

Explained: Why Punjab keeps flooding

Punjab, drained by three perennial rivers and a number of smaller tributaries and seasonal rivers, is naturally prone to flooding. But the devastation is made worse by poor governance and decision-making

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An aerial view of an area partially submerged in floodwater at Ghanaur village, in Patiala district, Punjab, Thursday, Sept. 4, 2025. (PTI Photo)

Punjab is currently reeling from one of the worst floods in recent memory.

The state government has declared all 23 districts to be flood-hit. Data from Friday show that 1,902 villages have been inundated, more than 3.8 lakh people affected, and more than 11.7 lakh hectares of farmland destroyed. At least 43 people have been killed.

The worst-affected is the northern district of Gurdaspur, where 329 villages and 1.45 lakh people have been affected, and 40,000 hectares of farmland inundated.

Floods have also ravaged the province of Punjab in Pakistan, where at least 43 people have died and more than 9 lakh people have been displaced, figures released on Friday by the Provincial Disaster Management Authority, Punjab (Pakistan), stated.

This flooding is not entirely out of the ordinary: the geography of Punjab, the land of the five rivers, makes the region naturally flood-prone. That said, human factors also play a part.

Districts worst-hit by floods in Punjab

District	Villages affected	Population affected	Crop area affected (ha)
Gurdaspur	329	145,000	40,169
Amritsar	190	135,880	26,701
Kapurthala	144	5,728	17,807
Fazilka	77	24,212	17,786
Ferozepur	102	38,594	17,221
Tarn Taran	70	60	12,828
Mansa	95	178	11,042
Hoshiarpur	168	2,465	8,322
Jalandhar	64	1,090	4,800
Pathankot	88	15,503	2,442
Patiala	85	600	600
Barnala	121	1,252	0

Rivers: boon & bane

Three perennial rivers — Ravi, Beas and Sutlej — flow through the state of Punjab. The Ravi passes through Pathankot and Gurdaspur; the Beas through Hoshiarpur, Gurdaspur, Kapurthala,

Amritsar, Tarn Taran (Harike wetland), and Harike; and the Sutlej through Nangal, Ropar, Nawanshahr, [Jalandhar](#), [Ludhiana](#), Moga, Ferozepur, and Tarn Taran (Harike wetland).

The seasonal river Ghaggar, and smaller tributaries and hill streams, known locally as *choes*, also cut across the state.

These rivers, and the alluvium they carry, makes Punjab one of the most fertile places on the planet. For millennia, agriculture has thrived on the floodplains. Today, Punjab, often hailed as the “food bowl” of India, produces nearly 20% of the country’s wheat and 12% of its rice, despite making up only 1.5% of its landmass.

This fertility, however, comes at a cost. Rainfall in Punjab and upstream catchment areas in Himachal Pradesh and [Jammu & Kashmir \(J&K\)](#) make Punjab’s rivers swell up during the monsoon. While an elaborate system of *dhussi bundhs* (earthen embankments) form a first line of defence against flooding, heavy rain often overwhelms these.

This is what has happened this year, and has happened many times in the past, most notably in 1955, 1988, 1993, 2019, and 2023.

Beginning on August 10, exceptionally heavy rain in Himachal led to the Beas swelling up. Inflows of 50,000-55,000 cusecs exceeded the river’s carrying capacity; villages and farmland in Kapurthala, Tarn Taran, Ferozepur, Fazilka and Hoshiarpur were flooded.

By mid- to late-August, the Ravi too had swollen due to rainfall in Himachal Pradesh and J&K. On August 26, two gates of the Madhopur Barrage (near Pathankot) were destroyed, and the flow on the Ravi exceeded two lakh cusecs, causing a huge deluge that flooded the districts of Pathankot, Gurdaspur and Amritsar.

All this while, incessant rain in Punjab made things worse. While most embankments on the Sutlej held up, heavy rain in southern Punjab’s Malwa region led to severe waterlogging in the districts of Ludhiana, Jalandhar, Ropar, Nawanshahr and Moga.

As of Friday, Punjab, Himachal Pradesh, and J&K have all recorded more than 45% excess rainfall (above the seasonal normal) this year, data from the Indian Meteorological Department show.

Dammed either way

Every time Punjab floods, the spotlight falls upon three dams that sit upstream on Punjab's three perennial rivers, and play a significant role in controlling the rivers' flow downstream.

The Bhakra dam sits on the Sutlej in Himachal Pradesh's Bilaspur district, and the Pong dam sits on the Beas in Himachal's Kangra district. Both are operated by the Bhakra Beas Management Board (BBMB), a statutory body constituted under the Punjab Reorganisation Act, 1966. The Thein dam (officially the Ranjit Sagar dam) sits on the Ravi at the border of J&K and Punjab, and is operated by the Punjab State Power Corporation Ltd and the state's Irrigation Department.

When excessive rainfall fills up the dams' reservoirs, water must be released to prevent overtopping, a potentially catastrophic situation when the water level in the reservoir exceeds the dam's crest.

"The BBMB follows a 'rule curve' based on hydrology and weather forecasts, but extreme rainfall events leave little margin. If catchment rain is extreme and reservoirs near their limits, BBMB must release water to preserve dam safety," Sanjeev Kumar, Director (Water Regulation) at the BBMB, told [The Indian Express](#). Rule curves are target levels to be maintained in a dam's reservoir during different time periods of a year, under different conditions of inflows

During heavy rainfall, even controlled releases can cause flooding downstream. This is what happened this year. "This year's inflow [on the Pong dam] is about 20% higher than 2023 (the last time Punjab flooded), and such unprecedented flow has never been recorded before," BBMB chairman Manoj Tripathi said at a press conference on Friday. "We have managed it very well," he said.

The inflow on the Bhakra dam too was very high, although not completely unprecedented, Tripathi added.

Punjab, however, has long felt that the BBMB does not act in its interest. State officials say that the Board keeps the reservoir levels too high in July and August to ensure water for winter irrigation and power, not leaving much cushion for when sudden rain arrives in August and September. Moreover, officials say, the BBMB often does not provide timely warnings, with sudden releases often blindsiding state officials downstream.

At the heart of Punjab's problems with the BBMB lies in its constitution. The state feels it has too little say in the Centre-controlled Board whose primary mandate is to provide irrigation and generate power, not flood-management. The Centre's decision to amend BBMB rules in 2022, which now allow officers from across India, not just Punjab and Haryana, to hold top posts in the Board, has only aggravated Punjab's concerns.

In an interview with *The Indian Express* last week, Punjab Water Resources Minister Barinder Kumar Goyal said that the BBMB holds water in its dams till the last moment before suddenly releasing it. "There is no hesitation in saying they (the Centre) do not care about Punjab's people," he said.

A larger governance problem

Experts have long called for better management of dams. And not just the ones operated by the BBMB.

This year, the Ravi flooded after two gates of the Madhopur barrage were destroyed after water was released from the Thein dam on August 26. The volume of rainfall aside, sources blame a lack of communication between officials upstream and downstream for the gates not being opened on time. In this case, both belonged to Punjab's Irrigation Department.

"At Ranjit Sagar, Pong, and Bhakra, water was stored for many days and then released in massive volumes, causing sudden flooding downstream. A flood cushion was not maintained, and warnings were delayed," environmentalist Jaskirat Singh of Public Action Committee Mattewara told *The Indian Express*.

"Heavy rain is natural, but the damage was made worse by human decisions. Unless dams are managed with transparency and scientific discipline, Punjab will continue to face such floods," he said.

Also important is the maintenance of *dhussi bundhs*. Union Agriculture Minister Shivraj Singh Chauhan, after visiting flood-hit districts in Punjab, on Friday blamed illegal mining for weakening these earthen embankments, and said "it is necessary to strengthen those structures so that Punjab can be saved from such tragedies in the future".

A senior officer of the Punjab Drainage Department told *The Indian Express* that Punjab should strengthen embankments and invest in desilting bottlenecks on rivers, which would cost an

estimated Rs 4,000–5,000 crore but prevent greater losses from flooding. He said, “Every year governments wake up only after floods”.

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