries most at risk are arguing that a relaxed temperature target would seal the fate of millions of people living in low-lying and coastal areas.

"The important thing is there is recognition, there is acceptance and there is a resolve that let the limit be not more than 2 degrees," environment secretary Ashok Lavasa said.

Another worrying factor for New Delhi is that the coal debate spurred by continuous coverage in the western media has overtaken all the good word spread by India over the past week. "We have data to show that by 2030 all major developed economies will still be dependent on fossil fuels," said Chandra Bhushan, deputy director general of the non-profit Centre for Science and Environment. "Like them, we will also rely on coal as India does not have cheap gas like the United States or Germany."

Friday's draft proposals also made it amply clear that negotiators had stuck to their countries' initial positions without giving much away, leaving the compromise to the ministers.

Indian negotiators are happy that all their issues are still part of the text. **HTC**

Eyes on Paris

Negotiators continue to zero in on details of global climate treaty to stem warming



AP

Paris draft versus Bonn version

Difference between the drafts drawn up in Paris till now as compared to the proposals agreed upon in Bonn, Germany earlier this year

- Paris draft is 50 pages as compared to 54 from Bonn
- Paris draft has 8% less words
- Bonn's 208 options have been cut down to 205
- Paris draft took 4 days to formulate

STICKING POINTS

1 CLASSIFICATION: Nations are fighting over a new "pragmatic" definition on who is developed and who isn't. Rich nations want a category for newly-developed countries. The G-77 plus China, the biggest group of developing nations including India, have dismissed the proposal.

ON THE TABLE: Draft talks of developed and developing world as compared to annex and non-annex nations in 1992 climate convention

2 FINANCING: Contributions for a Green Climate Fund after 2020 is a bone of contention. Rich nations want India and China to pitch in, but Delhi and Beijing oppose the idea saying their economic realities have not changed since the present classifications were introduced in 1991.

ON THE TABLE: Several options, leading to confusion

3 NATURE OF PARIS TREATY: The United States has been alone in seeking only certain aspects of the treaty be binding. Its fellow cluster of rich nations – Europe – and developing nations have sought all elements of the agreement be binding. Developing nations additionally suggest a mechanism elaborated in the agreement to implement it.

ON THE TABLE PRESENTLY: All elements should be binding

4 GOAL: Rich nations want the Paris deal to allow global temperatures to rise beyond the 2°C level compared to pre-industrial ages. The developing world is divided with the least-developed and island nations seeking the warming be limited to 1.5°C while emerging economies like India and China agree on the 2°C mark.

ON THE TABLE PRESENTLY: Both 2°C and 1.5°C available in the Paris agreement

Death of Kyoto Protocol: End of India's carbon funding days

HT ANALYSIS

Chetan Chauhan

chetan@hindustantimes.com

PARIS: Countries could reach a new climate agreement in Paris next week to slow down global warming but there's an adverse payoff for India as the 1997 Kyoto Protocol from which it had benefitted is expected to be tossed aside.

The first commitment period till 2012 of the protocol, the only existing climate treaty, has ushered clean technologies into India through the Clean Development Mechanism (CDM) that provided for substantive funding by rich countries through carbon trading.

The second commitment period was fixed three years ago but is yet to take off.

In its report to the United Nations climate framework, the

CDM executive board, which is the funding mechanism under the protocol, said it had cut down its programmes by a third and laid off 15 workers due to the continuing "disastrous state" of the carbon market. Developing countries like India and China have been pushing for a new lease of life for the treaty, which only required developed nations to take on legally-binding emissions targets.

The two countries received around 80% of the CDM projects because of their capability to reduce emissions from new schemes. Among the beneficiaries were the Delhi Metro Rail Corporation, Okhla waste-to-energy plant and afforestation activities in states like Haryana and Himachal Pradesh. The call for ratification does not appear to have had an impact as an Indian negotiator said "we will walk from

Paris with a coffin for Kyoto".

Sources say the chances of the second commitment period of the protocol seeing the light of day appear bleak as less than half of the 144 countries involved have officially agreed to participate.

In 2012, the European Union, which was the biggest buyer of carbon credits—one credit is equal to a tonne of emission saved—decided to prioritise CDM projects to the least developed countries and small island nations because of a geographical imbalance in distribution of the projects, as China and India were getting the most.

But the EU decision has mostly remained unimplemented.

Many civil society groups have said relying on carbon markets is unproductive and instead direct finance should be considered, an option being examined for the Paris agreement.

Is Delhi prepared for earthquakes, asks HC

• [Mohammed Iqbal](#)



The court also sought a clarification about the administrative control over municipal corporations.— File Photo

Raising a question about the Capital's disaster preparedness in case of an earthquake, the Delhi High Court has sought a clarification about the administrative control over municipal corporations. The court also said that an action plan was required to minimise damage earthquakes can cause.

Earlier this week, a Division Bench of the High Court had said that the position on administrative control over the municipal corporations be clarified in order to decide which body would be entrusted with the responsibility to formulate an action plan to enforce the National Building Code. The Bench, comprising Justice B.D. Ahmed and Justice Sanjeev Sachdeva, was hearing a PIL filed by lawyer Arpit Bhargava. The petition asked how safe buildings in the Capital were if an earthquake of the intensity that rocked Nepal in April this year, hit Delhi.

The Union government informed the court through an affidavit that officers of the Centre, Delhi government, the three municipal corporations, the New Delhi Municipal Council, the Delhi Development Authority, the Delhi Fire Services, the National Disaster Management Authority (NDMA) and the Bureau of Indian Standards (BIS) had met on November 18 with regard to the issue.

The affidavit said that all local bodies were directed to refer to the NDMA and BIS guidelines and use them for retrofitting and repair of existing unsafe buildings. However, a statement in the affidavit caught the Bench's attention. It was stated that the municipal corporations fall under the Delhi government's control and that the latter should formulate a plan of action to ensure buildings comply with the National Building Code. The Bench has now sought a clarification.

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Musicians join hands

• [B. Kolappan](#)



Musicians Unnikrishnan, KN Shashikiran, Nirmala Rajasekar, P Ganesh, Thanjavur Murugaboopathi distributing sarees to the flood-hit residents in Chennai- PHoto: Special Arrangement

As Chennai is flooded with water instead of music in December, musicians and their rasikas have taken up the responsibility of flood relief work.

Vocalist K.N. Shashikiran is coordinating relief work through his Srishti's Carnatica.

Noted Carnatic musicians Aruna Sairam, P. Unnikrishnan, Nirmala Rajasekar, P Ganesh, Thanjavur Murugaboopathi have joined hands with him and distributing food, clothes, blankets, medicines, water and milk to families in distress.

"Musicians and rasikas from other countries also have come forward to render help. What is more important is to sustain the relief work till the city fully recovers," said Mr. Sashikiran.

Concert to raise funds

Professor Mark Stone, a renowned jazz musician, who has performed in Chennai, organised a festival in Varner Hall, Detroit, Michigan, to raise funds for musicians affected by the flood.

Donation in U.S. dollars

Srinivasan and Srividya Kidambi, music lovers who are running Tower, The South Indian Vegetarian Restaurant, in North Carolina, have agreed to donate \$ 4,500, collected during a dinner.

Mr. Sashikiran said he started relief work in Mylapore, Kotturpuram and Velacherry with the support of local friends and organisations.

Help poured in after he posted a message on his website.

"All donations will go towards procuring essentials like bread, blankets, milk powder, batteries, sanitation supplies etc. We want this to be a corpus so that work can be continued even after this disaster fades from public memory and attention in a few days," he said.

Focus on medicines

Mr. Unnikrishnan said he has focussed on providing medicines and sanitary napkins, cooking oil and other provisions.

"We assemble at one place whenever material arrive and fan out to distribute them. More and more people need medicines, particularly paracetamol and antibiotics," he said.

Music festivals postponed

Already, many sabhas have postponed inauguration of music festival and Mr. Sashikiran suggested the festival could be converted into a "prayer singing", and musicians, if interested, could donate the money towards relief work.

Renowned jazz musician and music lovers abroad join fund-raising activity

Published: December 4, 2015 20:45 IST | Updated: December 5, 2015 02:16 IST New Delhi, December 4, 2015

Javadekar blames developed nations for Chennai deluge

• [Vikas Pathak](#)



Prakash Javadekar, Union Minister of State (Independent Charge) for Environment, Forest and Climate Change. Photo: Kamal Narang

"Historically, for the last 150 years, they have reaped the benefits of growth and now they can't say that past is past".

Union Environment Minister Prakash Javadekar on Friday linked the Chennai deluge that has claimed several lives, flooded streets and cut power and ration supplies to the global warming caused by developed nations in their bid to industrialise in the last century and a half.

"What is happening in Chennai is the result of what has happened for 150 years in the developed world. That is what has caused 0.8 degrees Celsius temperature rise. And therefore they must now take action more vigorously," he told The Hindu in a conversation here a day before he leaves for the ongoing climate change conference in Paris. He will stay there till December 12.

The statement comes at a time when about 40,000 delegates from across the world are present in Paris to work out a plan to contain global warming by limiting the rise in global temperatures to within two degrees Celsius of the pre-industrial levels.

"Historically, for the last 150 years, they have reaped the benefits of growth and now they can't say that past is past," he added.

Refuses comment

Mr. Javadekar, however, refused to comment on Union Minister Maneka Gandhi's statement that even India was a large polluter now and the West being the historical polluter did not absolve India of its responsibility.

His statement comes at a time when the Chennai situation has also been taken note of at the Paris conclave.

France's Foreign Minister Laurent Fabius said on Thursday that there was no time left, and the world must take quick and concrete steps against global warming. He expressed solidarity with those who affected by the floods in Chennai.

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Babu diverts dam water to own fields, draws HC fire

Shibu Thomas | TNN

7/2/20



Suresh Sodal, a technical expert of the Maharashtra Water Services Authority was part of the decision to release water from a dam to Solapur, where he owns vast tracts of land

In an incident that stumped the Bombay high court, it was revealed that a member on the panel of the Maharashtra Water Services Authority was part of a decision to release water from a dam in Pune to Solapur where the officer owned vast tracts of land.

Suresh Sodal incurred the wrath of the division bench of Justice Abhay Oka and Justice Gautam Patel. "Could he not have recused himself?" the judges thundered pointing to precedents set by Supreme Court and the high court where judges excuse themselves from hearing cases whenever there is a conflict of interest.

"Is this appropriate? The decision of the water authority impacts the lives of lakhs of persons and a wrong deci-

sion can go against public interest," added the judges. Sodal apologised to the court and gave an undertaking that he would submit his resignation from the panel.

The authority is an important organisation that decides on how water should be distributed from dams across Maharashtra to various regions that faces water scarcity. The panel's decisions become crucial in drought prone regions and have been heavily contested. The case before the court relates to a decision by the authority on October 13 to release water

from a dam in Pune region to Ujjani dam in Solapur.

A plea by local residents to review the decision was made again in November and then it came to light that Sodal, who was a technical expert on the panel owned vast tracts of land in Phandarpur and Solapur. When the petitioners protested Sodal recused himself, but the water authority stuck to its decision. The matter came up for hearing in the HC last week, when the judges deplored the conduct of the officer and sent the matter back to the panel to start a fresh hearing.

संडे सुबह से शुरू होंगी डोमेस्टिक फ्लाइट्स पटरी पर आ रही चेन्नै एक्सप्रेस

B.N.D

■ पीटीआई, चेन्नै

बाढ़ प्रभावित चेन्नै में एयरपोर्ट, कम्युनिकेशन और ट्रेन सर्विस आंशिक रूप से शुरू होने के बाद ज़िंदगी फिर से पटरी पर लौटने लगी है।

हालांकि कई इलाकों में अब भी जलभराव बरकरार है। एयरपोर्ट से शनिवार को ही राहत एवं बचाव कार्य से जुड़ी फ्लाइट्स शुरू हो गई थीं। वहीं संडे सुबह

से डोमेस्टिक फ्लाइट्स चलाने का फैसला किया गया है। फिलहाल यह फैसला दिन की उड़ानों के लिए लिया गया है। रात में उड़ानों पर फैसला आज लिया जाएगा।

राज्य सरकार के मुताबिक, 1 अक्टूबर से जारी मूसलाधार बारिश में कम से कम 245 लोगों की मौत हो गई है। इस बीच, शहर के कुछ एटीएम और पेट्रोल पंप काम कर रहे हैं। संडे होने के बावजूद राज्य में बैंक खुलेंगे। मुख्य शहर को जोड़ने के लिए रेलवे ने इगमोर-तामवरम डिविजन पर सर्विस शुरू करने का ऐलान किया है। कई इलाकों में लैंडलाइन सर्विसेज भी बहाल किया जा रही हैं, जबकि मोबाइल सर्विसेज भी शुरू हो रही हैं। हालांकि दूध की सप्लाई अब भी परेशानी का सबब बनी हुई है। सब्जियां महंगी होते देख चेन्नै के 32 मोहल्लों में 11 चलती-फिरती दुकानें संचालित की जाएंगी। 8 दिसंबर तक बसों में फ्री टैवल किया जा सकता है। वहीं तमिल सरकार के मंत्री ओ पनीरसेल्वम ने बाढ़ को लेकर एक्टर कमल हासन के बयान की निंदा की है। हासन ने राहत कार्य को लेकर नाखुशी जताई थी।

शनिवार को खुले पेट्रोल पंप और ATM, छुट्टी के बावजूद आज भी खुलेंगे बैंक



बाढ़ के कारण सैकड़ों लोगों के मारे जाने से मैं दुखी हूँ। उम्मीद करता हूँ कि जल्दी ही स्थिति ठीक होगी।- चेन्नै को 75 हजार यूएस डॉलर की मदद देने वाले सिंगापुर के विदेश मंत्री विवियन बालाकृष्णन

16 हजार को बचाया NDRF ने

■ पीटीआई, चेन्नै : एनडीआरएफ ने शनिवार को कहा कि 200 नावों के साथ 50 राहत और बचाव दलों को लगाया गया है। इस अभियान के तहत 16,000 से अधिक लोगों को अब तक बचाया जा चुका है। एनडीआरएफ के डीजी ओ पी सिंह ने कहा कि 20 नए दलों को राहत और बचाव कार्य में लगाया गया है, इसके साथ ही 50 दलों के करीब 1,600 जवान चेन्नै और अन्य हिस्सों में चलाए जा रहे अभियानों में काम कर रहे हैं। सिंह ने कहा कि एनडीआरएफ का लक्ष्य फंसे हुए लोगों तक पानी और खाना पहुंचाना है। उन्होंने बताया कि उनके सारे हेलपलाइन नंबर काम कर रहे हैं।

लोग दुखी पर नेताओं को फिक्र नहीं

■ विस,नई दिल्ली: चेन्नै और उसके आस-पास के लोग बाढ़ से बेहाल हैं। वे लोकल प्रशासन और नेताओं से खूब गुस्सा हैं। कारण है कि लोकल नेता, चाहे वे सांसद हों, एमएलए हों या फिर काउंसिलर, किसी ने लोगों की सुध नहीं। लोगों को मदद की तो सेना के जवानों ने और एनजीओ ने। डीएमके नेता रामलिंगम का कहना है कि नेताओं का सबसे पहले काम बनता है कि वे बाढ़ में फंसे लोगों की खोज खबर लेते। कांग्रेस की प्रवक्ता खुशबू सुंदर का कहना है कि यह कोई ब्लेम गेम नहीं है। मगर सचाई यह है कि नेताओं ने राहत काम के लिए सरकारी मशीनरी का प्रयोग नहीं किया।

गंगोत्री ग्लेशियर में घट रही है बर्फबारी

7 (NBT)

■ **भाषा, कोलकाता :** गंगा नदी को जल से पोषित करने वाले गंगोत्री ग्लेशियर का स्वास्थ्य प्रभावित हो रहा है और एक अध्ययन से पता चला है कि वहां हर साल अधिकतम तापमान में 0.9 डिग्री सेल्सियस की वृद्धि और बर्फबारी में 37 सेंटीमीटर की कमी हो रही है। जलवायु वैज्ञानिकों की एक टीम ने वर्ष 2000 से लेकर 2012 तक की अवधि में 13 साल तक बर्फ और मौसम संबंधी मानकों का विश्लेषण किया। हिम एवं हिमस्खलन अध्ययन प्रतिष्ठान, चंडीगढ़ की रिपोर्ट में कहा गया है, 'दशक के दौरान अधिकतम और न्यूनतम तापमान में क्रमशः 0.9 डिग्री सेल्सियस तथा 0.05 डिग्री सेल्सियस की बढ़ोतरी का खुलासा हुआ। दशक के दौरान वार्षिक बर्फबारी में 37 सेंटीमीटर की कमी का खुलासा हुआ।' रिपोर्ट जल्द ही करंट साइंस पत्रिका में प्रकाशित होगी।

रक्षा अनुसंधान एवं विकास संगठन (डीआरडीओ) से जुड़े संस्थान के वैज्ञानिक तथ्यों को दर्ज करने के लिए 'भोजबासा' निरीक्षण केंद्र में आधारित थे जो गंगोत्री ग्लेशियर के मुहाने के नाम से जाने जाने वाले 'गोमुख' से



करीब पांच किलोमीटर दक्षिण में है। वैज्ञानिक एवं अध्ययन करने वाली पांच सदस्यीय टीम के अग्रणी लेखक एचएस गुसाई ने कहा, 'हम जानते हैं कि गंगोत्री सहित ग्लेशियरों का पिछले कुछ वर्षों में ह्रास हुआ है। इस रिपोर्ट में हमने इसे मौसम संबंधी डेटा से पुष्ट करने की कोशिश की है। यह जलवायु परिवर्तन के प्रभाव को दर्शाता है।' उत्तराखंड में स्थित 30.2 किलोमीटर लंबा गंगोत्री ग्लेशियर भारत में दूसरा सबसे बड़ा ग्लेशियर है। यह ग्लेशियर पिछले 70 वर्ष में 1,500 मीटर से अधिक पीछे खिसक चुका है।

क्लाइमेट समिट समापन की ओर

■ **भाषा, ला बूरजे (फ्रांस) :** दुनिया के सभी देशों के पर्यावरण मंत्री इस सप्ताह परस्पर-विरोधी प्रस्तावों से लैस मसौदे को एक ठोस जलवायु समझौते में बदलने की जद्दोजहद करेंगे ताकि ग्रीनहाउस गैस उत्सर्जनों पर नियंत्रण किया जा सके। यह कवायद ऐसे समय में होगी जब भारत इस बात पर जोर दे रहा है कि वह सकारात्मक रुख के साथ इस बातचीत में हिस्सा लेगा। 48 पन्नों के मसौदे में अब भी कई बेहद अहम मुद्दों पर अनसुलझे विकल्प मौजूद हैं।

चीन के कई हिस्सों में धुंध का कहर

■ **आईएनएस/सिन्हुआ, पेइचिंग :** नॉर्थ और सेंट्रल चीन में रविवार से धुंध का कहर एक बार फिर बढ़ गया है। अगले हफ्ते से पेइचिंग-तिआनजिन-हेबेई के हिस्सों में मध्यम से भारी स्तर की धुंध रहेगी। धुंध के कारण नारंगी स्तर की चेतावनी जारी की गई है जिसके कारण सभी प्राइमरी और मिडल स्कूल अपनी आउटडोर गतिविधियों को रद्द करेंगे।

शुक्रवार को फिर बारिश से चिंता बढ़ी



शुक्रवार को फंसे हुए लोगों को हेलिकॉप्टर से भी निकाला गया।

■ एजेंसियां, चेन्नै

चेन्नै में शुक्रवार दोपहर फिर बारिश शुरू हुई, जो कि शाम तक जारी रही। इससे लोगों की चिंताएं फिर बढ़ गईं। कई इलाकों में बाढ़ की स्थिति फिर गहराने लगी। हालांकि इस बीच बचाव कार्य प्रभावित नहीं हुआ। अभी भी लाखों लोग पानी, बिजली, दूध और खाद्य सामग्री के अभाव में दिक्कतों का सामना कर रहे हैं। राहत की बात यह है कि शहर की कुछ सड़कों में पानी कम हुआ, जिससे यातायात शुरू हो सका। कई इलाकों में एटीएम और फोन सेवाएं बहाल हो गई हैं। मौसम विज्ञानियों ने अगले 24 घंटे में शहर में हल्की बारिश का पूर्वानुमान व्यक्त किया है।

चेन्नै में बाढ़ का पानी थोड़ा कम हुआ है मगर परेशानियों का अभी भी अंबार लगा है। सेना और बचाव दल की कोशिशों से जैसे-जैसे फंसे हुए लोग बाहर निकाले जा रहे हैं, वैसे-वैसे दर्दनाक किस्से सामने आ रहे हैं। सेना अभी तक ढाई हजार से ज्यादा लोगों को बचा चुकी है:

बाढ़ से बड़ा साहस

उम्मीद और लाचारी...

लोगों के फोन आते रहते हैं। किसी की पत्नी और बच्चे अपार्टमेंट में फंसे हैं तो कहीं बिजली के खंभे से आदमी की लाश चिपकी है। हम हर किसी की मदद के लिए तो नहीं जा सकते पर उम्मीद जरूर बनाए रखते हैं। सिविल एडमिनिस्ट्रेशन हमें जिधर जाने को कहता है, हम उधर ही मदद करने जाते हैं।

- ले. कर्नल रविंद्रन

लगातार 30 घंटे से दे रहे ड्यूटी

लेफ्टिनेंट कर्नल रविंद्रन की टीम ने एसआरएम यूनिवर्सिटी के 70 स्टूडेंट्स को बचाकर निकाला था। ये लोग यूनिवर्सिटी में सैकंड फ्लोर पर फंसे थे। इन लोगों को अब आर्मी के बेस में शरण दी गई है। कैप में कैप्टन भारत पटनी ने बताया कि वह बीते 30 घंटों से सोए नहीं हैं और अभी भी स्टैंडबाय ड्यूटी दे रहे हैं। वहीं यूनिवर्सिटी से निकाले गए 17 साल के इंजीनियरिंग स्टूडेंट प्रत्यूष बदरीनाथ ने बताया कि मैंने उम्मीद की थी कि बारिश होगी तो एग्जाम कैंसल हो जाएंगे और जैसे ही यह सोचा बारिश शुरू हो गई। जल्दी ही पानी गर्दन के लेवल तक आ गया और ग्राउंड फ्लोर पर पानी इतनी तेजी से आ रहा था कि हर चीज अपनी जगह से हट गई।

हम मदद को तैयार : अमेरिका

अमेरिका ने कहा है कि हम भारत सरकार के साथ संपर्क में हैं और यह चर्चा कर रहे हैं कि इस मुश्किल समय में अमेरिकी किस प्रकार मदद मुहैया करा सकता है।

1200 परिवारों के लिए भोजन

घरों को छोड़कर आए लोगों के लिए स्कूल की इमारत शरण की जगह बनी है। सेतु भास्कर स्कूल में हर रोज करीब 1200 परिवारों के लिए खाना पकता है। कक्षाओं में 40 लोगों को रखा गया है।



टोल नहीं वसूला जाएगा

केंद्रीय मंत्री नितिन गडकरी ने कहा है कि तमिलनाडु में अभी किसी भी सड़क पर टोल नहीं वसूला जाएगा। यह छूट 11 दिसंबर तक रहेगी। वहीं टूजेत

एयरलाइंस अरक्कोणम नेवल बेस एयरपोर्ट से 6 दिसंबर तक उड़ान भरेगी। साथ ही अरक्कोणम और कोयंबेडू के बीच कॉम्प्लिमेंट्री बस सर्विस शुरू करेगी। वहीं होम मिनिस्ट्री के एक अधिकारी के मुताबिक हम टेकिनकल एक्सपर्ट और इंजीनियर चेन्नै भेज रहे हैं जो बाढ़ के पानी को निकालने का उपाय करें। रेलवे ने तिरुनेलवेली और रामेश्वरम से चेन्नै बीच के लिए स्पेशल पैसेंजर ट्रेनें चलाई हैं।

ब्लॉक नाली को फिर खोला

रामपूर्णा नगर के निवासियों का कहना है कि हमारे इलाके की नाली को ब्लॉक कर दिया गया था ताकि मकान बनाने के लिए और जगह मिल सके। एम नटराजन ने कहा कि हमने भारी बारिश के बीच पानी की निकासी का रास्ता बनाया।

ऑफिस गए और फंस गए...

मृणालिनी सेंट्रल चेन्नै की ऑटो कंपनी में काम करती हैं। गुरुवार सुबह साढ़े 5 बजे दफ्तर के लिए निकलीं और शाम 4 बजे घर के लिए वापसी की,

राहत कार्य अब तक

4000 सेना के जवानों ने 2,500 लोगों को बचाया

2000 एनडीआरएफ के लोगों ने 10,000 को निकाला

नुकसान

3548 गांवों में तबाही

92,000 हेक्टेयर फसल नष्ट

14,410 किमी सड़क टूटी

बिजली कनेक्टिविटी को भारी

नुकसान

रिक्शे में भागे घर से

तीन दिन से घर पर बिना बिजली, डेड फोन और ग्राउंड फ्लोर में भरे बंदबंद पानी से आजिज आकर पुलिस कॉन्स्टेबल पी कृष्णराज पत्नी और दो बेटियों के साथ एक साइकिल रिक्शा पर घर छोड़कर सूखी जगह की तलाश में निकल गए।

मगर बारिश के कारण सड़क में ही फंस गईं। जब तक पानी कम नहीं होगा, उन्हें दोस्त के घर रुकना पड़ेगा।

बाहर जाना खतरनाक

एक स्कूल टीचर के ससुर जब घर का सामान लेने बाजार गए तो करंट लगने से उनकी मौत हो गई।

दफना भी न पाए

एक ईसाई परिवार को अपने पारिवारिक सदस्य के शव को पादरी के कहने पर जलाना पड़ा क्योंकि कब्रिस्तान पानी में डूबा हुआ था।

पुडुचेरी का दर्द

बेहतरीन नगर नियोजन के लिए मशहूर पूर्व फ्रांसीसी उपनिवेश पुडुचेरी में लगातार जारी भारी बारिश से लगभग 400 घर ढह चुके हैं। कई इलाके जलमग्न हैं। हजारों लोग चले गए हैं। यहां लगभग 173 राहत केंद्र काम कर रहे हैं और 10,000 से ज्यादा लोगों को सुरक्षित स्थानों पर पहुंचाया गया है।



Flood woes: UK turns Chennai

Britain's emergency response committee met on Sunday after prolonged heavy rain caused widespread flooding in northwest England and forced emergency services to evacuate residents from their homes and the army had to be called in. Storms battered the country overnight, killing one man and leaving houses flooded and without power. Coast Guard was called in to rescue stranded residents.



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चेन्नई अतिवृष्टि से जूझ रहा है और हरियाणा के एक बड़े क्षेत्र में भूजल स्तर दो हजार फीट से भी नीचे चला गया है। भारत का अन्नदाता कहा जाने वाला पंजाब भी जल संकट से अछूता नहीं रहा। यहां भी भूजल स्तर 6-700 फीट नीचे जा चुका है। यह तो हम जानते ही हैं कि देश में 80 फीसदी बीमारियां पेयजल के प्रदूषित होने के कारण हो रही हैं। फिर भी हमारे नीति निर्धारकों को अक्ल नहीं आ रही।

अरबों-खरबों रुपया जल संसाधन के संरक्षण एवं प्रबंधन पर आजादी के बाद खर्च किया जा चुका है। उसके बावजूद हालत यह है कि भारत के सर्वाधिक वर्षा वाले क्षेत्र चेरापुंजी (मेघालय) तक में पीने के पानी का संकट है। कभी श्रीनगर (कश्मीर) बाढ़ से तबाह होता है, कभी मुंबई और गुजरात के शहर और बिहार-बंगाल का तो कहना ही क्या। हर मानसून में वहां बरसात का पानी भारी तबाही मचाता है। दरअसल, यह सारा संकट पानी के प्रबंधन की आयातित तकनीक अपनाने के कारण हुआ है वरना भारत का पारंपरिक ज्ञान जल संग्रह के बारे में इतना वैज्ञानिक था कि यहां पानी का कोई संकट ही नहीं था। पारंपरिक ज्ञान के चलते अपने जल से हम स्वस्थ रहते थे। हमारी फसल और पशु सब स्वस्थ थे। पौराणिक ग्रंथ 'हरित संहिता' में 36 तरह के जल का वर्णन आता

भयावह होता जल संकट

है जिसमें वर्षा के जल को पीने के लिए सर्वोत्तम बताया गया है और जमीन के भीतर के जल को सबसे निकृष्ट यानी 36 के अंक में इसका स्थान 35वां आता है। 36वें स्थान पर दरिया का जल बताया गया है। दुर्भाग्य देखिए कि आज लगभग पूरा भारत जमीन के अंदर से खींचकर हरी पानी पी रहा है जिसके अनेकों नुकसान सामने आ रहे हैं। पहला तो इस पानी में फ्लोराइड की मात्रा तय सीमा से कहीं ज्यादा होती है, जो अनेक रोगों का कारण बनती है। इससे खेतों की उर्वरता घटती जा रही है और खेत की जमीन क्षारीय होती जा रही है। लाखों हैक्टेयर जमीन हर वर्ष भूजल के अविवेकपूर्ण दोहन के कारण क्षारीय बनकर खेती के लिए अनुपयुक्त हो चुकी है। दूसरी तरफ इस बेदेदी से पानी खींचने के कारण भूजल स्तर तेजी से नीचे घटता जा रहा है। हमारे बचपन में हैंडपम्प को बिना बोरिंग किए कहीं भी गाड़ दो, तो 10 फीट नीचे से पानी निकल आता था। आज सैकड़ों-हजारों फीट नीचे पानी चला गया। भविष्य में वह दिन भी आएगा, जब एक गिलास पानी 1000 रुपए का बिकेगा क्योंकि रोका न गया, तो इस तरह तो भूजल स्तर हर वर्ष तेजी से गिरता चला जाएगा।

आधुनिक वैज्ञानिक और नागरीय सुविधाओं के विशेषज्ञ यह दावा करते हैं कि केंद्रीयकृत टंकियों से पाइपों के जरिये भेजा गया पानी ही सबसे सुरक्षित होता है। पर यह दावा अपने आप में जनता के साथ बहुत बड़ा धोखा है। इसके कई प्रमाण मौजूद हैं जबकि वर्षा का जल जब कुंडों,

कुओं, पोखरों, दरियाओं और नदियों में आता था, तो वह सबसे ज्यादा शुद्ध होता था। साथ ही इन सबके भर जाने से भूजल स्तर ऊंचा बना रहता था। जमीन में नमी रहती थी। उससे प्राकृतिक रूप में फल, फूल, सब्जी और अनाज भरपूर मात्रा में और उच्चकोटि के पैदा होते थे। पर बोरवेल लगाकर भूजल के इस पाश्चिक दोहन ने ये सारी व्यवस्थाएं नष्ट कर दीं। पोखर और कुंड सूख गए, क्योंकि उनके जल संग्रह क्षेत्रों पर भवन निर्माण कर लिए गए हैं। वृक्ष काट दिए गए। जिससे बादलों का बनना कम हो गया। नदियों और दरियाओं में औद्योगिक व रासायनिक कचरा व सीवर लाइन का गंदा पानी बिना रोक-टोक हर शहर में खुलेआम डाला जा रहा है जिससे ये नदियां मृत हो चुकी हैं। इसलिए देश में लगातार जल संकट बढ़ता जा रहा है। जल का यह संकट आधुनिक विकास के कारण पूरी पृथ्वी पर फैल चुका है। वैसे तो हमारी पृथ्वी का 70 फीसदी हिस्सा जल से भरा है। पर इसका 97.3 फीसदी जल खारा है। मीठा जल कुल 2.7 फीसदी है जिसमें से केवल 22.5 फीसदी जमीन पर है, शेष ध्रुवीय क्षेत्रों में। इस उपलब्ध जल का 60 फीसदी खेत और कारखानों में खप जाता है, शेष हमारे उपयोग में आता है यानी दुनिया में उपलब्ध 2.7 फीसदी मोटे जल का भी केवल एक फीसदी हमारे लिए उपलब्ध है और उसका भी संचय और प्रबंधन अक्ल से न करके हम उसका भारी दोहन, दुरुपयोग कर रहे हैं और उसे प्रदूषित कर रहे हैं। अनुमान लगाया जा

सकता है कि हम अपने लिए कितनी बड़ी खाई खोद रहे हैं। जल संचय और संरक्षण को लेकर आधुनिक विकास मॉडल के विपरीत जाकर वैदिक संस्कृति के अनुरूप नीति बनानी पड़ेगी, तभी हमारा जल, जंगल, जमीन बच पाएगा वरना तो ऐसी भयावह स्थिति आने वाली है, जिसकी कल्पना भी नहीं की जा सकती।

जो ठोकर खाकर संभल जाए उसे अक्लमंद मानना चाहिए। पर जो ठोकर खाकर भी न संभले और बार-बार मुंह के बल गिरता रहे, उसे महामूर्ख या नशेड़ी समझना चाहिए। हिंदुस्तान के शहरों में रहने वाले हम लोग दूसरी श्रेणी में आते हैं। हम देख रहे हैं कि हर दिन पानी की किल्लत बढ़ती जा रही है। हम यह भी देख रहे हैं कि जमीन के अंदर पानी का स्तर घटता जा रहा है। हम अपने शहर और कस्बों में तालाबों को सूखते हुए भी देख रहे हैं। अपने अड़ोस-पड़ोस के हरे-भरे पेड़ों

को भी गायब होता हुआ देख रहे हैं। पर यह सब देखकर भी मौन हैं। जब नल में पानी नहीं आता तब घर की सारी व्यवस्था चरमरा जाती है। बच्चे स्कूल जाने को खड़े हैं और नहाने को पानी नहीं है। नहाना और कपड़े धोना तो दूर पीने के पानी तक का संकट बढ़ता जा रहा है। जो पानी मिल भी रहा है उसमें तमाम तरह के जानलेवा रासायनिक मिले हैं। ये रासायनिक कीटनाशक दवाइयों और खाद के रिसकर जमीन में जाने के कारण पानी के स्रोतों में घुल गए हैं। अगर यूँ कहा जाए कि चारों तरफ से आफत के पास आते खतरे को देखकर भी हम बेखबर हैं तो अतिशयोक्ति न होगी। पानी का संकट इतना बढ़ा हो गया है कि कई टीवी समाचार चैनलों ने अब पानी की किल्लत पर देश के किसी न किसी कोने का समाचार नियमित देना शुरू कर दिया है। विशेषज्ञों का मानना है कि अगर हमने धरप नहीं बदला, तो आने वाले वर्षों में पानी के संकट से जूझते लोगों के बीच हिंसा बढ़ना आम बात होगी।

दिल्ली आर.एन.आई. नं. 40474/83 / रजि. नं. DL/NJ/0169/2015-17

पंजाब केसरी

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 स्वतंत्राधिकारी हिन्दू समाचार लिमिटेड पक्का बाग, जालन्धर के लिए मुद्रक, प्रकाशक तथा सम्पादक
विजय कुमार द्वारा पंजाब केसरी प्रिंटिंग प्रेस, 2- प्रिंटिंग प्रेस कॉम्प्लेक्स, वजीरपुर, दिल्ली, गोल्डन प्रिंट, प्लॉट नं. 5-सी, बालासा इंग्री हंस्टेड्समाल परिसर, जयपुर से मुद्रित तथा 2, प्रिंटिंग प्रेस कॉम्प्लेक्स, वजीरपुर, दिल्ली से प्रकाशित।

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Devastation unfolds as flood waters recede in Chennai

- [Tamil Nadu Bureau](#)



A view of the inundated Manali area in Chennai on Sunday. Photo: Special Arrangement



PTI

A Coast Guard chopper drops relief materials to the residents in Chennai on Sunday.

Domestic airport functional; power being restored.

As flood waters receded in some parts of rain-ravaged Chennai, the impact of the devastation has slowly begun to emerge with rescue teams stumbling upon a few bodies inside buildings that were marooned.

The most tragic among them was the drowning of an engineer-couple trapped inside their office in Ekkatuthangal here. Just two days ago, rescue personnel found the body of an elderly couple at Defence Colony in Nandambakkam.

With many parts of Chennai, Kancheepuram, Tiruvallur and Cuddalore still submerged, it is feared that the scale of such human tragedy could be higher. Sunday's rains and the forecast of a wet Monday and Tuesday have heightened the anxiety of the National Disaster Response Force, the Coastal Security Group and the Tamil Nadu Fire and Rescue Services personnel making their rescue and relief missions much more complex.

As relief work gathered momentum, the metropolis was limping back to normality. Chennai airport is available for all weather day and night operations for all flights. While the domestic terminal was available from Sunday, the international terminal will be functional from early Monday.

Train services on all suburban sectors around Chennai will resume operations on Monday. Power supply is being restored gradually across the city.

Meanwhile the State government went on an overdrive to make its relief operations more visible by despatching Ministers to distribute milk and other essentials to the affected people at different locations to fend off criticism that it was doing little on the ground to alleviate the sufferings of those rendered homeless. It also brought in 2,000 sanitary workers from other Municipal Corporations to clear the city's piled-up garbage.

However, a section of the flood-affected people and volunteers, actively carrying on relief work, complained that the administration needs to walk the extra mile to complete the job at hand.

Relief was yet to reach those living in interior areas and localities where the extent of damage was not as grave as in the southern suburbs but nonetheless bad.

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