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EDITORIAL ANALYSIS

# AI's Hidden Footprint

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# AI's Hidden Footprint

Business Standard
30 June 2026
GS3

Source: [ujyari.com](http://ujyari.com) — researched, fact-checked & UPSC-mapped



## INTERVIEW ANGLE

*"Data centres for AI are clustering in water-stressed cities. Should environmental clearance and water-use disclosure be mandatory before they are built? Justify."*

Source: [Original editorial](#) Business Standard

✓ Every fact web-verified against primary sources (<https://ujyari.com/how-we-verify/>)

## WHY THIS MATTERS NOW

The conversation around artificial intelligence is dominated by what it can do, write, predict, automate, and too little by what it needs. Every large model runs on data centres, and those centres are physical: they draw electricity, drink water for cooling, occupy land and produce hazardous electronic waste. As India races to build data-centre capacity, much of it in states already short of power and water, the environmental footprint of AI has moved from an abstraction to a planning problem that cannot be deferred.

## THE CRUX IN 60 WORDS

AI is not weightless. Data centres consume power, water and land, and generate e-waste, and India is building them fastest in its most stressed cities. A 100 MW facility can use about 20 lakh litres of water daily. Without mandatory disclosure, energy and water planning, recycled-water cooling and electronics recycling, India's AI ambition will collide with the ground it occupies.

## THE ISSUE, DECODED

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CONCEPT	WHAT IT MEANS	WHY IT MATTERS
Hyperscale data centre	A very large facility hosting AI and cloud workloads	High concentrated demand for power, water and land in one site
Water for cooling	Fresh water evaporated or circulated to cool servers	A 100 MW centre can use ~20 lakh litres a day, straining local supply
Grid emission factor	Carbon intensity of the electricity consumed	On a coal-heavy grid, AI's power draw is carbon-intensive
GPU obsolescence	AI accelerators aging out in 2 to 3 years	Rapid, hazardous e-waste India cannot yet recycle safely
Environmental disclosure	Reporting of actual resource use	Absent it, regulators cannot plan or hold operators to account

## THE ANALYSIS

- 1 Water is the sharpest constraint.** A single 100 MW hyperscale centre can use around 20 lakh litres of water a day for cooling, and national data-centre water demand is set to rise steeply toward 2030, much of it drawn from municipal systems.
- 2 Location multiplies the risk.** Data centres cluster in Bengaluru, Hyderabad and Gurugram, cities that already face water rationing and grid strain, so new demand competes directly with residents.
- 3 The power draw is carbon-heavy.** Large, continuous electricity consumption on a coal-dominant grid means AI's compute translates into significant emissions unless matched by renewable sourcing.
- 4 Hardware becomes waste fast.** High-performance GPUs turn obsolete within two to three years, generating hazardous e-waste laden with rare and toxic materials that India lacks the capacity to recycle safely.
- 5 Opacity** (<https://ujjiyari.com/vocab/opacity/>) **blocks governance.** Many operators disclose little about their water and power use. Without transparency, the state cannot plan supply, price the externality (<https://ujjiyari.com/vocab/externality/>) or hold anyone accountable.

## DATA AND INSTITUTIONS VAULT

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### CARRY THESE INTO THE EXAM HALL.

A 100 MW hyperscale data centre can use around 20 lakh litres of water per day for cooling (CEEW).

India's data-centre water demand projected to rise sharply toward 2030.

AI GPUs turn obsolete in about 2 to 3 years, driving hazardous e-waste.

Stressed hubs: Bengaluru, Hyderabad, Gurugram.

Frameworks in play: E-Waste (Management) Rules, EIA process, state water and power planning.

Concept anchors: grid emission factor, water stress, recycled-water cooling, digital sovereignty (<http://ujjiyari.com/terms/digital-sovereignty/>).

## THE DEBATE

**For light-touch treatment:** Data centres are strategic infrastructure underpinning India's digital economy, AI capability and data sovereignty (<https://ujjiyari.com/vocab/sovereignty/>). They attract investment and jobs. Onerous disclosure or clearance requirements could divert this capacity to more permissive jurisdictions, ceding a critical industry.

**Against (for accountability):** Strategic value does not exempt an industry from its externalities. Concentrated water and power demand in already-stressed cities is a real cost borne by residents. Where operators disclose almost nothing, the public cannot even measure what it is subsidising. Governance is a precondition (<https://ujjiyari.com/vocab/precondition/>) for sustainable growth, not an obstacle to it.

**Balanced verdict:** India should welcome data-centre investment while insisting it internalise its footprint. Mandatory resource disclosure, integration into state energy and water plans, recycled-water cooling and renewable sourcing let the industry grow without hollowing out local resources. The choice is not AI versus the environment; it is planned AI versus unplanned AI.

## HOW TO THINK ABOUT THIS (TRANSFERABLE SKILL)

*You cannot manage what you cannot measure. The first governance step for any resource-hungry industry is mandatory, standardised disclosure of what it actually consumes and emits. Only then can the state plan supply, price the externality and set limits. Apply this "measure, then manage" sequence to groundwater extraction, mining, thermal plants and any activity whose costs fall on the commons.*

## DIAGRAM-IN-WORDS

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AI demand → data centres built in stressed cities → power + water + land drawn, GPUs obsolesce → local scarcity + carbon + e-waste (often undisclosed) → (IF disclosure + energy/water planning + recycled-water cooling + renewables + e-waste recycling) → AI growth without local depletion

## THE WAY FORWARD

- 1 **Mandate** (<https://ujijari.com/vocab/mandate/>) **resource disclosure.** Require standardised reporting of water, power and land use and e-waste generation for every large data centre.
- 2 **Plan power and water together.** Integrate data-centre demand into state energy and water plans so siting reflects genuine local carrying capacity.
- 3 **Incentivise recycled-water and renewable cooling.** Reward operators that use treated or recycled water and renewable electricity over fresh water and grid coal.
- 4 **Scale hazardous-electronics recycling.** Build GPU and server recycling capacity ahead of the two-to-three-year obsolescence wave.
- 5 **Strengthen clearance where stress is acute.** Apply environmental-impact scrutiny to large centres proposed in water-stressed districts.

## THE TAKEAWAY BOX

*Reframe AI as physical infrastructure with an environmental cost. Argue that disclosure and resource planning, not prohibition, reconcile digital ambition with sustainability, using the water and e-waste data as evidence.*

*“The choice is not AI versus the environment; it is planned AI versus unplanned AI, and only disclosure makes planning possible.”*

*100 MW data centre uses ~20 lakh litres water/day (CEEW); water demand rising toward 2030; GPUs obsolete in 2-3 years; stressed hubs Bengaluru, Hyderabad, Gurugram; E-Waste Rules and EIA process.*

*Distributive justice, whether a strategic industry may draw scarce water from communities that already ration it, is an ethical question, not only a technical one.*

*Connects to GS3 questions on emerging technology, environmental impact assessment (<https://ujijari.com/terms/environmental-impact-assessment/>), e-waste management and sustainable resource use.*

*E-waste rules, water security, grid decarbonisation (<https://ujijari.com/vocab/decarbonisation/>), EIA reform, digital sovereignty and the India AI Mission.*

Sources: *Business Standard* (<https://www.business-standard.com/opinion>)

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#### • KEY ARGUMENTS AT A GLANCE

AI is physical infrastructure that consumes electricity, water, land and generates e-waste, so India's data-centre growth, often in power and water-stressed states, must be paired with mandatory environmental disclosure, energy planning and water-use accounting.

#### ✓ SUPPORTING

- A single 100 MW hyperscale data centre can use around 20 lakh litres of water a day for cooling, and India's data-centre water demand is projected to rise sharply toward 2030.
- Data centres cluster in stressed hubs such as Bengaluru, Hyderabad and Gurugram, taxing local water and power supplies where residents already compete for both.
- AI hardware such as high-performance GPUs turns obsolete in two to three years, generating hazardous e-waste that India lacks the recycling capacity to process safely.

#### ⚠ COUNTER

Data centres drive digital growth, jobs and sovereignty, and heavy-handed disclosure or clearance rules could push investment abroad and slow India's AI ambitions.

#### → WAY FORWARD

Mandate environmental and resource disclosures, integrate data centres into state energy and water planning, incentivise recycled-water cooling and renewable power, and build hazardous-electronics recycling before the hardware wave crests.


**MAINS ANSWER FRAMEWORK**

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**QUESTION**

*Artificial intelligence is not only code but physical infrastructure with a large resource footprint. Discuss the environmental implications of India's data-centre expansion and the safeguards it requires. (250 words)*

**INTRODUCTION**

Artificial intelligence is usually discussed as software and productivity, but every model runs on physical infrastructure that draws power, water and land and leaves electronic waste behind. India's data-centre surge makes that footprint a governance question.

**BODY**

A single 100 MW hyperscale facility can consume around 20 lakh litres of water a day for cooling, and national data-centre water demand is projected to climb steeply toward 2030. These centres are concentrating precisely where resources are tightest, in Bengaluru, Hyderabad and Gurugram, taxing municipal water and stretching power grids in cities where citizens already ration both.

The electricity draw is large and, on a coal-heavy grid, carbon-intensive. Meanwhile AI accelerators such as high-end GPUs age out within two to three years, producing hazardous e-waste that India's recycling infrastructure is not equipped to handle.

Compounding this is opacity: many operators disclose little about how much water and power they use.

The answer is not to halt an industry central to digital sovereignty, but to govern it.

Environmental and resource disclosures should be mandatory, data centres should be built into state energy and water plans, recycled-water cooling and renewable sourcing incentivised, and electronics recycling scaled ahead of the obsolescence wave.

**CONCLUSION**

AI ambition cannot be detached from the ground it occupies. With disclosure, planning and resource accounting, India can grow its data-centre base without deepening the water, power and waste stress of the places that host it.


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