Hindustan Times- 14- July-2023

# Of late, Yamuna rises less often but levels turn more dangerous

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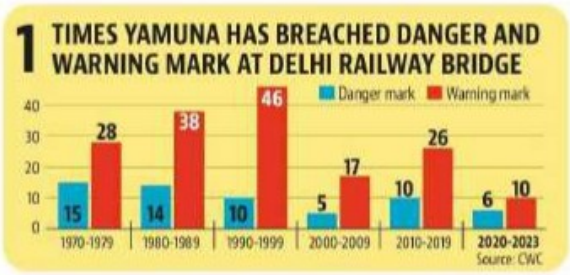
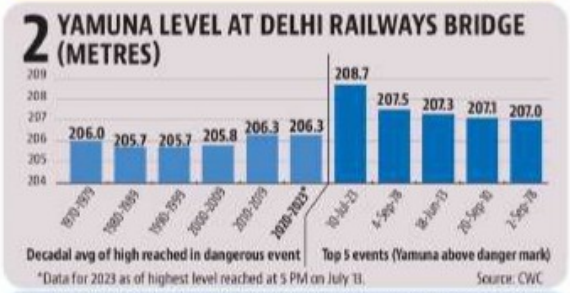
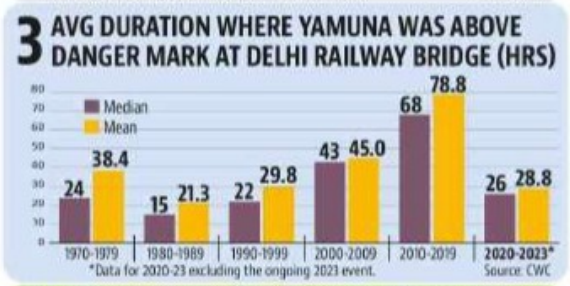
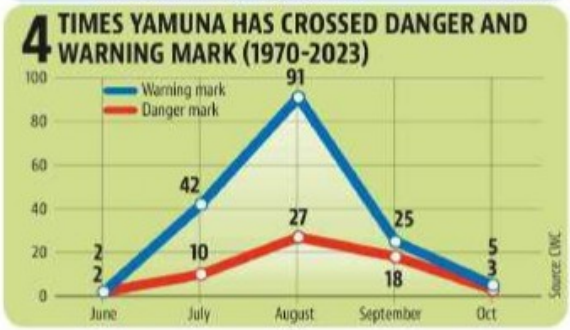
**NEW DELHI:** The Yamuna's water level at the Old Railway Bridge in the Capital; was 208.63m at 10pm on July 13, according to Central Water Commission (CWC) data from a real-time hydrograph at the location. This is only somewhat lower than the all-time high of 208.65 metres that the hydrograph recorded at 5pm on July 13. While the real-time forecasts of the CWC as of 10pm suggest that the water level in the Yamuna will decrease to 208.45m by 3pm on July 14, this is still way above the official danger level of 205.33 metres.

Parts of Delhi were inundated on Thursday as Delhi saw its first floods since 1978. But the flooding pattern of the city has changed. Here are four charts that show that.




## Yamuna has reached danger and warning levels fewer times in recent decades

The danger level of Yamuna – the level at which water spilling over is likely – is 205.33 metres, according to CWC, and the warning level is 204.5 metres. The number of times when Yamuna has breached these thresholds has decreased somewhat over time. For example, 15 of 60 such events took place in the 1970-79 decade itself. There were only 10 such events in the 2010-2019 decade. To be sure, the river has reached this level six times already during the 2020-23 period. (See chart 1)

## But it reaches higher levels now when it crosses the danger threshold

That Yamuna reaches danger levels fewer times now suggests that it has less chance of flooding Delhi now. But this is no guarantee of the impact when it does overflow. HT averaged the highest level each dangerous event reached for every decade, and found that the average highest level reached in a dangerous event in 2020-23 (including the current flood) is 56 centimetres (or around half a metre) more than in 1980-89, the period from when this number has consistently increased.

To be sure, it is possible that the average for the 1970-1979 decade was somewhat higher than appears in this analysis. This is because the granular data maintained by CWC online records the highest level reached in 1978 (the highest level before 2023) as only 207 metres and not 207.49 metres as reported by CWC in summary reports. Despite this, the 2023 level is now 117 centimetres above the second highest value reached in 1978, and 134 centimetres above the third highest value reached in June 2013. (See chart 2)

## The duration for which Yamuna remains above the danger level is also longer now

This can be expected from the fact that the Yamuna now reaches higher levels when it crosses the danger mark. The average duration of Yamuna breaching the danger mark had increased from 21.3 hours in 1980-89 to 78.8 hours in the 2010-2019 decade. This broad trend of increasing duration holds true even if one is looking at the median (the middle value) duration of such events in every decade. To be sure, the average duration during 2020-23 was only 28.8 hours before the 2023 event. This is likely to change as the current event (which started at 4pm on July 10) will reach the 100-hour mark at 8pmon July 14, a likely scenario according to CWC's forecast. The longest duration for which Yamuna has remained at or above the danger mark was for 167 hours in 2010 – from 3pm on September 10, 2010 to 2pm on September 17, 2010. There are six times Yamuna has persisted at the danger mark for 100 hours or longer. Three of them were in August and September 2010. The other three such 100-hour or longer events took place in August 1971, September 1995, and August 2008. (See chart 3)

## Historical trends suggest that Delhi must make a permanent plan for monsoon months

While the above trends might seem alarming, they are not completely unpredictable. Of the 60 times Yamuna has crossed the danger mark in Delhi, and the 165 times it has crossed the warning mark, almost half have been in August. July and September are the other two months when such events have a high frequency. The Yamuna has never crossed the warning or danger level outside the June-October period, which roughly coincides with the official June-September monsoon season. Clearly, authorities should have a permanent plan for handling sudden flooding during monsoon. To be sure, as HT reported during the 2019 floods, the Yamuna flooding in Delhi is not necessarily because of rains becoming more intense in Delhi. It is more likely that the Yamuna floods in Delhi now because of heavy rains in the states upstream. Therefore, any plans to manage Yamuna floods in Delhi will have to involve all states through which Yamuna passes before reaching Delhi. (See chart 4).

Hindustan Times- 14- July-2023

# How rain in hills is flooding Delhi

Neeraj Mohan and
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**KARNAL/DEHRADUN:** A combination of unusually heavy rainfall in the upper reaches of Himachal Pradesh and Uttarakhand, in turn leading to a heavy flow of water from the Hathnikund Barrage that regulates the flow of water into Delhi (it is not a dam so does not have either a reservoir for storage, or overflow channels), and environmental factors such as the reduced absorption capacity of the riverbed and riverbanks, and encroachment of the Yamuna floodplain have led to the unprecedented flooding of Delhi, the first such in 45 years. Officials have said that while the situation at the barrage stabilised on Thursday — it reached a high at 11 am on Tuesday — a fresh spell of rain in Himachal Pradesh and Uttarakhand on Thursday morning may mean an increase in the flow of water on Friday, although experts say Delhi is unlikely to see the situation worsen — unless there is another cloudburst either in Himachal or Uttarakhand.

Rainfall data from areas that feed the Yamuna suggest that these regions received rainfall much higher than the normal range in the days leading up to Wednesday, leading to the rivers that make up the Yamuna river system swelling to unprecedented levels. The Sirmaur and Shimla districts of Himachal Pradesh, for instance, which are major catchment areas for the Yamuna through the Giri and Pabbar rivers, received over 200mm of rain, double the normal, between July 8 and 10. Uttarakhand's Uttarkashi district, where the Yamuna originates at the Yamunotri glacier, recorded 202.3mm of rain between July 6 and 12, 133% more than normal. The Dehradun district, which feds water into Yamuna through smaller rivers such as Asan, Sunheri, Pabbar and Aglar, saw 345.3mm of rain between July 6 and 12, 139% more than the normal.

All of this meant that the flow of water at the Hathnikund barrage rose steeply between July 10 and 11, forcing Haryana to open the sluice gates. The barrage, built in the year 1996 and operationalised in 1999, to replace Tajewala built in 1873, is located in Yamunanagar, on Haryana's northern tip, and has ten main gates. Between 2pm on July 10, the flow of water was 213,000 cusecs, it rose to a peak of 359,000 cusecs at 11 am on July 11.

Since then, the flow of water has reduced steadily; it was 61,019 cusecs at 6pm on Thursday even, eventually leading to close of the gates at about 6pm on Thursday, which should come as major relief of several districts of Haryana and Delhi, officials said. The decision on re-opening of the gates will be taken depending on water flow from Himachal and Uttarakhand, they said.

The usual average flow of water in July at the barrage is around 100,000 cusecs.

On Wednesday an alarmed Delhi chief minister Arvind Kejriwal blamed the water from the barrage for the worsening situation in Delhi and said in a letter to the Union Government, "It has not rained in Delhi for the last three days. The water level in the Yamuna in Delhi is not increasing due to the rains in Delhi, but due to the water released from the Hathnikund barrage located in Haryana." He asked Union home minister Amit Shah to limit the speed of the release of water so that "the level of Yamuna in Delhi does not rise further."

The problem was that a barrage can't do this. The Delhi chief minister himself admitted as much later in the evening, when he said that he received a phone call from Union jal shakti minister Gajendra Singh Shekhawat who had said Hathnikund was "just a barrage" and had no reservoir to store water. "The water volume being released from Himachal Pradesh has reduced and the situation will improve. But it will take time to reflect in the water level of the Yamuna," Kejriwal said at a press conference on Thursday evening.

Officials said that heavy rainfall in areas corresponding to the Yamuna river system downstream from the barrage were also a factor in the flooding Delhi has seen. According to India Meteorological Department (IMD), Yamunanagar received 400.6mm of rainfall between July 6 and 12, almost six times the normal in that period while Karnal received 186.2mm of rain between those dates, three times the usual. Panipat received 131.3mm of rainfall, four times the usual.

This also led to several local rivers that rise during the monsoons, such as the Somb and Pathrala that originate from the Shivalik hills, to swell beyond capacity. "It played an important role in sudden increase in Yamuna water," a senior Haryana government official said.

Himanshu Thakkar, an independent expert who has done extensive work on river systems, however added that poor management of the Yamuna river was one of the primary drivers of the floods in Delhi. "Peak flow of water from Hathnikund on July 11 was less than in 1978, 2019 and 2012-13 where it was even upto 900,000 cusecs showing that the rains in the hills may have had a limited role. It is more because of what is happening in Yamuna flood plains in and around Delhi," he said. To be sure, in 1978, the job of regulating water flow was done by the Tajewala barrage which was replaced by Hathanikund.

Thakkar pointed out that water absorption capacity of Yamuna riverbed has been affected by the muck that is emptied into the river and the rampant sand mining along its banks. "Very little flushing of water is happening because of deforestation along the flood plains and disappearance of water bodies."

Officials in Haryana said that over the next two days they expect the flow of water in the Hathnikund barrage to increase, but encouragingly, stay below the levels of July 11. This is because after no rain on Tuesday, there was another spell of rainfall in Yamuna catchment areas in Himachal Pradesh and Uttarakhand on Wednesday and Thursday. Dehradun received 62mm till 8.30 am on Thursday morning, 220% higher than normal. IMD has issued an orange alert for Himachal and Uttarakhand on Friday and a red alert for Saturday and Sunday.

Officials said that rain water from these two states usually takes 24 to 48 hours to reach the plains. "But we don't expect a June 11 like situation in Delhi again because there is very little rainfall in areas downstream of Hathnikund," an official said. Another official from the Central Water Commission said that he expects the water level in the Yamuna in Delhi to dip below 208 metres by Friday evening, despite a possible increase in flow from Hathinikund, given the lack of localised sources of rain.

## Why the Yamuna is in spate

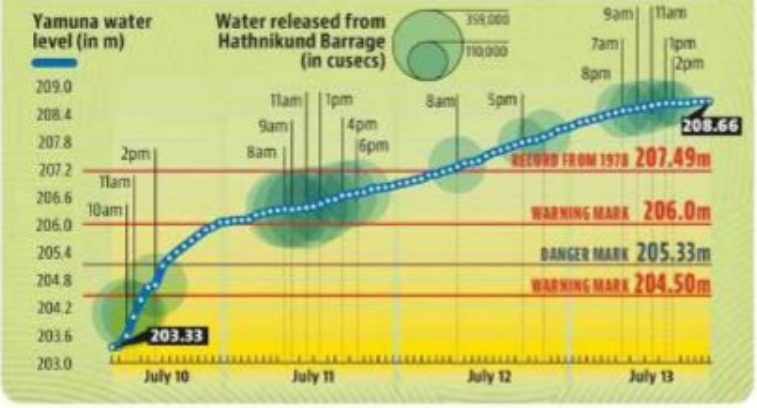
**A look at why spells of heavy rain in states such as Himachal Pradesh and Uttarakhand mean that water gets released from the Hathnikund Barrage.**

### Behind the flow right now

Hathnikund Barrage is facing extreme load right now due to unusually heavy rainfall in the upper reaches of the Himachal Pradesh and Uttarakhand. The rivers that make up the Yamuna system in the hill states have swelled to unprecedented levels.

### Why Hathnikund has no choice but to release water

Hathnikund is a barrage, not a dam. So, it does not have either a reservoir for storage, or overflow channels. This means if the water level there gets high, officials have no option but to open the sluice.



Hindustan Times- 14- July-2023

# Alert sounded as Ghaggar river breaches danger mark

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**SANGRUR:** The water level in the Ghaggar river crossed the 754-foot danger mark in Punjab's Sangrur district on Thursday, inundating at least 20 villages of the Moonak sub-division and submerging nearly 25,000 acres of agricultural land.

The danger mark in Ghaggar river is 746.2 feet but it is flowing six feet above that, inundating several agricultural fields and villages located on its banks.

District executive engineer, drainage, Gursharan Virk, said that the water in Ghaggar did not breach the danger mark even during the 1993 floods.

"The Ghaggar has recorded such a big volume of water in the district for the first time in history. Even during the 1993 floods, it had not reached the 754-ft mark when the breadth of the river was much narrower," Virk said.

Besides, the surging waters of the Ghaggar breached two embankments in Moonak. The first breach took place near Banarsi village and the other near the Moonak-Tohana bridge. The water entered houses at Phulad village.

**Ghaggar river has crossed the 754-foot danger mark.**

According to officials familiar with the matter, the rising water has submerged the national highway, and link roads to affected villages has been blocked.

Earlier on Wednesday, the river breached embankments at three locations in Makored Sahib, Phulad and Mandvi village near Moonak in the district. The district administration managed to plug the 20-foot breach at Mandvi within hours, but it is still struggling to plug other breaches.

Sangrur deputy commissioner Jitendra Jorwal said, "In villages, the water has inundated only agricultural lands but has reached Moonak and Khanauri towns. The next 72 hours are very crucial if the water continues to rise. We fear that if the water doesn't start receding, it may enter houses in towns."

As the situation worsened, chief minister Bhagwant Mann visited his home district Sangrur on Thursday and oversaw relief and rescue operations and announced compensation to farmers.

"Farmers do not need to worry about their crops. We will give double compensation to them. They should take care of their lives. Crops can be sown again," Mann said.

Telangana Today- 14- July-2023

# PRLIS: Centre's bias called out

## Minister shoots off scathing open letter

STATE BUREAU
HYDERABAD

With the Centre's Environment Assessment Committee deferring clearance to the crucial Palamuru Rangareddy Lift Irrigation Scheme (PRLIS), despite the State's repeated efforts to get the project going, BRS working president and Minister KT Rama Rao dashed off a strongly worded open letter to the Centre, condemning what he called "intense discrimination" of the Union government against Telangana.

Stating that he was writing the letter with utter disappointment regarding the discriminatory actions of the BJP-led Centre against Telangana, he said the PRLIS was a ray of hope for the drought-prone areas of Nagarkurnool, Mahabubnagar, Vikarabad, Narayanpet, Rangareddy and Nalgonda districts. The scheme was aimed at providing water to over 12.5 lakh acres and fulfilling drinking water needs of several villages, Hyderabad city and industries as well. "This project has the potential to transform lives and reduce the struggles caused by water scarcity. Erstwhile Mahabubnagar, Rangareddy and Nalgonda districts have struggled with drought and water scarcity. Nalgonda faced fluoride issues, while Mahabubnagar experienced migration due to the lack of irrigation facilities. After the State's formation, the Telangana government has undertaken many irrigation projects to address the challenges of water scarcity and agricultural development. The PRLIS is one of the significant irrigation projects of Telangana," he said, adding that however, the BJP-led Centre was completely neglecting Telangana's irrigation projects and providing no support or funds.

"They create obstacles in granting permissions and refuse to grant national status to our projects," Rama Rao stated in the open letter.

(SEE PAGE 2)

> **Centre cannot break TS' indomitable spirit. Despite its lack of support, Telangana has outperformed other States...**
>
> — KT RAMA RAO, MA&UD Minister

PRLIS: Centre's bias called out

"Meanwhile, projects in other States receive funding, permissions and national status. How fair is it that the Centre has refused to grant national status to the PRLIS while readily granting national status to the Upper Bhadra irrigation project in Karnataka?" he asked. Rama Rao also pointed out that the Krishna Water Disputes Tribunal-II had not yet given a decision on sharing water between the four riparian States. The Centre has not taken significant action to address this matter either. "Telangana has been demanding its rightful share of 500 TMC from the Krishna river. Unfortunately, the Centre has not taken the basic step of referring our request to the tribunal even after nine years. Despite water being a State subject, Telangana is unable to utilise its own water from irrigation projects without obtaining permission from the Centre," he said. "The way the BJP-led Centre treats Telangana is very disappointing. They ignore our fair requests and do not give us the same opportunities as others. The people of Telangana should have a fair chance to develop and get what they deserve," he wrote. "The biases should not hinder the transformative potential of our irrigation projects. It is time for us to ensure that Telangana's development is not compromised."

Telangana Today- 14- July-2023

# PRLIS: Centre's bias called out

"Meanwhile, projects in other States receive funding, permissions and national status. How fair is it that the Centre has refused to grant national status to the PRLIS while readily granting national status to the Upper Bhadra irrigation project in Karnataka?" he asked. Rama Rao also pointed out that the Krishna Water Disputes Tribunal-II had not yet given a decision on sharing water between the four riparian States. The Centre has not taken significant action to address this matter either. "Telangana has been demanding its rightful share of 500 TMC from the Krishna river. Unfortunately, the Centre has not taken the basic step of referring our request to the tribunal even after nine years. Despite water being a State subject, Telangana is unable to utilise its own water from irrigation projects without obtaining permission from the Centre," he said. "The way the BJP-led Centre treats Telangana is very disappointing. They ignore our fair requests and do not give us the same opportunities as others. The people of Telangana should have a fair chance to develop and get what they deserve," he wrote. "The biases should not hinder the transformative potential of our irrigation projects. It is time for us to ensure that Telangana's development is not compromised."

Telangana Today- 14- July-2023

# 22 districts in State report deficit rainfall

## 53 major, minor tributaries of Krishna and Godavari run dry

STATE BUREAU
Hyderabad

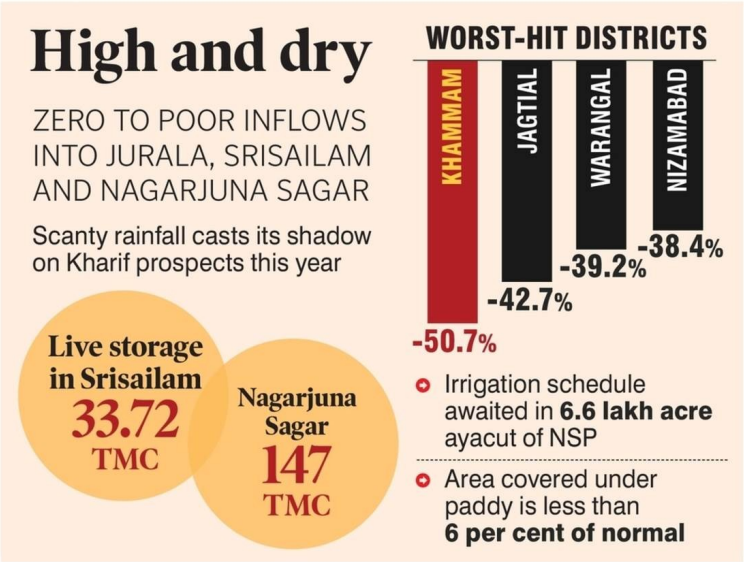
With 22 of the 33 districts reporting deficit rainfall in the State, not even a trickle has been added to a majority of the major and medium irrigation projects in both Krishna and Godavari basins so far in the current water year. Barring Pranahita, almost all of the 53 major and minor tributaries that drain the two major river basins have gone dry.

Added to this, scanty rainfall has cast its shadow on the Kharif (Vanakalam) prospects this year. As many as 22 of the 33 districts in the State registered deficit rainfall from June 1 to July 12. The worst-hit districts due to shortfall are Khammam ( -50.7 %), Jagtial (-42.7 %), Warangal (-39.2) and Nizamabad (-38.4 %).

With inflows that are zero into Jurala, Srisailam, Nizam Sagar and as low as 4,185 cusecs into Nagarjuna Sagar and 4,981 cusecs into SRSP, uncertainty looms large over the fate of Vanakalam crops. It is more so in the 6.6 lakh acres of ayacut of the Nagarjuna Sagar left canal spread over Suryapet, Nalgonda and Khammam. The inflows that have just started reaching Almatti dam in the Krishna basin are being seen as a sign of hope. In the event of good rainfall at least by the first week of August, farmers can pin their hopes on late transplantation.

The live storage in Srisailam and Nagarjuna Sagar projects are 33.72 TMC and 147 TMC, respectively. These were 44 TMC and 165 TMC respectively during the corresponding period last year. In case of a dry spell in the second half of July, the rain-fed crops are also likely to be affected. The area sown so far in the State stands at 42,76,263 acres as against the season's normal of 1,24,28,723 acres. The officials said that sowings covered about 35 per cent of the season's normal so far.

An extent of 31,88,200 acres, which is 63 per cent of the season's normal, was covered under cotton. The area covered so far under paddy was less than 6 per cent. As against the normal area of 49,86,634 acres, some 3 lakh acres were covered by the crop so far. In many districts, farmers are raising seed beds in anticipation of water release from the reservoirs.



The Indian Express- 14- July-2023

# Yamuna rising: Experts call for better urban planning, governance

DAMINI NATH
NEW DELHI, JULY 13

WITH THE Yamuna rising to a 45-year record in Delhi and cities across North India facing flooding this week, experts say by using natural solutions like creating green areas along rivers, timely de-silting of drains, making pavements porous and ensuring accountability of officials, cities can mitigate the situation.

Reducing the stormwater runoff and increasing the water retention within neighbourhoods, and natural solutions like increasing the pervious surfaces and creating "green sponges" along the length of drains and rivers were among the solutions, said National Institute of Urban Affairs director Hitesh Vaidya.

He added that if planning instruments were applied effectively and there was a single authority for accountability, the "risks could be minimised".

"We have the engineering solutions. It is a change in the governance approach that needs to be implemented. We know what to do, but it is the 'who' and 'for whom' that need to be defined. For me, drainage is a governance challenge and not an engineering problem. How effective multi-governance and convergence issues will work at a city level will decide the transformation process," he said.

Professor Kapil Gupta, from the Civil Engineering Department of the Indian Institute of Technology-Bombay and an expert who worked on some of the national guidelines on urban flooding, said cities needed to plan for extreme weather events as they are here to stay. Rainfall sensors and alarms; planting greenery on rooftops; making pavements out of porous materials; rainwater harvesting; and identification of low-lying areas that be used as holding ponds or parks in case of flood situations were among the mitigation measures cities should adopt, he said.

Citing the Intergovernmental Panel on Climate Change, he said the IPCC had clearly identified for the past few years that rainfall and its frequency would increase.

"Today, even areas around New York got flooded, so this is a global problem. When the drainage systems were designed 50 years ago, no one thought that rainfall intensities would increase. It was based on historical flood data...," Professor Gupta said.

Another issue he flagged was the multiplicity of authority. "In Delhi, Minto Bridge gets flooded every year. Ten years back, I had conducted a training and proposed a solution to the Delhi government. The area which gets flooded was then under MCD, the water comes from the area that is under NDMC and the bridge is of the Railways. We need to get all three agencies together for the solution to work," he said.

"All the guidelines, codes and manuals are already there...If cities implement these, we will be better prepared for the next severe event," he said.

Parul Agarwala, the country programme manager of UN Habitat India, said, "...Policy change needed to address urban flooding cannot be separate from day-to-day decisions of a city. It needs to be integrated into core aspects of city management such as land use, building permissions, hydrological management, etc."

Financial Express- 14- July-2023

UNEQUAL DISTRIBUTION OF RAIN

# Water levels in southern reservoirs decline 30%

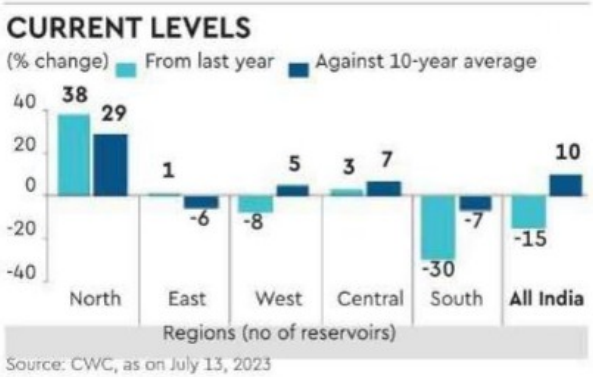
## 68 dams have more water than average of last decade

SANDIP DAS
New Delhi, July 13

**DEFICIENT MONSOON RAINS** in the southern peninsula have pulled down water levels in India's key reservoirs to 15% below the last year's record-high level on Thursday despite a sharp spike in reservoirs level in northern regions. A week ago, overall water levels in the 146 reservoirs were only 4% below the year-ago level. Water levels at the 40 reservoirs in southern regions have remained 30% below the last year's level mainly because of deficient rainfall so far in Karnataka, Kerala, Tamil Nadu, Andhra Pradesh and Telangana. According to the Central Water Commission (CWC), water level of the country's reservoirs stood at 59.50 billion cubic meters (bcm) on Thursday, which is 33% of their combined capacity. A year ago, the water available in these reservoirs was 69.72 bcm, and the average of the last 10 years was 53.90 bcm. "Current water level of reservoirs was 85% of the live storage of the corresponding period of last year and 110% of storage of the average of the last 10 years," the CWC stated. Currently, 49 reservoirs have more water than last year and 68 dams have more water than average of last decade.

"The number of reservoirs having storage equal to last year is 10 and having storage less than last ten year average is 8," according to CWC.

The number of reservoirs with storage less than last year are 35. Water levels in major dams in eastern regions especially in West Bengal, Bihar, Jharkhand and Odisha, have been up 1% above last year's level however 6% less that last 10 year-average level. In these states, a large segment of the crop area is still rainfed. West Bengal,, has irrigation coverage of only 51%, which may be impacted if monsoon rains become deficient.




Source: CWC, as on July 13, 2023

Millennium Post- 14- July-2023

# 72% districts exposed to extreme floods: Report

## 'Just 25% of them have early warning systems'

MPOST BUREAU

**NEW DELHI**: An estimated 72 per cent of districts in India are exposed to extreme flood events but only 25 per cent of them have level flood forecasting stations, or early warning systems, a new report said on Thursday.

Despite high exposure to floods, Assam, Bihar, Uttar Pradesh, Odisha, and Sikkim are the best-performing states in terms of flood early warning systems (EWS), according to the report by independent policy research think tank The Council on Energy Environment and Water.

The report showed that Himachal Pradesh, currently battling massive floods, is among the states with the lowest availability of EWS.

Uttarakhand, on the other hand, is moderately exposed to extreme flood events but has a high availability of flood EWS, it said.

Delhi, in the throes of severe flooding due to a raging Yamuna, is moderately exposed to extreme floods and has a moderate level of resilience through EWS.

Approximately 66 per cent of individuals in India are exposed to extreme flood events; however, only 33 per cent of them are covered by flood EWS. Moreover, 25 per cent of the Indian population is exposed to cyclones and their impacts, but cyclone warnings are available to 100 per cent of the exposed population, the report said.

"The district-level analysis revealed that while 72 percent of districts in India are exposed to extreme flood events, merely 25 per cent of these exposed districts have level flood forecasting stations. This means that two-thirds of individuals in India are exposed to extreme flood events, and only one-third of them have flood EWS," the report said.

Uttarakhand, on the other hand, is moderately exposed to extreme flood events but has a high availability of flood EWS, it said

According to the CEEW, 12 states — Uttar Pradesh, Himachal Pradesh, Assam, Jharkhand, Odisha, West Bengal, Andhra Pradesh, Telangana, Tamil Nadu, Karnataka, Goa, Bihar — are highly exposed to extreme flood events. However, only three — Uttar Pradesh, Assam and Bihar — have a high availability of flood early warning systems.

Continued on P4

Millennium Post- 14- July-2023

## 72% districts

Odisha has moderate EWS availability and the rest low availability, indicating a gap in the planning for installing flood monitoring and forecasting stations, the report said.

Sikkim, Uttarakhand, Arunachal Pradesh, Kerala, Maharashtra, Tripura, Mizoram, Nagaland, Rajasthan, Madhya Pradesh, Gujarat, Delhi, Jammu and Kashmir and Haryana are moderately exposed to extreme floods. While Sikkim, Uttarakhand, Arunachal Pradesh, Kerala, Maharashtra, Tripura have a high availability of flood early warning systems, the rest have a moderate resilience through flood EWS.

States such as Tamil Nadu, Himachal Pradesh, Karnataka, and Telangana have the lowest availability of flood EWS.

Research shows that 97.51 million people in India are exposed to extreme flood events, and most districts are exposed to more than one extreme event, highlighting the importance of making EWS available to all in the country, especially in the states and districts most exposed to its impacts, the report said.

The recent floods in India and Cyclone Biparjoy have once again shown the importance of investing in early warning systems, said Dr Vishwas Chitale, senior programme lead, CEEW.

"The country is rapidly expanding its early warning coverage by embracing transformative technologies. However, as we witness swapping patterns in the climatic extremes in the country, where previously drought-prone areas are now facing floods, all states need to ramp up their early warning systems to safeguard lives and livelihoods," he said.

According to him, states should leverage state-of-the-art technologies to build inclusive, impact-based multi-hazard early warning systems that involve the local communities for last-mile connectivity.

"Intensifying adaptation finance for enhancing disaster preparedness is the need of the hour," he said.

Incessant, heavy rain wrought massive damage in several parts of north India over the last few days.

Due to a rare interaction of a western disturbance, monsoonal winds and a cyclonic circulation, heavy to extremely heavy rainfall in Himachal Pradesh over the weekend caused flooding and landslides in the hilly terrain.

The gushing water swept away bridges, homes and cars, and caused widespread devastation in the state.

Neighbouring Uttarakhand also saw a similar situation with water levels of several rivers crossing the danger mark.

In Delhi, the Yamuna swelled to 208.62 metres, surpassing the previous all-time record of 207.49 metres set 45 years ago. The raging river inundated nearby streets, impacted public and private infrastructure, road and rail traffic and caused immense hardships to people living in close proximity to the river. Curbs have also been placed for the entry of vehicles into the national Capital. WITH AGENCY INPUTS

The Tribune- 14- July-2023

# Water level in reservoirs up, beats 10-yr average

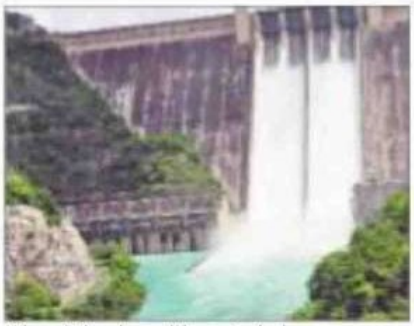
KARAM PRAKASH
TRIBUNE NEWS SERVICE

NEW DELHI, JULY 13

Unprecedented rainfall across North India over the past few days has led to an increase in water levels in the Bhakra, Pong and Ranjit Sagar dams.

Reservoirs have filled up to levels that have not been achieved in a decade, according to the weekly report released by the Central Water Commission (CWC) today. The CWC releases a weekly report on the water level at all 146 dam reservoirs of the country.

A comparison of the data released today and that of last week (July 6) shows that water level in the Bhakra dam has gone up by 30 feet within a week. The 260 sq km reservoir of the Pong dam has recorded a rise of 28 feet during this period. The water level in the Ranjit Sagar dam has risen by 34 feet.



The Bhakra Nangal dam. FILE

The water level, when seen against the full reservoir capacity of these dams, is higher in percentage than the 10-year average of the water levels, the CWC said.

## RESERVOIR CAPACITY

| Dam | % of reservoir filled on July 13, 2023 | % of reservoir filled on July 13, 2022 | % of reservoir level 10-year average |
|---|---|---|---|
| Bhakra | 56 | 21 | 37 |
| Pong | 67 | 15 | 25 |
| Ranjit Sagar | 84 | 37 | 51 |

Business Standard- 14- July-2023

# WATER LEVELS IN RESERVOIRS IN WEST, SOUTH INDIA LESS THAN LAST YEAR

Heavy rains across north India over the last week have lifted water levels in reservoirs in Punjab and Himachal Pradesh, according to the Central Water Commission. Scanty rains in the first part of the monsoon season, however, have impacted water levels in the reservoirs of western and south India, it said.

As on July 13, the water levels in reservoirs in these regions were still lower than last year.

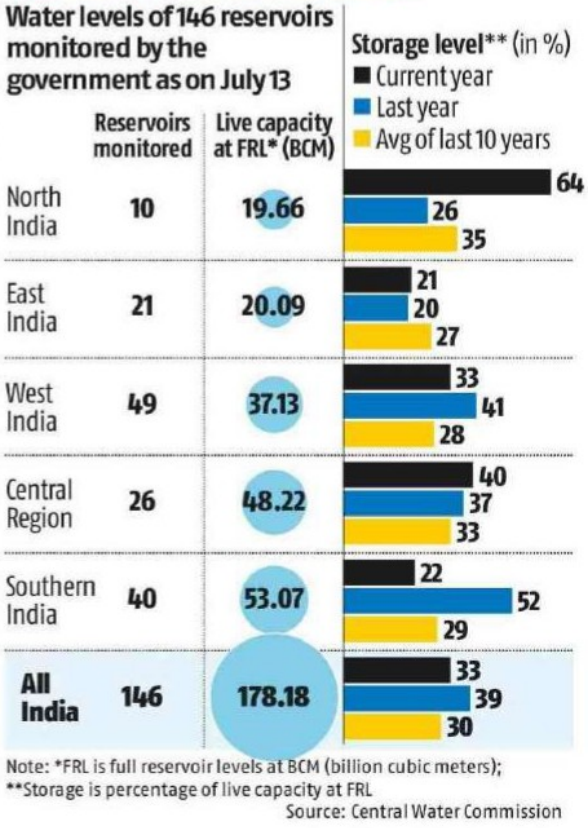
Though, they are better than the average level of the last 10 years on the same date, it said. With rains being predicted in western and southern India over the next few weeks, there is possibility of improvement in the water levels.

The survey also found that in the last five years yields of around 54 per cent of farmers decreased while 35 per cent of those surveyed witnessed an increase in their per hectare yields while it stayed the same for 11 per cent of them.

SANJEEB MUKHERJEE

## TRACKING THE WATER LEVEL

**Water levels of 146 reservoirs monitored by the government as on July 13**




| | Reservoirs monitored | Live capacity at FRL* (BCM) | Storage level** (in %) Current year | Last year | Avg of last 10 years |
|---|---|---|---|---|---|
| North India | 10 | 19.66 | 64 | 26 | 35 |
| East India | 21 | 20.09 | 21 | 20 | 27 |
| West India | 49 | 37.13 | 33 | 41 | 28 |
| Central Region | 26 | 48.22 | 40 | 37 | 33 |
| Southern India | 40 | 53.07 | 22 | 52 | 29 |
| **All India** | **146** | **178.18** | 33 | 39 | 30 |

Note: *FRL is full reservoir levels at BCM (billion cubic meters);
**Storage is percentage of live capacity at FRL

Source: Central Water Commission

The Economic Times- 14- July-2023

AS DEATH TOLL CROSSES 90 IN NORTH INDIA...

# Must Invest More in Flood Warning Systems: Report


TARUN RAWAT/BCCL

NDRF personnel rescue residents from Delhi government officers' flats near Civil Lines, New Delhi, Thursday

## Study finds systems cover only a third of population exposed to extreme floods

Our Bureau

**Bengaluru**: While close to two-thirds of India's population is exposed to extreme flood events, only a third of these individuals are covered by flood early warning systems (EWSs), according to a new report. The report also found that while 12 states were highly exposed to extreme flood events, only three of these have a high availability of such systems while eight have low availability, "indicating a gap in the planning for installing flood monitoring and forecasting stations".

It is "imperative for Indian states to step up climate action and build resilience by investing in early warning systems and multi-hazard early warning systems", said the report by the Council on Energy, Environment and Water (CEEW). Rain-battered Himachal Pradesh, Karnataka and Telangana are among the states with high exposure to floods and the lowest availability of flood EWSs.

**India better prepared for cyclones as such systems cover 100% of the exposed population**

The report, "Strengthening India's Disaster Preparedness with Technology: A Case for Effective Early Warning Systems", was released on Thursday.

Involving Local Communities ▸▸19

The Economic Times- 14- July-2023

# Involving Local Communities

▸▸From Page 1

The report comes against the backdrop of record rainfall and floods wreaking havoc in northern India, which has seen a death toll of over 90 so far and damages running into thousands of crores.

The country does better when it comes to cyclone preparedness. While 25% of the population is exposed to cyclones and their impact, the cyclone EWS covered 100% of the exposed population. CEEW is a not-for-profit policy research organisation backed by United Nations Environment Programme, IIT Delhi & Bloomberg Philanthropies, among others.

"From our climatic research studies, we're seeing the frequency and intensity of climate events has increased really rapidly in the last 20 years. We're also seeing a swapping trend in terms of climatic impact: the areas earlier known for having floods are also having droughts and vice-versa. So there's a need for overall preparedness, which is where early warning systems come in," Vishwas Chitale, senior programme lead, CEEW, told ET.

The report highlights the need for greater investment in EWSs and involving local communities. Chitale said currently, only 10% of the overall disaster management budget is allocated for disaster preparedness, which needs to be increased. "If you invest more in preparedness, your loss and damage will reduce and thus your response and recovery budget will come down." Both technology and finance are crucial pillars of disaster preparedness measures and EWSs help us take action early, said Shreya Wadhawan, the report's author and a programme associate at CEEW. "When we say we want finances to flow into EWS, it's in two ways — one, we want early warnings to be available to everyone, so states like Himachal and Uttarakhand should give emphasis to installing early warning stations in riverine areas so that we can detect floods early. Second, technology and finance also play a crucial role in disseminating this information."

Overall, the study found that 14 of the 32 states exposed to floods have a high resilience because of the availability, accessibility and effectiveness of early warning systems while 16 states have a moderate resilience.

The report said that while India had a proposed outlay of Rs 15,000 crore for the Flood Management and Border Area Programme, "the lack of impact-based forecasts that identify risks, the lack of scientific data on the effectiveness of warning systems, and the lack of localised action plans limit the effectiveness of India's flood early warning system". A more integrated effort, it said, is needed to build a robust system that can accurately forecast floods at least 48-72 hours before the event occurs. For this, India should invest in real-time flood monitoring sensors at the regional level, which would enable accurate and real-time collection of data. "This can be shared with the Central Water Commission and combined with their flood monitoring data to make flood forecasts more targeted and accurate."

Dainik Jagran- 14- July-2023

# बाढ़ से बेहाल दिल्ली

## लाल किला, सिविल लाइंस, कश्मीरी गेट आइएसबीटी और चंदगीराम अखाड़ा तक पहुंचा यमुना का पानी

राज्य ब्यूरो, नई दिल्ली : यमुना नदी में बढ़ते जलस्तर के कारण आई बाढ़ से राजधानी दिल्ली का हाल बेहाल है। गुरुवार को जलस्तर खतरे के निशान 205.33 से लगभग साढ़े तीन मीटर से ज्यादा ऊपर से बह रही थी। इससे रिंग रोड सहित कई सड़कों पर पानी भर गया। खादर क्षेत्र के साथ ही लाल किला, सिविल लाइंस, चंदगीराम अखाड़ा और आइएसबीटी सहित कई स्थानों तक पानी पहुंच गया है। इसे देखते हुए कश्मीरी गेट स्थित महाराणा प्रताप अंतरराज्यीय बस अड्डा बंद कर दिया गया है। फरीदाबाद व सोनीपत की ओर से दिल्ली आने वाले वाहनों को बार्डर पर रोक दिया गया है और यमुना बैंक मेट्रो स्टेशन के नजदीक तक पानी भरने के कारण इसे भी यात्रियों के लिए बंद कर दिया गया है।

**निगम बोध सहित तीन श्मशान घाट बंद** : जलभराव के कारण वजीराबाद, ओखला और चंद्रावल जल शोधन संयंत्र बंद कर दिए गए, जिससे राजधानी के बड़े हिस्से में जलसंकट खड़ा हो गया है। निगम बोध सहित तीन श्मशान घाट बंद कर दिए गए। इन सबके बीच उपराज्यपाल वीके सक्सेना की अध्यक्षता में दिल्ली आपदा प्रबंधन प्राधिकरण (डीडीएमए) की बैठक बुलाई गई, जिसमें रविवार तक सभी शिक्षण संस्थान और आवश्यक सेवाओं को छोड़कर दिल्ली सरकार के कार्यालय बंद करने व हरियाणा से आने वाली बसों को सिंघु बार्डर पर रोकने का फैसला किया गया। मुख्यमंत्री अरविंद केजरीवाल ने लोगों से जरूरी काम होने पर ही घर से बाहर निकलने की अपील की है।

गुरुवार दोपहर एक बजे यमुना का जलस्तर 208.62 मीटर पर पहुंच गया और शाम छह बजे तक यह 208.66 मीटर था। केंद्रीय जल आयोग के अनुसार, हथनीकुंड बैराज से गुरुवार को अन्य दिनों के मुकाबले कम पानी छोड़ा गया। शाम चार बजे के बाद से एक लाख क्यूसेक से कम पानी छोड़ा गया। यही स्थिति रही तो अगले दो-तीन दिनों में स्थिति सुधर सकती है। हालांकि, शनिवार से तेज वर्षा का भी पूर्वानुमान है।

**लगा लंबा जाम** : गुरुवार सुबह तक रिंग रोड पर कश्मीरी गेट से आइटीओ तक व भैरों मार्ग पर पानी भर गया। बाहरी रिंग रोड के कुछ हिस्सों के साथ कई अन्य सड़कें बंद कर दी गई थीं। इसलिए अन्य कई सड़कों पर लंबा जाम लगा रहा।

**सीएम ने किया निरीक्षण** : सीएम अरविंद केजरीवाल ने मंत्री आतिशी व सौरभ भारद्वाज के साथ वजीराबाद जल शोधन संयंत्र का निरीक्षण किया, जबकि गोपाल राय ने बुराड़ी जाकर निरीक्षण किया। एनडीआरएफ की टीम के सहयोग से बाढ़ प्रभावित इलाकों से लोगों को सरकार द्वारा लगाए गए टेंट व अन्य सुरक्षित स्थानों पर पहुंचाया जा रहा है।


- वजीराबाद, ओखला और चंद्रावल जल शोधन संयंत्र बंद किए गए, जिससे बड़े हिस्से में जलसंकट

- रिंग रोड सहित कई मार्ग बंद, रविवार तक शिक्षण संस्थान व सरकारी कार्यालय भी बंद रहेंगे
- फरीदाबाद व सोनीपत की ओर से दिल्ली आने वाले वाहनों को रोक दिया गया है बार्डर पर
- यमुना बैंक मेट्रो स्टेशन के पास पहुंचा पानी, यात्रियों के लिए इसे किया गया बंद

दिल्ली में बाढ़ के बीच लोगों को सुरक्षित स्थानों तक पहुंचाना बड़ी चुनौती है। गुरुवार को एनडीआरएफ के जवान पुराना उस्मानपुर गांव पहुंचे तो उन्हें छत पर फंसे पीड़ितों तक पहुंचने को मशक्कत करनी पड़ी • पेट्र

### दिल्ली के हालात से चिंतित प्रधानमंत्री मोदी ने फ्रांस से किया शाह और एलजी को फोन

राज्य ब्यूरो/एएनआइ, नई दिल्ली: फ्रांस दौरे पर गए प्रधानमंत्री नरेन्द्र मोदी ने गुरुवार रात केंद्रीय गृह मंत्री अमित शाह व दिल्ली के एलजी वीके सक्सेना को फोन कर राजधानी में बाढ़ की स्थिति की जानकारी ली और समुचित कदम उठाने के निर्देश दिए। गृह मंत्री के कार्यालय ने एक ट्वीट में बताया कि प्रधानमंत्री ने दिल्ली के कुछ हिस्सों में बाढ़ जैसी स्थिति पर केंद्रीय गृह मंत्री अमित शाह से बात की। शाह ने उन्हें बताया कि अगले 24 घंटे में जलस्तर कम होने की संभावना है और वह दिल्ली के एलजी के साथ स्थिति पर नजर रख रहे हैं। बचाव और राहत अभियान के लिए पर्याप्त संख्या में एनडीआरएफ की टीमें तैनात की गई हैं। वहीं, एलजी वीके सक्सेना ने भी गुरुवार देर रात ट्वीट कर प्रधानमंत्री से बातचीत की जानकारी दी। उन्होंने बताया कि प्रधानमंत्री ने स्थिति से निपटने के लिए किए जा रहे प्रयासों की जानकारी ली और केंद्र सरकार से हरसंभव सहायता लेकर समुचित कदम उठाने के निर्देश दिए।

### यहां भी स्थिति खराब

- बाढ़ से जूझ रहा आधा हरियाणा, 16 लोगों की मौत, चार लापता
- गुरुवार को 105 और गांवों में घुसा पानी, अब तक 11 जिलों के 854 गांव बाढ़ की चपेट में
- केदारनाथ जाने वाले चार हजार यात्रियों को सोनप्रयाग में रोका गया, हिमाचल में 10 हजार और पर्यटक फंसे

Hindustan- 14- July-2023

# बाढ़ से सबक

राष्ट्रीय राजधानी दिल्ली के एक बड़े इलाके में जलभराव या बाढ़ के हालात दुखद ही नहीं, बल्कि चिंताजनक भी हैं। पिछले कुछ दिनों से दिल्ली, उत्तर प्रदेश, उत्तराखंड और हिमाचल प्रदेश के कई हिस्सों में भारी बारिश के चलते मुश्किलें बढ़ती जा रही हैं। अभी दिल्ली में पानी का जैसा मंजर है, वैसा 1978 के बाद नजर नहीं आया था। दिल्ली में यमुना का जल-स्तर बुधवार देर रात केंद्रीय जल आयोग के अनुमान 207.99 मीटर से अधिक होकर 208.08 मीटर के निशान को पार कर गया, जिससे अधिकारी अत्यधिक सतर्क हो गए। एहतियात के तौर पर राष्ट्रीय राजधानी के निचले इलाकों में रहने वाले हजारों लोगों को सुरक्षित स्थानों पर स्थानांतरित कर दिया गया है और जिन इलाकों की ओर पानी बढ़ने की आशंका है, वहां से भी लोगों को हटाने की कवायद चल रही है। मंगलवार को लगा था कि यमुना में जल-स्तर घट जाएगा, पर बुधवार को यह बढ़ने लगा, इससे उचित ही चिंता की लहर दौड़ गई। पंजाब और हरियाणा के बाढ़ प्रभावित इलाकों में भी राहत कार्य की जरूरत पड़ गई है। सामान्य जनजीवन अस्त-व्यस्त हो गया है। पूरे राष्ट्रीय राजधानी क्षेत्र में स्कूलों व अन्य संस्थानों को बंद करना पड़ा है। कर्मचारियों को घर से काम करने को कहा गया है।

दिल्ली में निचले इलाकों में बसे लोगों ने कभी इतना पानी नहीं देखा था और इसीलिए वे अपना घर छोड़ने को तैयार नहीं थे, मगर अनेक इलाकों में काफी समझाने-बुझाने के बाद लोग सुरक्षित स्थान तक पहुंचे हैं। इसमें कोई शक नहीं है कि लोगों को प्रशासन के निर्देशों के अनुरूप ही चलना चाहिए और किसी भी तरह का खतरा नहीं उठाना चाहिए। इतने पानी के बावजूद अगर दिल्ली अपने जान-माल की सुरक्षा कर पाती है, तो यह एक बड़ी कामयाबी होगी। प्रशासन को लगता है कि जल-स्तर आने वाले समय में बढ़ सकता है, ऐसे में, लोगों को हर स्थिति के लिए तैयार रहना चाहिए। यह अफसोस की ही बात है कि ऐसे समय में भी अनेक नेता राजनीति का मौका हाथ से जाने नहीं दे रहे। क्या जलभराव या ऐसी बाढ़ के लिए किसी एक राजनीतिक दल को जिम्मेदार ठहराया जा सकता है? अभी तो इस प्रश्न पर विचार का अवकाश भी नहीं है। अभी तो शासन-प्रशासन और जन-प्रतिनिधियों का पूरा ध्यान बचाव कार्यों पर होना चाहिए। लोगों को भी राजनीति पर ध्यान देने से बचना चाहिए। मौसम विभाग और सरकार के अनुमानों पर निगाह रखनी चाहिए।

**क्या अतिरिक्त जल की निकासी का कोई तंत्र विकसित हो सकता है? अगर हो सकता है, तो फिर अभी तक क्यों विकसित नहीं हुआ?**

भारी बारिश का असर केवल दिल्ली तक सीमित नहीं है, देश के एक बड़े इलाके में यातायात पर असर पड़ा है। रेल यातायात भी इससे प्रभावित हुआ है। गौर करने की बात है कि 7 जुलाई से 15 जुलाई के बीच 300 से अधिक मेल व एक्सप्रेस ट्रेनें और 406 पैसेंजर ट्रेनें रद्द कर दी गई हैं। कुल मिलाकर, देश भर में लगभग 1,100 रेलगाड़ियों का परिचालन प्रभावित हुआ है। दरअसल, उत्तर व पश्चिमी भारत के एक बड़े इलाके में शनिवार से ही बारिश-पानी का क्रम बना हुआ है। जम्मू-कश्मीर, उत्तराखंड, हिमाचल प्रदेश, हरियाणा, उत्तर प्रदेश और राजस्थान में भारी से भी ज्यादा बारिश दर्ज की गई है। ऐसी बारिश और बाढ़ से हमें व्यापक रूप से सबक लेना चाहिए। क्या हम राष्ट्रीय राजधानी क्षेत्र को ऐसी त्रासद स्थिति से बचा सकते हैं? क्या अतिरिक्त जल की निकासी का कोई कारगर तंत्र विकसित हो सकता है? अगर हो सकता है, तो अभी तक क्यों विकसित नहीं हुआ? संदेश स्पष्ट है कि जल-प्रबंधन पर हमें ईमानदारी से काम करना होगा।