Do Bangladesh and India still need the Ganges Treaty?

What 30 years of data reveal about its successes and failures

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The Ganges Water Sharing Treaty expires on 12 December. Thirty years of joint observation and allocation at Farakka will end with it unless something takes their place, and the record those thirty years have produced has not been closely examined in public.

It is worth reading because almost every finding in it contradicts something believed in one capital or the other. The allocation formula was implemented better than the argument in Dhaka assumes. The river's gain between the two gauges is real, but it has never been quantified publicly. And the alternating ten-day guarantee that both governments treat as the treaty's central protective mechanism largely does not survive the journey downstream, so it is not doing what either believes. The numbers that follow come from the public record. The narratives depend on who is reading and how.

THE RECORD, AND ONE CAVEAT ABOUT IT

The record covers 450 ten-day periods: thirty dry seasons from 1997 to 2026, fifteen periods each from 1 January to 31 May. Every period carries four quantities: total flow available at Farakka, the release to India, the release to Bangladesh, and the flow observed at Hardinge Bridge, downstream inside Bangladesh and below the Mahananda confluence. The data come from the Joint Rivers Commission's published record.

One caveat belongs at the beginning rather than in a footnote because it limits what can objectively be claimed from the record.

In all 450 periods over the last 30 years, availability at Farakka is exactly the sum of the two releases. Availability is therefore an accounting quantity, not an independent measurement, so testing whether the releases followed the formula shows that an agreed account is internally consistent. It does not confirm what the river actually did.

The Hardinge Bridge observation sits outside this availability accounting.

WHAT THE FORMULA DELIVERED

Of 450 releases to Bangladesh, 375 were within 0.5 cusec of the formula applied to recorded availability, and 384 within 1 cusec. Twenty periods fell more than 1 cusec short, three of them by more than 100. One period in thirty years breached the ninety-per-cent threshold of Article XI: 1–10 April 1997, with a shortfall of 4,863 cusec. There is no shortfall above 1 cusec anywhere in the record after 2003. Departures favoured Bangladesh: 3.66 billion cubic metres of surplus against 0.143 billion cubic metres of shortfall. These are observed figures. Two qualifications matter before they become a story.

One year accounts for most of the surplus. 2012 alone accounts for 2.15 of the 3.66 billion cubic metres: from January to early March that year, India took 21,000 to 32,000 cusecs instead of 40,000, which suggests a feeder-canal or barrage constraint rather than a concession. Hardinge Bridge, moreover, recorded less than the release in six of those seven periods, so the recorded surplus barely appears downstream. Set 2012 aside and the ratio falls from about 25 to one to about 10 to one: still in Bangladesh's favour, but a different claim. Only the Joint Committee's operating records could settle which explanation is correct, and they are not public.

Availability shows no trend. It was tested in four ways: the whole dry season, the critical period, the rest of the season, and the annual minimum. None shows a statistically significant trend. So the claim that India has been taking progressively more is not supported by this record. Neither is the claim that flows are stable: thirty seasons cannot separate a slow change from year-to-year variation, and the 2007–2016 decade ran some eight per cent below the decades on either side. A thirty-year treaty can contain a dry decade that its own trend test cannot detect.

HOW MUCH THE RIVER ADDS

Between Farakka and Hardinge Bridge, the river gains water: from the Mahananda, from groundwater, and from irrigation return flows. That much is uncontested, and it forms the basis of a claim now circulating in Indian commentary: that Bangladesh already receives more than the treaty gives it, and that renewal should adjust the shares accordingly. An analysis using the same Joint Rivers Commission data observes that flows at Hardinge Bridge have generally been higher than releases at Farakka, and interprets this as favouring upstream India in hydrodiplomacy.



PHOTO: RASHED SHUMON

An aerial view of the Padma River reveals extensive sandbars exposed by declining dry-season flows, highlighting concerns over water availability downstream of the Farakka Barrage.

The analysis does not quantify the gain. Bangladeshi accounts, for their part, tend not to mention the gain at all. The record is unkind to both.

The relationship between Farakka and Hardinge Bridge is strong. The river gains water between these two locations and gains proportionally more when flows are high. At the median, the gain is about 11 per cent. The gain is also not uniform. The higher range occurs in January, when flows are heavy. During the critical period from 11 March to 10 May, the gain stops increasing with flow, and in Bangladesh's own guarantee periods, it vanishes altogether. Hardinge Bridge recorded less than the Farakka release in 88 of 450 periods, with a mean deficit of 3,728 cusec and a maximum of 15,098. Eighty-eight periods out of 450 are not a rounding error in a claim about downstream abundance.

THE ALTERNATING GUARANTEE

Under Annexure I, each country is guaranteed 35,000 cusec in three alternating ten-day periods between 11 March and 10 May. Bangladesh's are the second period of March and the first and third periods of April; India's are the third period of March, the second period of April and the first period of May, as the indicative schedule in Annexure II sets out. This alternation is the treaty's central protective mechanism.

averaging of ten-day figures could all produce this effect, and a difference in measurement timing between the two stations cannot be ruled out.

This is not an argument about generosity or compliance, and the implication runs in both directions. A protection designed around alternating ten-day pulses at Farakka is largely erased by the river before the water reaches the stretch where Bangladesh uses it. Dhaka treats that guarantee as the protection it most needs to restore; Delhi treats it as a commitment it would rather not formalise. On this record, neither position is accurate. The guarantee delivers very little additional water to where Bangladesh uses it, and an argument about strengthening or resisting it is an argument about something largely notional.

THE CONSULTATION THRESHOLD

The treaty contains a second protective mechanism. Article II provides for immediate consultations between the two governments when availability at Farakka falls below 50,000 cusec.

In 450 periods, that threshold was crossed only once: 21–31 March 1997, at 48,487 cusec.

Whatever one thinks of consultation as an instrument, a trigger set at that level would have operated only once in thirty years. Neither government has published an analysis of how often a strengthened provision would be triggered.

WHERE THE DISAGREEMENT ACTUALLY IS

Set the transmission question aside, and the remaining disagreement is not about numbers at all. It is about where the risk of uncertainty and a changing climate should lie: upstream, downstream or shared through a formula.

The argument against a volumetric guarantee is sound as far as it goes: an unconditional fixed volume places climate risk on the upstream party. Bangladesh could argue that, as the downstream party, it already bears the consequences of every shortfall. Both propositions are true. Which one should prevail is a question of values, and no dataset can settle it. Acknowledging this is not a concession; it is the precondition for arguing about design rather than motive. Principled pragmatism begins here: not by splitting the difference, but by separating the questions that data can resolve from those they cannot.

It holds that strict adherence to principle without pragmatism is usually not actionable, and that pragmatism without principle is neither sustainable nor equitable. The operating rule that follows is narrow and useful: compromise over interests is possible and actionable, while compromising principles is not. The task, therefore, is not to establish the truth about the Ganges, but to agree on a truth that is negotiable and implementable, given the capacity, constraints and context the two countries actually face.



Hardinge Bridge in Pabna. The bridge is a crucial monitoring point for Ganges flows entering Bangladesh, providing data that help assess the downstream effects of water releases at Farakka.

Applied here, the dispute reorganises itself. Whether India or Bangladesh should bear the risk of a drier future is a question of principle, and neither capital will concede it before 12 December. Whether the alternating guarantee transmits downstream is a question of fact, and the record answers it: largely, it does not. That answer is useful precisely because it favours neither party. It tells Dhaka that its central demand, as presently designed, would deliver little of what is being sought; it tells Delhi that the commitment it is reluctant to formalise would transfer very little additional water downstream. An argument over principle becomes an argument over instrument design, which is more tractable.

The same logic dissolves the apparent either-or options. Bangladesh needs dry-season reliability; India needs protection against committing to volumes that a changing climate may not deliver. The 1996 treaty treated these as alternatives and split the difference by alternating ten-day pulses, which, as the record shows, delivered neither. A percentage floor within a schedule that adjusts to availability is one instrument that could address both concerns, because it is contingent by construction: it does not require any particular climate future to materialise. Whether it is the best instrument is a separate question, and one this record cannot settle. What the record does establish is what principled pragmatism demands of any instrument: not optimality, but a resolution that still works when the assumptions behind it fail.

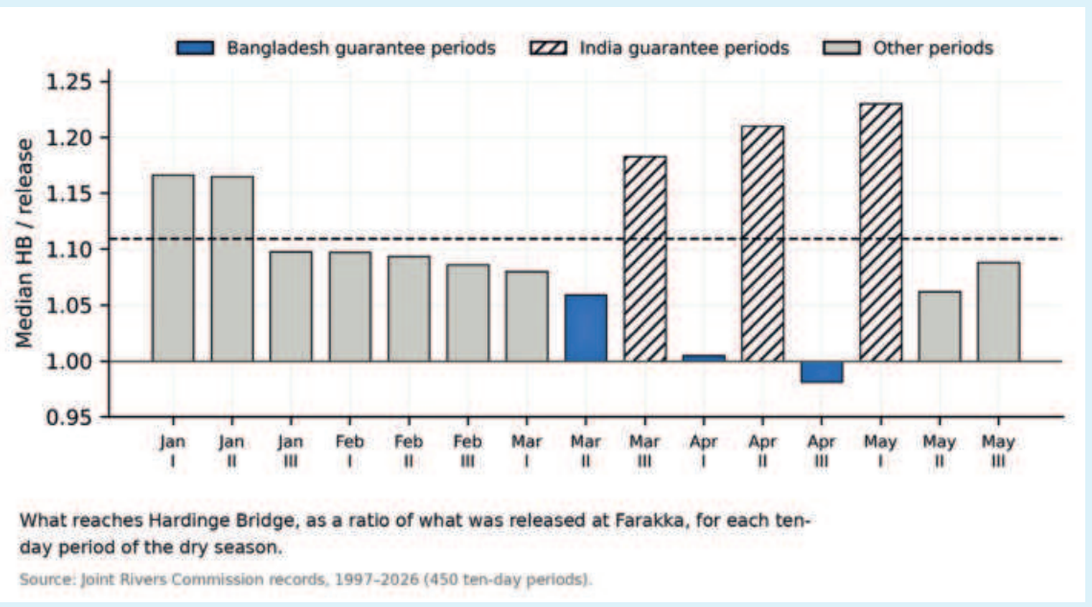
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WHAT ENDS ON 12 DECEMBER

Water diplomacy starts with a question that seems trivial: what is one plus one? The answer depends on who is asked and why. These 450 records support Delhi's reading that Bangladesh already receives more than the treaty gives it, and Dhaka's reading that the dry season is short. Both interpretations are present in the data. Neither is complete. one finding neither side can explain alone is that the gain between the two stations is growing by roughly 2,000 cusec per decade. It could be tributary inflow, a changed rating curve or channel change, and nobody can say which, though each possibility carries different consequences for the two parties. No unilateral record can distinguish between them. Joint observation could, and the answer could just as easily vindicate Delhi as Dhaka: if the growing gain comes from tributary inflow, the river is delivering more than the treaty allocates, which is what Indian commentary contends. It costs neither country water and concedes nothing on who should bear climate risk.

That observation falls under the Joint Committee, a body established under Article IV. If the treaty lapses on 12 December with nothing in its place, the mandate lapses with it, and the 2027 dry season becomes the first since 1996 without joint measurements.

India and Bangladesh agree on very little about this river. For thirty years, they measured it the same way anyway, and every finding above exists because they did. Measurement allocates no water, which is why it is the easiest thing on the renewal table to preserve. It is also why losing it would be the hardest of the losses on 12 December to justify. The treaty does end on its own terms. But the Joint Rivers Commission, which predates it by twenty-four years, does not, and nothing prevents the two governments from keeping the gauges operating under that older mandate while they work out what replaces the rest.



What reaches Hardinge Bridge, as a ratio of what was released at Farakka, for each ten-day period of the dry season.

Source: Joint Rivers Commission records, 1997–2026 (450 ten-day periods).

11 March – 10 May	Mean release at Farakka	Mean at Hardinge Bridge	Periods with Hardinge Bridge below release
Bangladesh's guarantee periods	38,642	40,168	39 of 90
India's guarantee periods	33,408	39,795	10 of 90
Within-year paired difference	+5,234	+373	–

Bangladesh's guarantee periods raise the release at Farakka by 5,234 cusec. At Hardinge Bridge, that becomes 373 cusec, statistically indistinguishable from zero. Even in the periods when the guarantee actually increased Bangladesh's release, only about a fifth of the extra water arrived. The periods when Hardinge Bridge records less than the release occur almost four times as often during Bangladesh's own guarantee periods: 39 of 90, compared with 10 of 90 during India's.

The reason is that the river smooths out the alternation. What arrives at Hardinge Bridge tracks roughly the average of the current and preceding releases, rather than the current release alone. Travel time, channel storage and the

Setting them side by side is the first step, because two parties reasoning from the same numbers to opposite conclusions cannot negotiate until they understand why.

The second question is where to intervene. Measurement is not negotiable; what is negotiable is the point at which a change affects the system. On this record, that point is not the volume at Farakka, which both capitals have contested for thirty years. It is where, and over what period, a guarantee is defined. A pulse that exists at the barrage but not at Hardinge Bridge is not an allocation problem but a design problem, and design problems allow for more solutions.

The third is the hardest: when positions are entrenched, look for the eighteenth camel, the borrowed thing that makes an indivisible problem divisible and is returned once the problem is resolved. Here, that is measurement itself.

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The Farakka Barrage in India, where the Ganges Water Sharing Treaty regulates dry-season water allocation between India and Bangladesh. FILE PHOTO