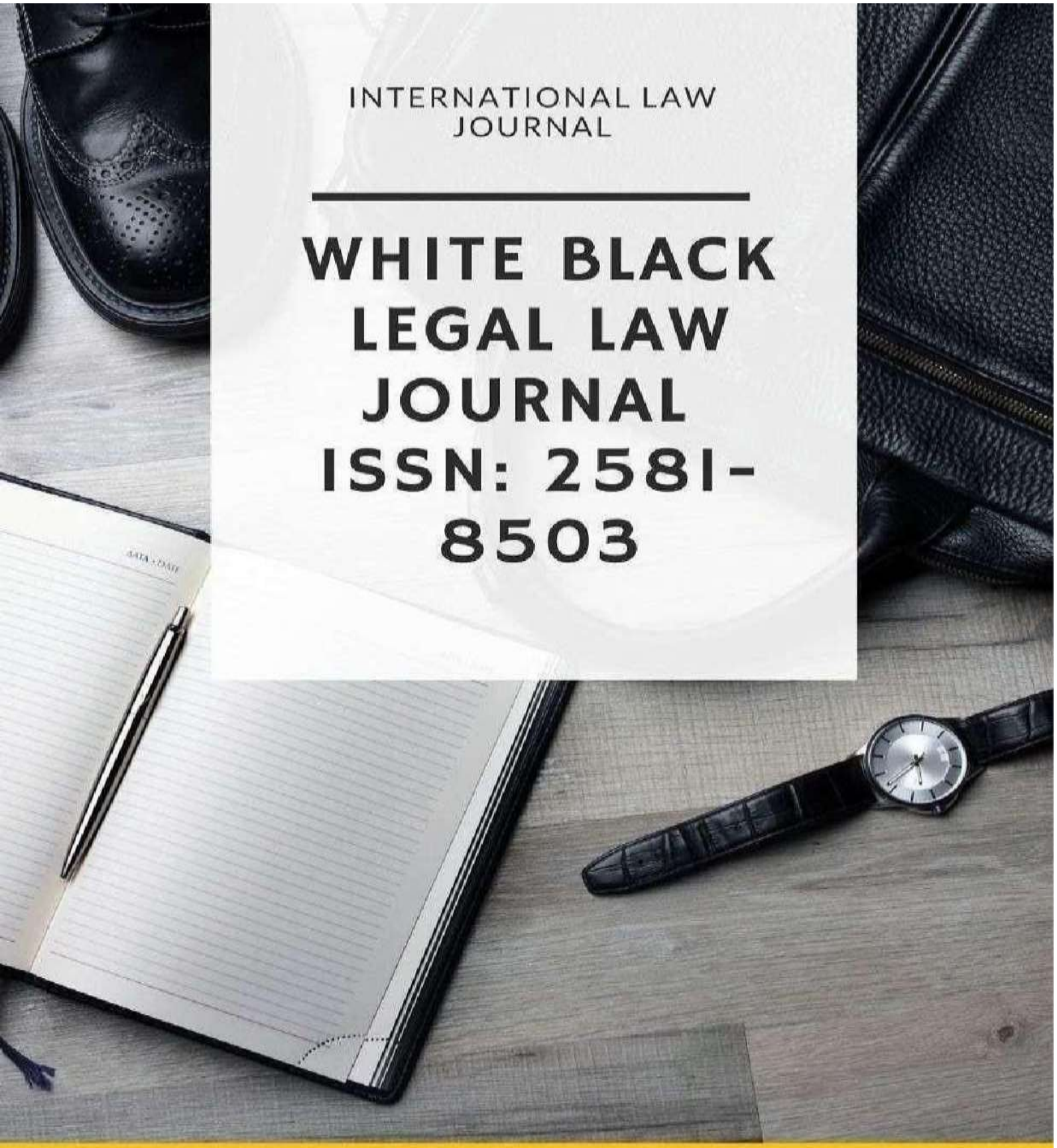

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WHEN ALGORITHMS THIRST: WATER RIGHTS, AI DATA CENTERS, AND THE NEW FRONTIER OF RESOURCE LAW

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Abstract

The swift proliferation of artificial intelligence (AI) infrastructure introduces a unique challenge at the confluence of digital advancement and freshwater scarcity. This article explores the evolving legal frameworks that regulate the intersection of water rights doctrines and AI-driven resource consumption through a doctrinal analysis of international water law principles, jurisdictional case studies—with a particular emphasis on India's Gautam Buddha Nagar (GB Nagar) region—and emerging regulatory responses. The findings highlight significant shortcomings in current regulatory frameworks that fail to adequately address the dual consumption patterns of data centers: direct on-site cooling and indirect water footprints from electricity generation and semiconductor manufacturing. Traditional water allocation systems are ill-equipped to accommodate new industrial users with complex water demands. The study contends that existing water rights paradigms, such as prior appropriation and riparian doctrines, necessitate a fundamental re-evaluation to address the temporal scale, technological specificity, and transboundary impacts of AI infrastructure. Proposed reforms include mandatory disclosure of water footprints, technology-neutral efficiency standards, integrated watershed management strategies, and enhanced application of the public trust doctrine to groundwater resources. This research contributes to the field of resource law by establishing theoretical foundations for regulating novel technological water users and offers practical policy pathways for jurisdictions navigating the AI-water nexus.

Keywords: *AI data centers; water rights; public trust doctrine; groundwater regulation; resource law; environmental justice*

I. Introduction

The latest phase of the digital revolution, marked by the advent of hyperscale AI computing, highlights a critical reliance on one of Earth's most scarce resources: freshwater. The training and inference processes of contemporary AI systems demand extensive computational power, which is accommodated in data centers. These centers utilize cooling systems that consume water at rates akin to those of small urban areas. A single hyperscale data center can withdraw as much as 5 million gallons of water daily for cooling purposes alone—comparable to the annual water usage of 10,000 to 50,000 individuals. Additionally, the indirect water consumption associated with electricity production and semiconductor manufacturing further exacerbates this demand.[1] Projections suggest that by 2028, data centers specifically designed for artificial intelligence will consume approximately 1,068 billion liters of water annually. This represents an 11-fold increase compared to the 2024 baseline figures. It is crucial to note that electricity generation typically accounts for the majority of this water use.[2]

The rapid expansion of data centers is occurring in tandem with escalating global water stress, leading to pronounced localized conflicts where data center initiatives intersect with existing water usage. In the Gautam Buddha Nagar (GB Nagar) district of India, which lies adjacent to Delhi and is a focal point for AI infrastructure development, there is a noticeable decline in groundwater levels, and communities are encountering difficulties in securing water access. This situation is further complicated by the presence of more than 17 data center facilities competing with agricultural and domestic users for the same aquifer resources.[3] In the American Southwest, Chile, and Taiwan, regions characterized by significant water scarcity, there is a marked increase in the establishment of new data centers. This expansion occurs despite insufficient regulatory oversight.[4]

Existing water allocation frameworks—whether prior appropriation systems dominant in the western United States, riparian principles common in eastern U.S. states and many Commonwealth jurisdictions, or hybrid groundwater regimes like India's—were not designed to accommodate users with AI infrastructure's unique consumption patterns: massive,

[1]EESI, 'Data Centers and Water Consumption' (Environmental and Energy Study Institute, 24 June 2025) <https://www.eesi.org/articles/view/data-centers-and-water-consumption>.

[2]Morgan Stanley, 'AI Data Centers to Drive Annual Water Consumption for Cooling and Electricity Generation to Approximately 1,068 Billion Liters by 2028' (Global Research Report, 2025).

[3]DW.com, 'India's AI Expansions Stress Water Supplies near Delhi' (Deutsche Welle, 18 February 2026) <https://www.dw.com/en/india-artificial-intelligence-ai-data-centers-water-supply/video-76018587>.

[4]CNET, 'AI Data Centers: What to Know About Their Water and Energy Use' (5 March 2026) <https://www.cnet.com/tech/services-and-software/ai-data-center-what-to-know/>.

centralised withdrawals; significant indirect water footprints through energy chains; rapid scalability; and often opaque operational details shielding actual usage from regulators. Scholarly attention to this phenomenon remains nascent within legal literature, with few analyses systematically examining how AI-driven water consumption challenges foundational water rights doctrines.

This article addresses three core objectives: (1) to characterise the quantitative and qualitative dimensions of AI data centers' water footprint across all consumption scopes; (2) to analyse how current water rights regimes—particularly groundwater doctrines and public trust principles—interact with or fail to regulate these novel technological users; and (3) to evaluate regulatory innovations and legal strategies emerging in response, with comparative analysis between India's evolving groundwater jurisprudence and international best practices. Methodologically, the study employs doctrinal legal research, comparative analysis of statutory and case law across jurisdictions, and review of policy documents to construct an interdisciplinary framework for governing the AI-water nexus.

II. The Water Footprint of AI Infrastructure

Understanding AI data centers' legal implications begins with characterising their comprehensive water footprint—a multidimensional metric extending far beyond visible on-site cooling towers. Contemporary analyses distinguish three consumption scopes directly analogous to carbon accounting frameworks, each presenting distinct regulatory challenges.

Scope 1: On-site Cooling Consumption

This represents the most visible and often-regulated component: water withdrawn explicitly for data center heat dissipation. A medium-sized data center consumes approximately 110 million gallons annually for cooling—equivalent to 1,000 households' yearly usage—while hyperscale facilities in arid climates may draw up to 5 million gallons per day.[5] Critical variables influencing Scope 1 include local climate (hotter regions requiring more evaporative cooling), chip density (higher AI workload densities increasing heat generation), and cooling technology choice.

Scope 2: Indirect Water Consumption from Electricity Generation

In facility-level evaluations, Scope 2, which covers water consumption indirectly associated

[5]EESI (n 1).

with electricity generation, is frequently underrepresented. Thermoelectric power stations that rely on fossil fuels extract substantial amounts of water: coal-fired power plants necessitate approximately 19,185 gallons per megawatt-hour (MWh), while natural gas facilities require about 2,800 gallons per MWh.[6] In the United States, data centers predominantly use electricity, with 56% of electricity derived from fossil fuel sources. This dependency is even more significant in regions heavily reliant on coal, such as northern India. Consequently, Scope 2 emissions often constitute the largest portion of the overall water footprint.[7] Importantly, the water is extracted from power plants located far from the data centers, resulting in jurisdictional complexities and complicating responsibility assignment within regulatory frameworks.

Scope 3: Embedded Consumption in Equipment Manufacturing

The most obscure yet significant aspect concerns the water used in semiconductor manufacturing. The production of ultrapure water for chip etching and rinsing requires approximately 1,500 gallons of tap water to produce 1,000 gallons of process-grade water, with individual semiconductor facilities consuming over 10 million gallons daily.[8] Taiwan Semiconductor Manufacturing Company (TSMC), producing an estimated 60% of global advanced chips, consumes upwards of 150,000 tons of water daily in water-stressed southern Taiwan.[9] This geographic dissociation creates significant regulatory blind spots: jurisdictions hosting data centers bear none of the manufacturing water burden yet receive the economic benefits, while production regions face water stress without corresponding regulatory leverage from AI operators.

Comprehensive analyses indicate concerning growth patterns. According to Morgan Stanley's 2025 report, AI-driven water consumption is expected to rise to 1,068 billion liters per year by 2028, equivalent to 427,000 Olympic-sized swimming pools. Notably, indirect Scope 2 consumption generally exceeds direct Scope 1 usage, suggesting that enhancements in the efficiency of on-site cooling systems would only partially mitigate the overall environmental

[6]ibid.

[7] Arman Shehabi and others, United States Data Center Energy Use Report (Lawrence Berkeley National Laboratory, LBNL-1005775, 2016) <https://eta.lbl.gov/publications/united-states-data-center-energy> accessed 14 April 2026.

[8]ibid.

[9]Nikkei Asia, 'TSMC's Water Consumption Sparks Concerns in Taiwan' (2023) <https://asia.nikkei.com/Business/Technology/Semiconductors/TSMC-s-water-consumption-sparks-concerns-in-Taiwan>.

impact.[10], [11] Current regulatory frameworks often do not require disclosure of Scope 2 and Scope 3 emissions, enabling operators to report only narrowly defined "onsite consumption" and obscure the full extent of resource utilization. This transparency gap has been observed in numerous jurisdictions.[12]

III. Water Rights Frameworks in Conflict

Surface Water Allocation Doctrines

The bifurcation in Western water law between prior appropriation and riparian systems results in varied regulatory responses to emerging industrial users, such as AI data centers. The prior appropriation framework, which is predominant in states like Colorado, California, and much of the western United States, allocates water rights based on the volume of water diverted, with priority given according to the date of initial use ("first in time, first in right"), and mandates that the water be used beneficially without waste. This framework presents certain benefits: it clearly defines water rights, which aids in meeting metering requirements, and the doctrine of beneficial use can potentially limit inefficient cooling practices. Nonetheless, there are notable drawbacks: the doctrine predominantly addresses surface water diversions, leaving groundwater extraction insufficiently regulated, and its lack of flexibility poses challenges for reallocating resources when new users attempt to access fully appropriated water basins.

Riparian systems, which are prevalent in the eastern regions of the United States, England, and numerous Commonwealth countries, confer upon landowners adjacent to waterways equal rights to reasonable use, ensuring that such use remains undiminished in both quantity and quality. This legal framework is characterized by its adaptability, which permits the inclusion of new users through a reasonable-use analysis. Nevertheless, it faces difficulties in effectively managing water scarcity and is not ideally suited for users who depend on groundwater or have substantial indirect water use. In India, where surface water governance frequently incorporates riparian principles, these limitations become apparent in conflicts over the allocation of water

[10]David Mytton, 'Data Centre Water Consumption' (2021) 3 npj Clean Water 1 <https://doi.org/10.1038/s41545-021-00101-w> accessed 14 April 2026.

[11]Morgan Stanley (n 2); Economic Times, 'AI Data Centers to Drive 11-Fold Rise in Water Consumption by 2028: Morgan Stanley' (7 September 2025) <https://economictimes.com/tech/artificial-intelligence/ai-data-centers-to-drive-11-fold-rise-in-water-consumption-by-2028-morgan>.

[12]Down to Earth, 'India's Data Center Dilemma: Water Crisis vs Digital Expansion' (3 November 2025) <https://www.downtoearth.org.in/science-technology/indias-digital-thirst-data-centres-are-rising-in-water-scarce-regions>; The Leaflet, 'The Data Centre Rush: Can Law and Policy Manage the Environmental Costs of Digital Growth?' (27 January 2026) <https://theleaflet.in/digital-rights/law-and-technology/the-data-centre-rush-can-law-and-policy-manage-the-environmental-costs>.

for reservoir releases versus groundwater extraction for cooling in data centers.[13]

Groundwater Regimes: From Absolute Rights to Evolving Doctrines

The governance of groundwater resources presents considerable regulatory challenges for AI data centers. The Absolute Landowner Rule, historically enforced in India and certain eastern states of the United States, endows landowners with unrestricted rights to extract groundwater, irrespective of the repercussions on neighboring properties or the long-term sustainability of aquifers. This often results in scenarios emblematic of the tragedy of the commons.[14] Administrative permit systems are increasingly mandating state authorization for resource extraction activities. In India, the Central Ground Water Authority (CGWA) has established a system akin to permits by issuing No Objection Certificates (NOCs) for industrial extraction in areas identified as over-exploited. Despite this framework, the enforcement of these regulations is inconsistent, and existing users are often granted exemptions.[15] [16]

The Public Trust Doctrine's Expanding Scope

The public trust doctrine's evolution from narrow navigation protections to comprehensive water resource governance represents one of environmental law's most significant doctrinal developments. In India, judicial expansion has been particularly progressive. Following *MC Mehta v Kamal Nath* (1997),[17] Courts progressively extended this doctrine to groundwater. The Kerala High Court expressly held that "underground water belongs to the general public" and that industries lacked the right to extract quantities that harm public access.[18] The Uttar Pradesh Ground Water (Management and Regulation) Act 2019 explicitly recognises groundwater as a common pool resource, enabling state curtailment of "excessive" private extraction.[19] Article 21's right to life encompasses pollution-free groundwater (*Vellore Citizens Welfare Forum v*

[13]Joseph W Dellapenna and Joyeeta Gupta (eds), The Evolution of the Law and Politics of Water (Springer 2009).
[14]International Environmental Law Research Centre, 'Groundwater Law in India' (2014) <https://www.ielrc.org/content/a1403.pdf>; National Law School of India University, 'Revamping the Groundwater Legal Regime in India' (2014) <https://repository.nls.ac.in/cgi/viewcontent.cgi?article=1045&context=slr>.

[15]Sujith Koonan and Lovleen Bhullar (eds), Water Law in India: An Introduction to Legal Instruments (International Environmental Law Research Centre, 2013); see also Philippe Cullet, 'Groundwater Law in India: Towards a Framework Ensuring Equitable Access and Aquifer Protection' (2014) 26(1) Journal of Environmental Law 55.
[16]Central Ground Water Board, 'Ground Water Regulation' (Ministry of Jal Shakti, Government of India, 2024) <https://cgwb.gov.in/en/ground-water-regulation>.

[17]MC Mehta v Kamal Nath (1997) 1 SCC 388 (Supreme Court of India).

[18]Orient BlackSwan, Public Trust Doctrine in Indian Environmental Law (Orient BlackSwan 2025) ch 6.

[19]Uttar Pradesh Ground Water (Management and Regulation) Act 2019.

Union of India, 1996), while Articles 48A and 51A(g) establish constitutional state and citizen duties to protect natural resources.[20]

This evolving jurisprudence provides robust grounds for challenging AI data center groundwater withdrawals that impair public access. Importantly, the doctrine shifts focus from merely quantifying rights to evaluating whether uses align with the resource's preservation for public benefit—a flexible standard accommodating technological change while anchoring protection in communal rather than purely proprietary interests.

IV. Case Study: India's GB Nagar and the AI-Water Conflict

Gautam Buddha Nagar (GB Nagar) district—encompassing Noida, Greater Noida, and Yamuna Expressway corridors adjacent to Delhi—exemplifies the intensifying clash between India's AI ambitions and water security. Designated as a semiconductor and electronics manufacturing hub under national production-linked incentive schemes, the region has attracted unprecedented data center investment: as of early 2026, at least 17 facilities were operational or in advanced planning stages, transforming GB Nagar into one of India's largest data center clusters.[21]

The hydrogeological context amplifies these conflicts. GB Nagar is positioned atop sections of the Yamuna basin's alluvial aquifer system, which the Central Ground Water Authority (CGWA) has designated as "over-exploited" due to sustained agricultural and municipal demands. This existing stress is manifested in the form of declining water tables, with reports indicating annual reductions of 1–2 meters in critical zones, and increasing salinity intrusion as a consequence of excessive extraction near the Yamuna River. Within this fragile system, AI infrastructure is introduced, which imposes significant water demands: mid-sized facilities require 100–200 cubic meters daily for cooling, whereas hyperscale facilities may demand in excess of 5,000 cubic meters per day.

The Yotta Data Centre Park located in Greater Noida exemplifies a case of regulatory complexity. After obtaining environmental clearance in October 2020, which set a limit of 120 kilolitres per day (KLD) on freshwater consumption, contingent upon securing a No Objection Certificate (NOC) from the Central Ground Water Authority (CGWA), the project highlights the challenges of regulatory interpretation. Greater Noida is categorized as an over-exploited zone by the CGWA, necessitating the consideration of alternative water sources if groundwater

[20]Vellore Citizens Welfare Forum v Union of India AIR 1996 SC 2715; Constitution of India 1950, arts 48A, 51A(g).

[21]DW.com (n 3); Down to Earth (n 10).

extraction is intended. Despite inquiries into regulatory adherence, local groundwater authorities did not confirm compliance status, illustrating a broader pattern of regulatory ambiguity across various data center projects in India.[22] Villagers in nearby Tusiana report declining well yields and fears of contamination—a classic environmental justice concern in which benefits (digital services, tax revenues) accrue distantly while burdens (water depletion, quality degradation) concentrate locally.

Environmental impact assessments (EIAs) for data center projects frequently neglect to include analyses of Scope 2 and Scope 3 emissions. For example, a project that reports an onsite water usage of 120 KLD may, in reality, be indirectly responsible for consuming three to five times that amount due to reliance on coal-generated electricity. This discrepancy is often not addressed in the clearance documentation. Furthermore, EIAs tend to ignore the cumulative environmental impacts when multiple data centers are proposed in the same over-exploited basin. This omission is particularly problematic, as groundwater depletion can reach nonlinear thresholds beyond which recovery is improbable.[23] Operators frequently disclose little about actual water use metrics or electricity sourcing, hindering independent verification of claimed efficiencies.[24]

These deficiencies violate both India's progressive groundwater jurisprudence and constitutional commitments to participatory governance under Articles 243G and 243W (pertaining to panchayat and municipal powers). Public hearings often occur after preliminary approvals, feature technical presentations inaccessible to lay audiences, and fail to adequately translate hydrological impacts into tangible consequences for water access or agricultural viability.

V. Emerging Solutions and Best Practices

Technological Innovations

Liquid and immersion cooling technologies are emerging as leading solutions for reducing on-site water usage. Direct-to-chip cooling systems precisely deliver coolant to CPUs and GPUs, optimizing thermal regulation. Conversely, immersion cooling involves submerging components in dielectric fluids, thereby eliminating evaporative losses and minimizing water consumption for heat dissipation. According to the U.S. Department of Energy, these

[22]Down to Earth (n 10).
[23]ibid; The Leaflet (n 10).
[24]The Leaflet (n 10).

innovative cooling systems can reduce freshwater usage by 70–90% compared to traditional evaporative cooling towers.[25] Transitioning data center electricity supply to renewables directly addresses Scope 2 footprints, since solar photovoltaic and wind generation require negligible operational water. Microsoft's 2030 water positivity pledge includes renewable energy procurement as a key strategy to reduce its indirect water footprint, targeting a 100% renewable supply by 2030.[26]

Legal and Regulatory Innovations

Various jurisdictions are leading the way in enacting pertinent reforms. The European Union's Corporate Sustainability Reporting Directive (CSRD) obligates companies to disclose water consumption as part of the European Sustainability Reporting Standards (ESRS) E3, thereby promoting greater transparency in Scope 2 and 3 emissions. In a similar vein, India's Business Responsibility and Sustainability Reporting (BRSR) framework may necessitate detailed reporting of water footprints for infrastructure projects located in specified zones.

The analysis associated with Colorado's HB 21-1268 examined technology-neutral efficiency standards, focusing on the maximum Water Usage Effectiveness (WUE) benchmarks, expressed in liters per kWh. This methodology grants operators the latitude to determine the most effective solutions, thereby conserving resources and recognizing that such adaptability encourages innovation.[27] Australia's Murray-Darling Basin Plan establishes sustainable diversion limits at the catchment level, requiring new users to demonstrate offsets if they push systems beyond thresholds—a model readily adaptable to the Yamuna-Ganga inter-basin perspective needed for GB Nagar governance.[28]

VI. Discussion and Policy Recommendations

Theoretical Implications for Resource Law Scholarship

This analysis highlights AI data centers as instrumental in driving the evolution of resource law beyond mere incremental adjustments. Their water consumption patterns challenge foundational assumptions in three critical ways, necessitating doctrinal advancement. Firstly,

[25]EESI (n 1).

[26]NY Times, 'Microsoft Pledged to Save Water. In the AI Era, it Expects to Use More' (30 January 2026) <https://www.nytimes.com/2026/01/27/technology/microsoft-water-ai-data-centers.html>.

[27]Colorado State University, 'Emerging Technologies to Improve Water Resource Management in Colorado – HB 21-1268 Final Report' (Spring 2022) <https://www.colorado.edu/center/mortenson/sites/default/files/attached-files/etiwrmc_final_web.pdf>.

[28]'Navigating India's Groundwater Crisis: Legal and Institutional' (2024) 26(8) Water Practice & Technology 835.

AI infrastructure serves as a prime example of "teleconnected resource users"—entities whose primary resource impacts are geographically distant from their economic benefits. Traditional water rights doctrines presuppose a close proximity between resource use and its impact, making conventional jurisdiction-based regulation insufficient. The Scope 2 and 3 footprints reveal that a data center located in GB Nagar can affect aquifers in distant regions while providing local advantages, illustrating a spatial disconnect that necessitates the formulation of "extraterritorial resource responsibility" principles. This could be achieved through mechanisms such as supply chain due diligence requirements or international cooperative frameworks akin to those addressing climate loss and damage.[29]

Second, the temporal dynamics of AI-driven impacts present significant challenges to doctrines traditionally structured for gradual change. Aquifers can endure prolonged periods of incremental stress before reaching a sudden, nonlinear collapse when storage levels fall below critical thresholds. Despite this, prior appropriation systems allocate water rights based on historical usage patterns without considering proximity to these critical thresholds. The rapid scalability of AI data centers, capable of doubling demand within 18–24 months, exacerbates this "regulation lag," necessitating proactive measures such as groundwater sustainability buffers and dynamic allocation adjustment mechanisms informed by real-time monitoring.

Third, AI infrastructure exacerbates procedural and distributional inequities inherent in water allocation. While benefits such as tax revenues, skilled employment, and digital services typically accrue at state or national levels or to global consumers, the burdens, including water depletion, quality degradation, and increased energy costs for deeper well pumping, are disproportionately borne by local, often marginalized agrarian communities. To address these issues, it is crucial to integrate environmental justice impact assessments into water permitting processes, ensure that affected communities have legal standing to contest allocations, and require benefit-sharing mechanisms for major industrial users in stressed regions.

Policy Recommendations

Short-term (0–2 years): (i) Modify environmental clearance protocols to necessitate the reporting of Scope 1, 2, and 3 water footprints, employing standardized frameworks with third-party verification for projects situated in designated groundwater zones; (ii) establish notification protocols under the Central Ground Water Authority (CGWA) that link industrial water usage restrictions to real-time aquifer data, with automatic reduction mechanisms

[29]Patricia Birnie, Alan Boyle and Catherine Redgwell, International Law and the Environment (3rd edn, Oxford University Press 2009) 534–538.

activated when declining trends exceed recharge rates for six or more consecutive months; (iii) require explicit public interest determinations to ensure that proposed groundwater extractions do not jeopardize domestic water supplies or ecological functions, thereby placing the burden of proof on the applicants.

Medium-term (2–5 years): (iv) Set maximum benchmarks for Water Use Efficiency (WUE) in data center cooling, providing preferential treatment—such as expedited approvals and reduced fees—for facilities that achieve or surpass these benchmarks; (v) revise zoning regulations to encourage the co-location of industrial water symbiosis, especially in designated electronics manufacturing zones; (vi) initiate matched grant programs to support community-based aquifer monitoring in regions adjacent to data centers, thereby producing transparent data to inform allocation decisions.

Long-term (5+ years): (vii) Shift from static permitting to dynamic allocation systems, where industrial users hold interruptible rights that are subordinate to domestic and ecological needs, adjusted annually based on aquifer health indicators and inspired by Australia's water entitlement frameworks; (viii) formulate bilateral or multilateral agreements to address teleconnected water impacts, including collaboration between India and Taiwan on semiconductor water footprint transparency; (ix) broaden Environmental, Social, and Governance (ESG) criteria for infrastructure projects to encompass net-positive water commitments, requiring users to replenish or restore equivalent volumes to affected watersheds through independently verified mechanisms.

VII. Conclusion

The swift growth of AI data centers highlights a significant discord between contemporary technological needs and the water allocation systems developed in the nineteenth and twentieth centuries. AI-related water consumption, which includes direct cooling at data centers, indirect demands from electricity generation, and the embedded water footprint of manufacturing, poses challenges that existing water rights frameworks are ill-equipped to handle. Traditional systems are strained by teleconnected impacts, in which the locations of consumption and consequences are disconnected, temporal mismatches between the slow pace of legal adaptation and the rapid pace of technological advancement, and procedural injustices that result in an uneven distribution of benefits and burdens across different regions and social groups.

The GB Nagar region in India exemplifies these dynamics in real-time. The country's advanced

groundwater jurisprudence, particularly the High Court's application of the public trust doctrine to subsurface waters, offers a strong legal basis for regulating AI infrastructure withdrawals that could jeopardize public access or ecological functions. Nonetheless, there are notable implementation challenges: lack of transparency in environmental assessments, insufficient cumulative impact analysis, limited community involvement in siting decisions, and neglect of Scope 2 and 3 footprints, all of which undermine even the most progressive legal frameworks. Addressing these issues requires concurrent advancements in technology, law, and institutional frameworks. Jurisdictions must move towards transparent and comprehensive footprint reporting, adopt technology-neutral efficiency standards, implement integrated watershed management, and reinforce public trust applications that emphasize the preservation of resources for both current and future generations. Managing the AI-water nexus necessitates a fundamental rethinking of water as a public trust resource in the Anthropocene era. As AI continues to transform economies and societies, water law must evolve to ensure that digital advancements do not compromise the freshwater systems essential for life. The imperative for innovative, equitable, and effective water governance in the age of algorithms is immediate.