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EDITORIAL ANALYSIS

Reading the Reservoirs: A 15 Per Cent Deficit and the Water Year Ahead

 DOWN TO EARTH

26 July 2026 ·

ENVIRONMENT

GEOGRAPHY

GS1

GS3

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GS1

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INTERVIEW ANGLE

"When the monsoon fails, groundwater absorbs the shock and no one sees the crisis. Is that a strength of Indian agriculture or its most dangerous illusion?"

Source: [Original editorial](#)

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THE LIFT LINE

A reservoir bulletin is a weather forecast for the next twelve months, written in cubic metres. On 23 July 2026 the Central Water Commission recorded 70.432 billion cubic metres of live storage across the 166 reservoirs it monitors, which is 38.37 per cent of their combined live capacity, 93.09 per cent of the normal for the date and barely 63.73 per cent of what was in store a year earlier. Behind those numbers sits a monsoon running 15 per cent short between 1 June and 25 July. India will not feel this in July; it will feel it in the rabi sowing of November, in the summer taps of April 2027 and in the hydropower schedules in between.

WHY THIS EDITORIAL MATTERS FOR YOUR EXAM

GS Paper 1 takes the climatology: *important geophysical phenomena, distribution of key natural resources*, and above all the mechanism of the Indian monsoon, which is among the most reliably examined topics in the entire physical geography syllabus. Rainfall categories, the Long Period Average and the drivers of monsoon variability are Prelims-grade precision material where a single misremembered percentage band costs a mark.

GS Paper 3 takes the consequences: *major crops and cropping patterns, irrigation systems and types, water resources management, food security and energy*. The reservoir bulletin is the single best bridge between a physical geography answer and an agricultural economics answer, and examiners consistently reward candidates who can carry an argument across that bridge rather than treating rainfall and cropping as separate topics.

BACKGROUND AND CONTEXT

Two institutions define this story. The **India Meteorological Department (IMD)** measures the rain; the **Central Water Commission (CWC)**, under the Ministry of Jal Shakti, measures what is retained. The CWC monitors live storage in 166 major reservoirs and issues a bulletin every Thursday, reporting all-India, State-wise, basin-wise and reservoir-wise position against both last year and the ten-year normal. The combined live storage capacity of those 166 reservoirs is **183.565 billion cubic metres (BCM)**, roughly 71.20 per cent of the total live capacity of about **257.812 BCM** created in the country, which means the bulletin is a genuine national **proxy** rather than a sample.

PARAMETER	POSITION
Long Period Average (LPA) of seasonal rainfall	87 cm, based on 1971 to 2020 data, revised from 88 cm (1961 to 2010)
Definition of a normal monsoon	96 to 104 per cent of LPA
Below normal / Above normal	90 to 96 per cent / 104 to 110 per cent of LPA
Deficient / Excess season	Below 90 per cent / above 110 per cent of LPA
CWC monitoring	166 reservoirs, weekly bulletin every Thursday
Live capacity monitored	183.565 BCM, about 71.20 per cent of the 257.812 BCM created nationally
Storage on 23 July 2026	70.432 BCM, 38.37 per cent of live capacity, 93.09 per cent of normal, 63.73 per cent of last year
IMD 2026 seasonal outlook	Lowered to about 90 per cent of LPA; below normal
Ocean drivers in 2026	Weak El Nino, expected to strengthen through the season; Indian Ocean Dipole neutral

For spatial rainfall reporting, the IMD uses a separate set of departure-from-normal categories: Large Excess, Excess, Normal, Deficient, Large Deficient and No Rain, with Normal spanning a departure of minus 19 to plus 19 per cent. A candidate should be able to distinguish these subdivision-level categories from the all-India seasonal categories in the table above; they are frequently conflated and frequently tested. The LPA itself is revised periodically as the reference base rolls forward, which is why the current figure of 87 cm for 1971 to 2020 replaced the earlier 88 cm for 1961 to 2010, and a question that quotes the older figure is testing whether the candidate has updated.

THE CORE ARGUMENT / ISSUE

The distribution problem is worse than the total

The all-India figure of 15 per cent deficiency between 1 June and 25 July 2026 conceals a violently uneven season. June closed with a **40 per cent deficiency**, an alarming opening for a month that governs kharif sowing decisions. The third week of July then delivered near-normal rain, closing the gap for that week alone to **1 per cent**. This is the classic modern monsoon signature: long dry spells punctuated by short intense wet spells.

Agronomically, a deficit in June is far more damaging than the same deficit in August, because sowing windows for paddy, maize, soyabean and cotton are calendar-bound. A farmer who cannot transplant paddy in the first fortnight of July does not simply transplant it three weeks later at the same yield; the crop loses growing days at the tail of the season and runs into a different temperature regime at grain filling. Rain that arrives after the window has closed replenishes reservoirs but does not recover a crop. This is why the headline seasonal number is one of the least useful figures in Indian agriculture, and why the IMD's second-half outlook matters more to the kharif economy than the first-half total.

The reservoir map is a map of southern stress

REGION	STORAGE AS PER CENT OF LIVE CAPACITY	CONTEXT
Southern region (47 reservoirs)	30.26	Against 69.43 last year and a normal of 44.18
Northern region	35.58	Below comfort for the rabi season
Central region	39.11	Close to the all-India average of 38.37
Eastern region	Above normal but below last year	Comparative comfort
Western region	Above normal	Least stressed

Fifty-four of the 166 reservoirs stand at or below 80 per cent of their normal storage, and **twenty-two hold less than half** their normal water, including **Srisaïlam, Nagarjuna Sagar and Tungabhadra**, which together anchor irrigation and drinking water for large parts of the Krishna basin. **Telangana** is reported at 57 per cent below its normal storage, with **Karnataka, Kerala and Tamil Nadu** showing moderate shortfalls.

The southern concentration is not accidental. Peninsular India has no Himalayan snowmelt to fall back on; for the Krishna, Cauvery and Godavari commands, the monsoon is the entire water year, and a rain-fed reservoir that fails to fill in July has no second source. This is why a southern reservoir deficit propagates directly into inter-State water disputes: when Srisaïlam and Nagarjuna Sagar are half empty, releases become a matter of

tribunal awards and Supreme Court proceedings rather than of hydrology. The northern figure of 35.58 per cent carries a different risk profile, since northern storage matters most for the rabi crop sown from November, and a reservoir that enters October low constrains a crop that has not yet been planted.

Why the physical mechanism matters here

The monsoon is not rain that arrives; it is a seasonal reversal of the wind system driven by differential heating between the Asian landmass and the Indian Ocean, expressed as the northward migration of the **Inter-Tropical Convergence Zone (ITCZ)** to become the monsoon trough over the Indo-Gangetic plain. Moisture is delivered by the low-level cross-equatorial **Somali Jet**, and the system is held together aloft by the Tibetan anticyclone and the **Tropical Easterly Jet**. When the monsoon trough shifts north toward the Himalayan foothills, the plains enter **break-monsoon** conditions: dry spells that can last a week or more while the foothills receive heavy rain, which is exactly the configuration that starves the plains and floods the hills in the same fortnight.

Understanding this explains the 2026 pattern precisely: not a failed monsoon, but a badly distributed one. The ocean drivers reinforce it. A weak but strengthening **El Nino** in the Pacific typically suppresses Indian monsoon rainfall by shifting the Walker circulation eastward, weakening the ascending limb over the Indian Ocean and the Maritime Continent. With the **Indian Ocean Dipole** in a neutral phase and forecast to remain so, there is no positive dipole to offset that suppression, which is what a favourable IOD did in several earlier El Nino years. The IMD accordingly lowered its seasonal forecast to about **90 per cent of the LPA**, placing 2026 at the boundary between below normal and deficient.

The counter-argument, taken honestly

There is a genuine case that this alarm is premature, and it should be stated at full strength. Roughly six weeks of the season remain after 25 July, and August and September revivals have rescued deficient seasons before; the third week of July already closed to a 1 per cent departure, which shows the system is capable of recovering pace. Storage stands at 93.09 per cent of normal, which is a shortfall of about seven percentage points, not a collapse. Eastern and western reservoirs are comfortable and the eastern region is above normal. India also holds substantial buffer foodgrain stocks and has expanded its irrigated area considerably over two decades, so a single deficient season is not a famine and should not be written as one.

All of that is true and none of it is reassuring, for one reason. Storage at **63.73 per cent of last year's level** means the buffer that would have absorbed a second bad year has already been spent. Reservoir storage is not a snapshot; it is a running balance carried forward from season to season, and the risk is not this monsoon but the compounding of two. If the season closes near the IMD's revised 90 per cent of LPA and reservoirs enter October well below normal, the constraint binds on the **rabi** crop sown in November, on summer drinking water in April and May, and on hydropower generation precisely when peak electricity demand arrives. The **prudent** reading is not that 2026 is a catastrophe; it is that 2026 has removed the margin that would make 2027 survivable.

Groundwater, the buffer nobody accounts for

When surface water is short, Indian farmers switch to borewells, and the deficit disappears from the reservoir bulletin while reappearing, invisibly, in the **aquifer**. Roughly half of India's net sown area is irrigated and the rest is rainfed, and groundwater supplies the majority of the irrigated area. The Central Ground Water Board's **Dynamic Ground Water Resources Assessment, 2025**, conducted jointly with State governments across **6,762 assessment units**, placed annual ground water recharge at **448.52 BCM**, annual extractable resources at **407.75 BCM** and total annual extraction at **247.22 BCM**, giving a national **stage of extraction of 60.63 per cent**. Of the assessment units, 73.14 per cent are classified Safe, 11.21 per cent Semi-critical, 2.97 per cent Critical, 1.88 per cent Saline and **10.8 per cent Over-exploited**, with the over-exploited units concentrated in north-west, west and south India.

A deficient monsoon does two things to that balance at once: it reduces recharge and increases extraction. The units already over-exploited are disproportionately in the same regions now showing reservoir stress, so the surface deficit and the subsurface deficit are not independent risks but the same risk arriving through two doors. The true cost of a 15 per cent rainfall deficit is therefore not visible in any reservoir bulletin, and will surface a year or two later as falling water tables, deepened borewells and rising pumping costs in exactly the districts that could least afford them.

HOW TO THINK ABOUT THIS (ANALYTICAL FRAME)

Use the **Four-Gate Water Cascade**. Any monsoon or water question can be structured by asking where the shortfall is absorbed.

- ① **Gate one, rainfall.** How much fell, when, and where, measured against the LPA and against subdivision-level departure categories. Timing matters more than the annual total, because sowing windows are calendar-bound.
- ② **Gate two, storage.** How much was captured in the 166 CWC reservoirs and in smaller State-level structures, measured against both the normal and last year, because the year-on-year comparison is what reveals buffer depletion while the comparison against normal conceals it.
- ③ **Gate three, allocation.** Who gets the stored water and in what order of priority: drinking water, irrigation, industry, hydropower. This is where inter-State disputes, tribunal awards and political economy enter, and where a deficit becomes a conflict.
- ④ **Gate four, the aquifer.** Whatever the first three gates fail to deliver is extracted from groundwater, silently and without a bulletin. This is the shock absorber of last resort, it is finite, and its depletion is invisible until it is irreversible.

Write an answer that walks all four gates and it will read as systems analysis rather than as news summary. Most candidates stop at gate two.

THE DIAGRAM IN WORDS

Picture the map of India with a diagonal line running from Gujarat in the north-west to Odisha in the east. Above and to the east of that line, shade the reservoirs green: the eastern and western regions are at or above normal. Below the line, shade progressively deeper amber down the peninsula until the southern block, holding 47 reservoirs at 30.26 per cent of capacity, is the darkest zone on the map. Now overlay two arrows: a broad arrow sweeping up from the south-west representing the Somali Jet and the Arabian Sea branch, and a horizontal band across the Gangetic plain labelled *monsoon trough*, drawn shifted northward toward the Himalayan foothills to represent break-monsoon conditions. Finally, beneath the whole map, draw a thin horizontal reservoir bar and a much deeper block below it labelled *groundwater*, with a downward arrow from the bar into the block. The picture shows the argument: the rain is misplaced, the surface store is thin, and the shortfall drains into the aquifer where nobody is watching.

WAY FORWARD

- **Publish an integrated water-stress dashboard.** Merge the IMD's subdivision rainfall departures, the CWC weekly reservoir bulletin and Central Ground Water Board piezometer data into a single public district-level index, so that *contingency* decisions rest on one shared number rather than three departmental ones that are never read together.
- **Trigger crop contingency plans by rule, not by discretion.** Pre-notify district-wise alternative crop and short-duration variety plans that activate automatically at defined rainfall and storage thresholds, with seed of drought-tolerant varieties pre-positioned through State agencies before the trigger is hit rather than procured after it.
- **Reallocate storage in the stressed southern basins by declared priority.** Where reservoirs such as Srisailem, Nagarjuna Sagar and Tungabhadra hold under half their normal water, ring-fence drinking water and livestock needs first and publish the allocation order in advance, so that scarcity management is transparent and reviewable rather than improvised under political pressure.
- **Convert micro-irrigation from a subsidy scheme into the default.** Accelerate drip and sprinkler coverage in the water-intensive paddy and sugarcane belts of the peninsula, and pair it with metered or measured electricity supply for agricultural pumping so that the efficiency gain is retained as saved water rather than consumed as expanded irrigated area, which is what has happened wherever metering was absent.
- **Treat aquifer recharge as infrastructure.** Fund and enforce participatory aquifer management in the over-exploited blocks identified by the Central Ground Water Board, linking recharge structures, watershed works and crop-choice regulation at the block level rather than distributing structures without demand-side control, since recharge without extraction limits simply subsidises deeper pumping.

- **Build for intensity, not just for totals.** With dry spells lengthening and wet spells intensifying, revise reservoir operation rules, spillway design and **catchment**-area treatment to capture short high-intensity bursts, so that the same annual rainfall yields more usable storage instead of running off as flood peaks.

PYQ LINKAGE AND PRACTICE

UPSC returns to this territory constantly. **GS Paper 1** has asked candidates to explain the mechanism of the Indian monsoon and the factors responsible for its variability, and to account for the phenomenon of break in the monsoon, which is precisely the mechanism that produced the 2026 distribution problem. **GS Paper 3** has asked why the world is confronted with a crisis of availability of and access to freshwater resources, and has repeatedly probed water conservation, irrigation systems and the sustainability of groundwater use. Prelims has separately tested reservoir and river-basin geography, the institutions of water administration, and the classification of groundwater assessment units.

The consistent demand is that a candidate hold the physical mechanism and the management institution in the same answer, which is exactly what a reservoir bulletin invites. A student who can name the LPA and its reference period, the CWC's 166 reservoirs, the IMD rainfall categories, the ITCZ and Somali Jet mechanism, the El Nino and IOD drivers, and the **CGWB** stage of extraction has covered most of what this theme can be asked in, across both papers.

Practice question: “A deficient monsoon becomes a water crisis only when it meets weak storage and unregulated groundwater extraction. Examine, with reference to the 2026 monsoon season, and suggest measures to build **resilience** in India's water management.” (250 words)

Interview angle: When the monsoon fails, groundwater absorbs the shock and no one sees the crisis. Is that a strength of Indian agriculture or its most dangerous illusion?

Sources: Down To Earth, Central Water Commission, India Meteorological Department, PIB

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