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Perspective

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The Thirsty Machine: India's AI Data Centre Race, the Water Crisis, and the Choice Between Argentina's Libertarian Gamble and China's Governance Blueprint

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Abstract

India is building an artificial intelligence data centre network, which is expected to grow to 15 GW by 2031, almost entirely in severely water-stressed cities. This digital growth is coming at a time when we estimate that by 2025 water use has reached 150 billion litres per year, and by 2030 it will increase to 358 billion litres per year, while experiencing aquifer depletion, water scarcity in cities, and no requirement for environmental disclosure Significantly, under the Environment Impact Assessment Notification 2006, gigawatt-scale computing facilities are classified under building construction (Category B2) and hence do not require a public hearing, disclosure of water source, or mandatory Power Usage Effectiveness (PUE) and Water Usage Effectiveness (WUE) benchmarking.. There is no national data centre policy in force since it has been in draft since 2020. This study employs a most-different systems design model (Przeworski & Teune, 1970) to compare three distinct governance paradigms for AI infrastructure: India's democratic vacuum, Argentina's libertarian deregulation, and China's authoritarian spatial planning. This article examines the libertarian vision of the zero regulation, non-liability, AI corporation, governance-free zones for hyperscale infrastructure espoused by Argentina's Milei government as a model for Third World approaches to international law as neo-colonial resource extraction. China's "East Data, West Computing" initiative offers an alternative state-led roadmap and includes the commercial scale deployment of underwater cooling, the spatial movement of data centers to the interior, the imposition of PUE/WUE standards, and the implementation of water pricing. Based on the insights of recent sustainability science, of hydrology, and of governance scholarship, this article calls for a rejection of the race-to-the-bottom deregulatory impulse and of authoritarian centralisation in India, in favour of a sovereign, democratic path, based on mandatory environmental benchmarks, spatial planning, community consent, and institutional accountability. India's freshwater resources constitute a public commons requiring democratic governance, not an unregulated subsidy for expropriation of the global AI infrastructure expansion.

Keywords: AI data centres; water stress; India; environmental governance; digital sovereignty; Argentina; China; sustainability policy; EIA; TWAIL

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I. OPENING: THE PARADOX OF THE DIGITAL DESERT

The farmers have seen a fall in their wells in the rural village of Tusiana in the outskirts of Greater Noida. After being buried 20 to 30 feet under, groundwater now needs to be pumped from 80 feet down, which has been noticed since Yotta Data Services' 250 MW campus, situated nearby, was commissioned (Krishnamurthy, 2025). Farmers don't use the Internet. They do not train any machine-learning models. They are not video streaming or chatting, either. It is their aquifer that they are using without realising, however, to cool their servers that power a digital economy that they will not easily be able to access. This localized scarcity is typical of many communities around data centre clusters in India, and is similar to that observed in other data centre clusters around the globe, where low availability of decentralised water management infrastructure (Sharma et al., 2026; Martinez et al., 2026).

This is not an isolated incident; rather, it reflects a structural misalignment between India's digital infrastructure planning contrasting its hydrological realities. With a surge of AI infrastructure, there is an urgent need for a comprehensive framework in sustainability science that can consider the real environmental impact of AI technologies, as they are a key player in solving a complex global technological problem (Schirone, 2025). With new genre of literature specifically dedicated to the interface of technology, environment and society, (Leal Filho, 2020), it is imperative to consider India's data centre boom as much more than an economic achievement, and as a sustainability challenge to solve. India is building up one of the world's biggest AI data centre networks, which will grow to 15 GW by 2031 and 2 GW by 2026.

The centres are almost all located in 5 of India's most water stressed cities – Mumbai, Bengaluru, Chennai, Hyderabad, and Delhi National Capital Region. This spatial concentration represents a significant planning paradox. S&P Global estimates that 60-80 per cent of India's data centres will be highly water stressed by 2030. Most of the major data centre locations in India are already in areas that are considered to be "high to extremely high" water stressed,

confirms The Council on Energy, Environment and Water (CEEW). The spatial mismatch between compute demand and water availability is not exclusive to India. As can be seen in recent systems-level analyses, many data centres throughout the world are located in water-stressed places and with high heat exposure, highlighting the need for more comprehensive systems-level approaches to planning. (Kollar & Grady, 2025). In the meanwhile, India has not yet passed a national data centre policy, not set any mandatory water or energy efficiency standards and is still considering gigawatt-scale computing infrastructure to be under the same EIA category (B2) as residential building construction in terms of environmental effect. The growing tension between digital infrastructure expansion and environmental sustainability has been well documented in recent bibliometric analyses (Khan et al., 2025), while the water stress implications of such infrastructure sit within a broader global context of intensifying water scarcity affecting billions (Fukuda et al., 2026). Indeed, projections suggest that AI's global water footprint could reach 4.2–6.6 billion cubic metres annually by 2027, with many data centres located in water-stressed regions (Barnett-Itzhaki, 2026; Bozkurt, 2025).

At precisely this moment, two other countries are demanding the world's attention. Writing in the Op-Ed column of Financial Times, President Javier Milei of Argentina has declared a manifesto, pledging to let AI firms "free themselves from regulation" and promising "no regulation" for their environment, a new class of AI operated corporations that will be "immune to liability" and nuclear-powered server farms in Patagonia, Argentina, as the world's fourth AI hub. This deregulatory posture mirrors a broader global trend in which competing jurisdictions race to attract AI investment by loosening oversight (Geshitaruto-Intsurepido & Slany, 2026; Silva, 2026), and reflects what scholars have described as a governance-free zone for transformative technology driven more by libertarian accelerationist ideologies than sound environmental management (Howson, 2026). In the high altitude computing parks of Inner Mongolia, China is implementing the most systematic state-led initiative in the world, as it tries to balance the explosive growth of digital infrastructure with growing water and energy shortages—a model increasingly studied for its synergistic effects on urban ecological resilience when combined with low-carbon city initiatives (Zhou et al., 2026).

The three stories of this article are the thirsty machine of India, Argentina's libertarian gamble and China's technocratic blueprint. This is the main point that India needs to make; it has to take its own route and not the route of either Argentina, which is a race to the bottom, or of China which is a one-dimensional authoritarian option. India can drive the AI infrastructure economy independently on a democratic path, if it embraces it now, decisively and with institutional courage.

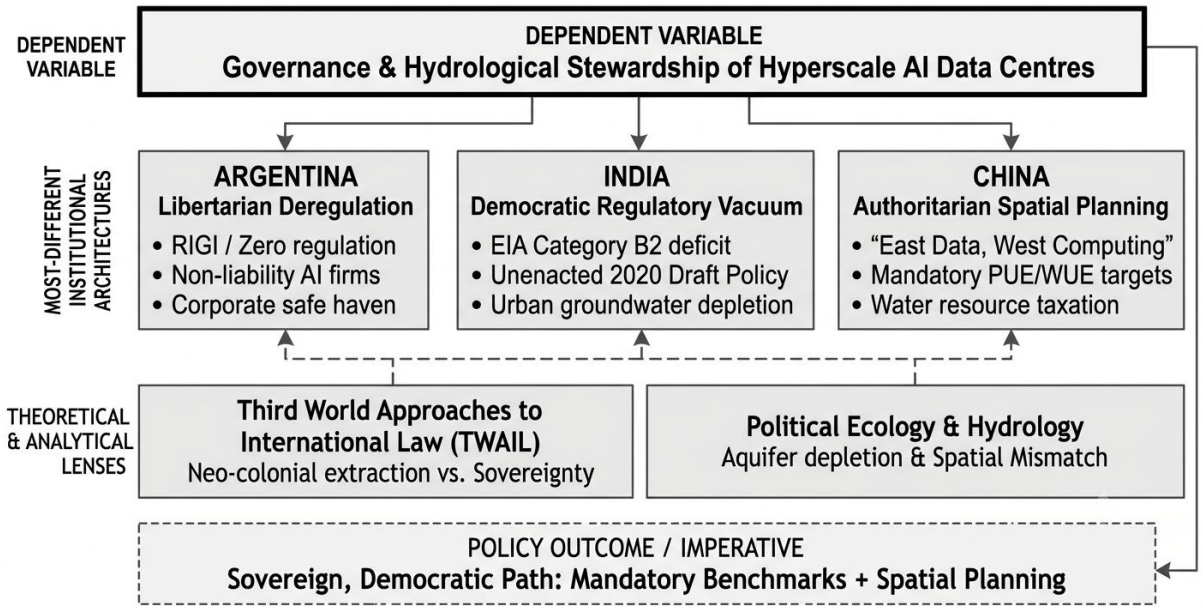


Figure 1: Schematic representation of the Most-Different Systems Design (MDSD) (Przeworski & Teune, 1970) comparing three divergent governance paradigms addressing hyperscale AI data centre water consumption.

This article employs a most-different systems design (Przeworski & Teune, 1970) to compare three distinct governance paradigms for AI data centre infrastructure: India's democratic regulatory vacuum, Argentina's libertarian deregulatory experiment, and China's authoritarian state-led spatial planning. These three cases are selected because they represent maximally divergent institutional architectures: federal democracy with judicial oversight, presidential libertarianism with institutional dismantling, and centralised one-party state planning, while sharing a common dependent variable: the governance of water consumption in hyperscale AI data centres.

The comparative analysis draws on three categories of primary evidence: (i) official government policy documents, budget statements, and legislative texts; (ii) investigative journalism reports documenting on-the-ground impacts; and (iii) peer-reviewed sustainability science literature on data centre water footprints, cooling technologies, and spatial planning. The normative framework is grounded in Third World Approaches to International Law (TWAIL) and political ecology, which together provide the analytical vocabulary to assess questions of sovereignty, resource extraction, and institutional accountability in the contect of the Global South.

II. INDIA'S DATA CENTRE BOOM AND THE WATER CRISIS WITHIN

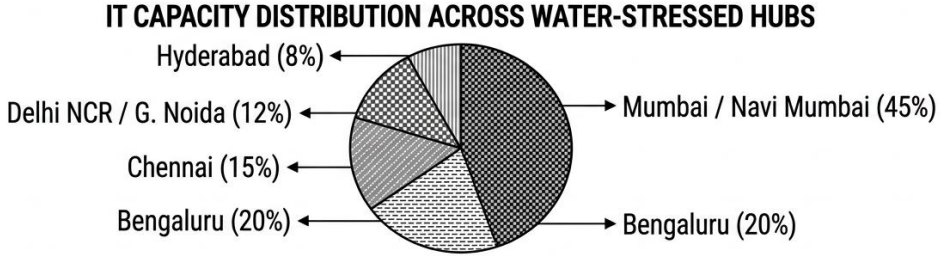
India's plans to build AI data centers are truly impressive. The country currently has around 271 data centres, total installed IT capacity of around 2 GW as of early 2026. The market is expected to grow at a CAGR of 22.79 per cent and is expected to hit 15.21 GW by 2031. The announcements are huge: Google's one-GW AI campus in Visakhapatnam, powered by AdaniConneX Government of Andhra Pradesh, 2026); Reliance's target of 3GW at Jamnagar (Reliance Industries, 2026), at $17.5 bn, Microsoft's plan to deploy its AI in multiple cities (Microsoft India, 2026); and Adani Group's $100 bn plan to install 5GW by 2035 (Adani Group, 2026). The Union Budget 2026–27 has officially labelled data centres as 'core infrastructure' and the government has announced a 20-year tax holiday for foreign cloud hyperscalers that are using infrastructure in India (Ministry of Finance, Government of India, 2026).

This is an extraordinary national accomplishment, both economically and otherwise. But the physical geography of this ambition is deeply troubling. The daily deficit of water of 80 million litres has been reported in Mumbai and Navi Mumbai, which has almost half of the data centre capacity in India. Bengaluru is the fastest-growing data centre city in the country and in March 2024, it was hit by a water board directive to reduce water supply by 20 per cent to 38 bulk users, including tech parks, during the driest April in 41 years—a crisis whose dynamics have been analysed in terms of the confluence of geopolitical, climatic, and anthropogenic factors (Moharaj et al., 2026). Even with below 1 per cent reservoir levels, Chennai was at "Day zero" in June 2019, and the city saw no signs of any lull in the building of data centres, a situation compounded by groundwater contamination and excessive household expenditure on drinking water in zoning-violated areas (Panta et al., 2023; Sakthivel et al., 2019). The CtrlS Chandan Valley, an 612 MW campus, is located in a district with a 300 million litre shortage each day. Yotta's 250 MW park is located in Greater Noida which is considered high water-stress (Krishnamurthy, 2025). These observations echo findings that groundwater depletion in water-stressed regions of India is accelerating, with statistically significant declining trends detected across multiple monitoring wells (Kirubakaran & Jesudhas, 2026), and that semi-urban communities in India face acute freshwater scarcity exacerbated by the absence of decentralized water management infrastructure (Sharma et al., 2026). Long-term satellite-derived assessments confirm that India has lost vast quantities of groundwater over the past two decades, with the Indo-Gangetic plains among the most severely depleted regions globally (Xiong et al., 2022; Dangar & Mishra, 2021; Bhattarai et al., 2023).

The government of India is creating a digital economy of 15 GW atop the aquifer of already water-stressed cities. Although there exists a mere policy oversight without implementation

blueprint or protocol for officials. This spatial mismatch represents a structural contradiction in India's current infrastructural planning paradigm. The numbers behind the water maths are dramatic. Typical 1 MW data centre uses approximately 68,500 litres a day, or 26 million litres a year. The estimated water usage for all of India's data centres is 150 billion litres in 2025. That will rise to 358 billion litres by 2030 (Author's calculation based on Mytton, 2021; S&P Global, 2025). These are not "marginal" numbers. Those are big demands on a water-stressed resource, and whose legal system we will explore below has no way to measure, disclose or cap how much of it the digital sector consumes. Globally, the water footprint of data centres has been estimated at 312.5–764.6 billion litres for AI systems alone in 2025, and scenario-based probabilistic forecasting suggests that without mitigation, global data centre water consumption could increase more than sevenfold by mid-century (de Vries-Gao, 2026; Herrera et al., 2025). The environmental footprint of data centres is compounded by the energy demands of the digital economy, which carries significant carbon and resource implications that have been increasingly scrutinized in Asian contexts (Mohammad et al., 2026), and whose full lifecycle impacts—including rebound effects from efficiency gains—remain underappreciated in polarised environmental debates (Luccioni et al., 2025).

URBAN CLUSTER	CAPACITY (GW) 2.0 15.2	SHARE NATIONAL IT LOAD (%)	WATER DEFICIT STATUS	IMPLICATIONS
Mumbai / Navi Mumbai	[■■■■■■■■■■] 45%	45%	High Stress	80M L/day municipal
Bengaluru	[■■■■■■■]	20%	High Stress	Forced supply cuts
Chennai	[■■■■■■]	15%	'Day Stress	"Day Zero" risk
Hyderabad	[■■■■■]	15%	Low Stress	9.0M L/day municipal
Delhi NCR	[■■■■]	10%	High Stress	Water resov taxation



Overall Impact: 60%–80% of total Indian compute capacity will face high water stress by 2030

Figure 2: Detailed matrix and pie chart adaptation visualizing the extreme spatial concentration of India's compute capacity across severe water-deficit urban centers (e.g., Mumbai, Bengaluru, Chennai), highlighting regional groundwater depletion risks.

The regulatory fault line is just as stark as the physical one. The Environment Impact Assessment Notification 2006 categorizes the data centres under the "building construction" category (B2) where they do not need a full EIA report, do not need to hold a public hearing

and have no obligation to disclose the volume of water or energy they use, or the quantity of back-up diesel they store (Krishnamurthy, 2025). This is the category for apartment buildings. An entire 1 GW hyperscale computer facility, which consumes more than 1,600 MW of grid power and has a nearly 1,000 MW diesel backup power capacity, clears the same clearance process. The regulatory mismatch, which was highlighted by the Visakhapatnam case in April 2026, is that two one-gigawatt data centre parks were submitted and approved in nine days, without any public hearing and without disclosure of water sources (Ministry of Environment, Forest and Climate Change, 2026). The Human Rights Forum after that has called on the immediate suspension of both environmental clearances and has asked the Ministry of Environment to establish a specific category for environmental regulations (Human Rights Forum, 2026). As of June 2026, there is no such amendment. The absence of mandatory energy efficiency benchmarks such as PUE in India contrasts sharply with jurisdictions like Singapore, where benchmarking has been pursued since 2012, and with broader calls for standardised efficiency metrics in tropical data centres (Chilukuri et al., 2018), as well as with emerging scholarship on the urgent need for transparent water-use reporting and region-specific regulation globally (Barnett-Itzhaki, 2026; Privette et al., 2026; Odion & Addula, 2026).

The absence of mandatory disclosure mirrors a broader failure in institutional reporting. As the recent analyses highlight the need to link the large institutional frameworks to the United Nations' 2030 Agenda in a transparent manner by means of sustainable reporting (Nikolaou et al., 2023), India's data-centre space should be included in this. The sector is totally disconnected from global sustainability objectives if water and energy disclosure is not required. It's the natural outcome of a policy regime that has been based on attracting investment rather than regulating the environment, and one that has been in place long before the rise of AI. Since 2020, a National Data Centre Policy is being drafted. It has not been enacted till this date. This policy gap is consistent with the trend of global governance in both labor and technology, where soft governance structures and voluntary guidelines are the prevalent forms, and hard, binding frameworks are lacking (Silva, 2026; EgBobamwonyi-Bedaux, 2026; Ustyuzhantseva, 2025).

III. THE MILEI MANIFESTO: SEDUCTION AND ITS PRICE

The call of Argentina to AI is to free itself. Milei isn't only deregulation. It's the intentional destruction of the institutional ability to manage AI at every level — and the export of that model as a competitive edge. There is no reference to limits on water use, any environmental

impact assessment commitments, community consent requirements, renewable energy commitments, data sovereignty obligations or any commitments to job creation in the op-ed. A Reuters investigation revealed that a Stargate Argentina size facility consumes 10 million litres of water per day, on average. In the current system, this figure will not be published, not regulated, nor monitored: exactly what Milei has pledged to remove from the system. This deregulatory approach aligns with what has been described as a governance-free zone for transformative technology, driven more by libertarian accelerationist ideologies than sound environmental management (Howson, 2026), and echoes broader critiques of "extra terra nullius" approaches that seek to off-world or externalise the environmental costs of AI, Bitcoin mining, and cloud computing rather than reconcile them on Earth (Howson, 2026).

Patagonia is marketed as water-secure because it is cold and dry, and thus not a lot of evaporative cooling is required. That's a conflation of climate and hydrology, though. Patagonia has a fragile glacier-fed river system, a semi-arid steppe climate, and competing demands that are competing for the use of water in the region from the productive sector, the hydroelectric sector and the indigenous sector. Recent climatological research confirms that aridity across Argentina, including Patagonia, has been intensifying over recent decades, driven primarily by precipitation reductions and amplified by rising evaporative demand (Blanco & Doyle, 2026a). Furthermore, dryland extent in Argentina—including Patagonia—oscillates with Pacific Decadal Oscillation phases, and small variations in water availability can lead to significant environmental and socioeconomic problems in these vulnerable regions (Blanco & Doyle, 2026b). Milei's nuclear plan adds to this: SMRs, even they, need a lot of water to cool the reactor components, and the water infrastructure in Patagonia cannot cope with the compound needs of a hyperscale data centre complex powered by nuclear technology. Similar concerns exist more widely across the region of Latin America, where analyses of the development of AI hubs highlight how water crises become a central issue in community opposition to AI (Malamud, 2024), and where studies of divergent sociotechnical imaginaries around the building of the data centres reveal water consumption as a point of community opposition to the construction of Chilean data centres, where water usage and ‘extractivism' around the construction of data centres have become flash points of community opposition to AI (Tironi & Albornoz, 2025). The biggest fault in the Milei model, however, has nothing to do with the physical resource: it has to do with the liability architecture. When the environmental damage is caused by an artificial intelligence-based non-human corporation, e.g. a failure of a cooling system that pollutes a local watershed, or financial loss caused by a runaway model, or infringement on fundamental rights by an automated decision, no one is

legally responsible. No liability for entities with no human shareholders; No required disclosure; No public hearing; No EIA. There were no commercial, tax or environmental laws and regulations in Argentina related to potential data centre installation, according to the Pulitzer Center investigation. Milei framework extends beyond a conventional tax haven, but rather. He is providing a governance-free area for the most transformative technology ever. This approach to liability-free zones is a departure from other regulatory frameworks in development, which, like the EU's AI Act, combine standardisation, accountability, and other governance tools with measures to tackle the societal risks of AI alongside traditional product risks (Saiger, 2026; Rivero Silva et al., 2025). The idea of advanced AI safe havens in the region also suggests that there should be a synergy between the role of safety and ethical frameworks, and innovation, and that recent Latin American scholarship on the topic of governance of AI warns about the lack of discussion about data and technology sovereignty in national AI policies, which risks to further increase technological dependency (Zambrano & Sanchez-Torres, 2021; Farias Mota, 2026).

A Third World Approaches to International Law perspective would allow for the identification of the Milei model as what it is: the modern form of the colonial enclave economy, silicon and server racks. The land, the energy, the regulatory freedom and the sovereignty are provided by Argentina. The value, the IP, the profits and the technical knowledge are outward radiating. He has destroyed local scientific institutions, such as CONICET, INTA, ARSAT, where scientists could monitor the effects on the environment and consider ways to save water; he has invited foreign companies of artificial intelligence to arrive to take advantage of the country's resources without any responsibility. From a TWAIL perspective, this arrangement constitutes a transfer of sovereignty framed as economic liberation—a pattern consistent with historical enclave economies in which host nations provide land, energy, and regulatory freedom while value, intellectual property, and profits flow outward. This framing aligns with the emerging field of studies on digital colonialism and algorithmic extraction, which suggests that the current digital infrastructures of AI are reproducing historical patterns of dispossession and epistemic domination through their architectures of data, training pipelines and standards-setting processes (Ishkhanyan, 2026; Abraham, 2026; Liu, 2026). The broader pattern of AI infrastructure development in Latin America raises similar concerns, as the environmental impact of unsustainable AI can hinder fragile energy and water public services, quickly leaving multiple communities without basic access (Malamud, 2024).

IV. INDIA VS. ARGENTINA: WHY THE RACE TO THE BOTTOM IS NOT INDIA'S RACE

Argentina's example is a challenge for India that is both clear and immediate. Milei is going after the same hyperscalers that he's been courting in India: Google, Microsoft, Amazon, and even OpenAI. The Budget 2026 tax holiday till 2047 was the main tool in the government's fiscal instrument to demonstrate its intentions (Ministry of Finance, Government of India, 2026). However, Argentina is offering more than tax exemption: It's offering full regulatory freedom; the opportunity to incorporate in a new form that is free from environmental liability; and a government that pledges in writing and in print never to regulate.

The competitive arithmetic in favour of India at least in four specific ways is not competitive. There are at least four reasons for the competitive arithmetic to be unfavourable in favour of the investor to India and in favour of those who would like to have the maximum operational freedom and the minimum supervision. India's data centre boom is too monolithic in water-stressed areas and that is now globally recorded. The marketing message for Patagonia can be one of cool, open and water secure (albeit somewhat misleadingly). This imbalance in perception can lead to a change in investment decisions. Second, even though the regulatory framework is incomplete and disjointed, it does include courts, RTI mechanisms, civil society organisations and a free and independent press. The three items – the Vizag controversy (Ministry of Environment, Forest and Climate Change, 2026), the HRF challenge, and the Mongabay investigation (Shankar, 2026) – are all legitimate, visible, and consequential. All projects carry the risk of legal challenges and project delays. Argentina with Milei has taken a different path: a path of executive concentration, bypassing the deliberations of congress, and eliminating institutions that could block projects. Drawing on institutional economics (North, 1990), while democratic systems introduce short-term friction via civil society oversight, they provide long-term regulatory certainty and property rights protection that authoritarian 'governance-free zones' inherently lack, making them a more stable asset for 20-year capital investments (North, 1990; Acemoglu & Robinson, 2012). Third, the geopolitical axis between the United States and Argentina, established by the $40 billion bailout of Argentina's economy by the IMF, is represented as an "economic Monroe Doctrine" in their struggle against China, which results in a structural preference for Argentina from US headquarters of AI companies in political distress of de-risking from China. India's strategic autonomy, its ties with both Washington and Beijing, is a long-term strength of the nation and a short-term competitive uncertainty in today's moment of the AI infrastructure. This dynamic is consistent with analyses of how geopolitical realignments are producing "techno-blocs" and fragmenting the global

digital order along strategic lines (Weymouth, 2025; Truby et al., 2026). Fourth, India has not had a national data centre policy. Argentina already has RIGI in place, Stargate Argentina announced, and a presidential manifesto, published in the world's most widely circulated financial newspaper.

The challenges that India faces have to be faced squarely. However, it should not succumb to the lure of playing Argentina's game, otherwise, it risks losing something more precious than a few data centre deals.

The Milei model is, essentially, a service-based concept. Argentina is not going to build the base models, establish its own computing power, train local researchers or establish an indigenous AI economy. It will aim to be the server room for other countries' digital future. This is a fundamental vision which is unlike India's IndiaAI Mission, its commitment to invest in large language models from within the country, its vision of DPI and its ambition for sovereign AI capability. To compete with Argentina by lowering the environmental standards, doing away with public hearings and establishing corporations that are free from liability and run by artificial intelligence would be a race to the bottom that India should not lose and should not join. How nations tell stories about digital infrastructure can be seen from Singapore's promotion of data centres as strategic investments for its urban digital economy (Kailash & Kaiying Lin, 2026). It is vital for India to tell its story in terms of sovereign capability and not just as a host, since scholars of digital sovereignty are increasingly stressing the importance of not falling into the "hosting trap" of technological dependency (Warin, 2026; Ustyuzhantseva, 2025).

India isn't bidding for the crown of the world's server farm. It's competing for the title of the next great Power in AI. These demand alternative forms of governance and governance commitments, and different trade-offs and choices regarding what to give up and what to safeguard.

The difference is that it changes everything with regards to the nature of the investment. A country that simply runs other countries' computing facilities is subject to the whims of other countries when it comes to strategic placement of computing servers. A nation that creates its own compute, its own models, its own data governance is part and parcel of creating value, not just consuming electricity. The latter has the institutional, intellectual and demographic underpinnings in India. Under Milei, Argentina has made it an explicit choice to go with the former. It's an easy mistake to make to confuse Argentina's route with ambition.

V. CHINA'S GOVERNANCE BLUEPRINT: WHAT INDIA CAN TAKE, AND WHAT IT CANNOT

By any standard, China's strategy of reconciling the rapid growth of its data centres with water and energy constraints is the most systematic in the world. It is supported by four coordinated elements: spatial relocation along the principle of "East Data, West Computing" policy; hard efficiency targets with legal consequences; multi-technology cooling solution (including commercial underwater data centres); and deep integration of RE in ICT infrastructure. The results are significant. China currently has more than 30 times as much installed data centre capacity as India, with more than 1,800 data centres, and is implementing a policy framework that addresses its water and energy usage in a coherent way that India cannot do yet. Recent evidence demonstrates that China's green data centre pilot policies, when combined with low-carbon city initiatives, generate synergistic effects on urban ecological resilience, with joint implementation raising resilience by 29.2% (Zhou et al., 2026). Similarly, China's Big Data Pilot Zones have been shown to significantly reduce urban PM2.5 concentrations through enhanced public environmental supervision and firm-level adoption of digital technologies (Liu et al., 2026), and digital infrastructure construction has been demonstrated to promote sustainable urban green and low-carbon development through fostering digital finance, improving employment quality, and stimulating green technological innovation (Lv et al., 2026).

The structural centrepiece is the East Data, West Computing initiative that was launched in 2022. It effectively moves compute infrastructure from the water-stressed east (Beijing, Shanghai, Shenzhen) to the eight designated national computing hubs in the interior – Ulanqab in Inner Mongolia, with an average annual temperature of 4.3°C, enabling near-free air cooling for most of the year; cooler mountain valleys in Guizhou, where Apple, Tencent, and Huawei operate cloud campuses; solar microgrids in Qinghai; and massive renewable land in Gansu and Ningxia. This spatial strategy has been analysed through the lens of "geopolitical ecologies of cloud capitalism," revealing how domestic infrastructural expansion underpins geopolitical rivalry by reorganising land, energy, and regulatory systems to sustain large-scale computation (Kollar & Stokols, 2026). In contrast, India's data centres are highly skewed towards the same cities that are water-stressed and demand is coming from. China's policy actually physically moves the computation away from population centres and towards where water and energy resources are not as contested. India does not have a spatial strategy to this extent, though geospatial analysis and machine learning approaches could support such spatial planning, as

demonstrated by drought risk assessments and land-use change analyses in Indian districts that identify vulnerable zones requiring targeted intervention (Abdul Rahim et al., 2026; Aves et al., 2026).

In China, regulatory goals are enforced through strict legal penalties and state-directed capital allocation—a mechanism rooted in its centralized governance model. While India cannot wholesale adopt this top-down enforcement, the principle of tying efficiency metrics to tangible financial consequences remains a vital policy lever. The Power Usage Effectiveness (PUE) shall not exceed 1.5 for national level projects, 1.25 for new large-scale projects and 1.2 for projects at national hubs on the national level. There are quotas: Beijing requires a maximum of 2.5 litres per KWh, and the best in class operators reach 0.2 litres per KWh. The Green Data Centre Action Plan will require new data centres built in national hubs to use at least 80 per cent renewable energy. A cross-country water tax, which will be put into full effect in 2024 under the 'Implementation Measures for the Pilot Work of Water Resources Tax Reform' (Ministry of Finance, 2024), will charge freshwater withdrawals according to a scarcity tier. Any operators who exceed their water quotas receive stepped-up tariffs and expansion phases are suspended. So for Beijing data centres, cooling water is about 25 per cent of operating costs – and efficiency is not a CSR cause but a profit driver. The causal evidence from China's Green Data Center Pilots confirms that such policies can improve firm-level labor productivity, with gains concentrated among firms with low R&D uncertainty, low financial risk, and no university-industry collaborations (Wang et al., 2025). Moreover, China's green credit policy has been shown to reduce corporate carbon emissions by approximately 13–19%, operating through financial constraints and green innovation channels (Wang, Xia, et al., 2026).

There is no specific PUE benchmark in India. Does not have a required WUE benchmark. Does not include a renewable energy mandate for data centres. There is no regulation for the sector on the use of freshwater by volume. The Green Building Council of India adopted the PUE standard of 1.4 under its rating system, which is voluntary (Indian Green Building Council, 2026). The provisions of the Energy Conservation Building Code are optional. The sustainability requirements contained in the draft National Data Centre Policy, including the requirements of energy efficiency and renewable energy, do not make any mandatory benchmarks. This stands in contrast to the benchmarking exercises conducted in tropical data centres, which have emphasised the urgency of energy efficiency standards to reduce carbon footprints and ensure competitiveness (Chilukuri et al., 2018), and to the growing global consensus that transparent, standardised water and energy metrics are essential for responsible AI infrastructure governance (Barnett-Itzhaki, 2026; Odion & Addula, 2026).

When it comes to cooling, China has also taken bold steps to adopting commercial-scale underwater data centres (a technology developed and then abandoned by Microsoft), direct-to-chip cooling and immersion cooling with liquids to power hyperscale systems, as well as industrial wastewater reuse systems that can recover 85 per cent of the water. The National Development and Reform Commission pays for up to 30 per cent of the capital expenditure for data centres which co-locate with manufacturing plants to use process water for recycling (NDRC, 2024). China has unveiled what is believed to be the world's first commercial-scale underwater data centre in Hainan, with a second facility being built off Shanghai that will be powered by an offshore wind farm providing 97 per cent of its energy needs. The geographies in India are largely still using air-cooled chillers that can manage heat densities of conventional computing setups, but aren't always equipped to handle the density of compute generated by AI racks equipped with GPUs. Advanced water management technologies, including AI-enabled greywater recycling and IoT-based smart water systems, offer scalable solutions for reducing potable water demand in water-stressed regions (Sharma et al., 2026; Moustafa et al., 2026), while explainable machine learning frameworks for wastewater treatment plants demonstrate the potential for AI-driven compliance and governance in water systems (Gegana et al., 2026). Recent innovations in two-phase liquid cooling and microfluidic hotspot management further illustrate the range of technology options available for high-density AI workloads (Parida & Chainer, 2025; Boutsikakis et al., 2024), and lifecycle assessments of advanced cooling methods confirm significant reductions in greenhouse gas emissions (15–21%), energy demand (15–20%), and blue water consumption (31–52%) compared to conventional approaches (Alissa et al., 2025).

The stakes are high for India. China's governance toolkit – spatial relocation strategy, mandatory PUE/WUE benchmarks, water pricing, technology diversification mandates and regulatory category specific to data centres and not building constructions – is a viable governance model that could be applied to India's federal and democratic context. Does not need authoritarianism. It takes vision, capacity and commitment.

However, India cannot and should not replicate wholesale as China has done. What China has accomplished in this area has come at a high price: the crushing of local resistance, the absence of meaningful public hearings, and centralizing regulatory power into agencies that lack public scrutiny. The farmers and agricultural communities of Hebei and Shandong who have voiced their concerns over the competition for ground water from mega-data-centres do not have a legal forum where their concerns are heard. The importance of establishing groundwater level thresholds to protect groundwater-dependent ecosystems has been well documented in arid

regions of China, where excessive exploitation poses threats to ecological balance (Li et al., 2024). The democratic institutions in India – its High Courts, its National Green Tribunal, its framework of RTI, its civil society organisations – are not the challenges to effective data centre governance that some investors believe they are. In the long end of history, they are its most lasting competitive assets.

The lesson India should learn from China is not on the issue of authoritarianism. It's the readiness to engage state power in a timely and purposeful manner, without compromising the democratic accountability that puts national strategy into effect. The experience of Japan provides a relevant parallel: the country's approach to AI governance has been grounded in a governance-first paradigm, rather than a focus on centralizing large amounts of data or on deregulation, and it has managed to lower the structural friction on the way to innovation fuelled by AI, without sacrificing strong privacy protection, showing that institutional design – and not any single technological innovation – can help to speed up AI-driven innovation (Pinton, 2026).

VI. INDIA'S PATH: ASPIRING UPWARD, NOT RACING DOWNWARD

India is experiencing a real crisis in governance in the AI data centre industry. However, the nature of this crisis has to be correctly diagnosed. It is not a problem of over-regulation, rather it is India's data centres that are under extraordinarily little, meaningful regulation. It's an institutional incoherence crisis – an unfinalized policy of six years that hasn't been implemented; 15 different sets of state-level incentives, no environmental bottom of the pile, and a Ministry that says it has none of the information on the sector it's supposed to be tasked with protecting; and a policy problem where gigawatt-scale industrial computing facilities are classified as apartment buildings for EIA purposes. That's not democratic oversight. The issue is that there is no governance in place that is truly of the kind that people would like to have. The need for comprehensive regulatory frameworks that coordinate oversight across multiple agencies and ensure community-centered governance has been emphasised in AI policy analyses globally (Yang & Ricciardi, 2026), and the concept of "digital water sobriety" has been proposed as a governance framework linking evaluation of which AI applications justify freshwater consumption, water-conscious siting, and mandatory facility-level water use transparency (Barnett-Itzhaki, 2026).

The reforms that India requires can be divided into three categories of urgency. In the short term (during the current parliamentary session) the EIA Notification 2006 should be revised to

establish an environmental category for data centres greater than 5 MW, and to require information on water source, water usage, cooling technology and energy mix. This is not a new or onerous requirement, it is what all key jurisdictions that are serious about data centre governance already require.

The 20-year tax holiday announced in Budget 2026 should be adjusted to require a minimum level of environmental performance, rather than it being an aim for a tax-benefit to be implemented. As the Council on Energy, Environment and Water (CEEW) has noted, India is already offering substantial fiscal incentives to attract data centre investment; conditioning these incentives on minimum environmental performance standards would align economic and ecological objectives ((Tripathi et al., 2026). This is not anti-investment thinking. Its role is to create a long-lasting investment environment. Bibliometric mappings of green finance demonstrate that sustainable investment requires rigorous environmental accountability and mapping, not the dismantling of regulatory frameworks (Chandran & Chandran, 2024). True green finance demands that capital inflows are intrinsically tied to verifiable sustainability outcomes.

At the medium-term structural level, India needs a national spatial strategy for data centre locations, one that doesn't remove market choice, but rather provide incentives and planning tools that facilitate new large scale data centres to move to lower-water-stress areas where renewable energy sources are available. Such sites exist in abundance in India: Rajasthan, Gujarat, Madhya Pradesh, and certain regions in the Northeast have space, water stress that is not as severe, and an expanding renewable energy infrastructure. The concept of grouping the Data Centres in Sea water cooled coastal areas in state of Andhra Pradesh is worthy to be considered and replicated at the national spatial policy framework. Addressing the spatial and ecological mismatch of data centres requires treating infrastructure planning as a climate laboratory that deeply integrates environmental science into systemic design, much like the adaptive reuse and environmental integration frameworks explored in architectural sustainability (Hu et al., 2026). Geospatial analysis and machine learning approaches can support such spatial planning, as demonstrated by drought risk assessments and land-use change analyses in Indian districts that identify vulnerable zones requiring targeted intervention (Abdul Rahim et al., 2026; Aves et al., 2026), and computational frameworks for pond-based groundwater recharge estimation using multi-source geospatial data offer practical tools for identifying suitable zones in water-stressed basins (Sharma et al., 2026).

METRIC / SCENARIO	2025 BASELINE	2030 UNREGULATED PATH	2030 REFORM TARGET	PRIMARY BENCHMARK MECHANISM
Annual Blue Water Footprint (Billion Litres/Year)	150	358	150/95	High Stress
Installed Capacity (GW)	2.0	15.21	150/95	Mandatory PUE
Daily Water Usage (L/MW/Day)	68,500	≤25,000	≤25,000	Binding WUE targets
Target PUE	Unmonitored	Unmonitored	≤1.25	PUE

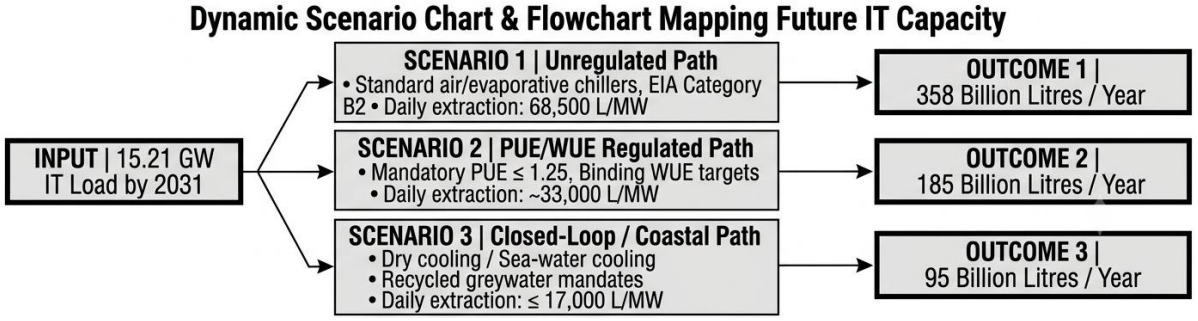


Figure 3: Scenario forecasting composite comparing the unmitigated 'Unregulated Path' (358 Billion Litres/Year by 2030) against the 'Reform Target' (185-95 Billion Litres/Year), detailing the necessary technical cooling shifts and PUE/WUE benchmark mechanisms.

India has mandatory PUE and WUE targets (based on climate zones, not imported directly from Europe or America) to be notified with a clear regime to achieve compliance and with public disclosure per SEBI or MCA. The IndiaAI Mission needs to be rushed and must be compulsory instead of aspirational and the STQC's fledgling AI data centre certification programme should be similarly accelerated. Prices charged to commercial bulk consumers, such as data centres, should be put under a national pricing regime that properly reflects scarcity. Geoinformatics-based water management frameworks, integrating data centres for real-time hydrological monitoring, offer the technical infrastructure needed to enforce such pricing regimes (Jagadeesha & Manavalan, 2025). AI and machine learning tools for water assessment can provide the automated, data-driven, and predictive analytics required for real-time monitoring and enforcement (Dhiman et al., 2026), and innovative approaches such as global data–water symbiosis—pairing data centres with wastewater treatment plants for bidirectional thermal recovery and treated effluent cooling—could reduce freshwater consumption by an estimated 1,300 million cubic metres annually at the global scale (Wang et al., 2026).

From the sovereign aspiration standpoint, India is facing the temptations of the hosting model. The announced investments, including Google's $15 billion AI campus in Visakhapatnam, Microsoft's muti-city AI infrastructure commitment and Amazon's data centres expansion offering — all are positive signs of faith in India's market (Government of Andhra Pradesh,

2026; Microsoft India, 2026; Amazon Web Services, 2026). They are just the start of India's AI journey, not the end. We are not looking to install models of other countries on Indian soil. The aim is to develop India's own foundational models, nurture Indian scientists and make sure that the incredible computing power being used on Indian soil is used to foster India's sovereign capabilities, and not just the profit of foreign companies. Hosting AI and building AI is the most consequential strategic decision that India will make in this decade. The growing body of research on AI and sustainable development underscores that digital technologies can be key enablers of sustainability, but only when supported by inclusive policies, digital infrastructure investment, and global cooperation (Mohd et al., 2026), and recent analyses of AI infrastructure geopolitics emphasise that the distinction between hosting and building is central to whether nations achieve genuine technological sovereignty or remain locked in patterns of dependency (Ustyuzhantseva, 2025; Warin, 2026).

None of this is an argument against foreign investment. Foreign capital, foreign technology and foreign partnerships are indispensable means to achieve the national policy. But these are tools and not goals. Argentina under Milei has decided to go all the way with foreign investment; it is to be done by eliminating all institutional aspects that may hold capital responsible. The history of the democracy, its constitutional obligations and the national interest demands another approach: to persuade investors that India can be a capable, trusted, well-governed partner, whose institutions provide legal certainty, rather than legal absence. Solving this crisis demands overcoming the interdisciplinary barriers that currently silo technology policy, hydrology, and post-colonial legal studies through collaborative, epistemic approaches to sustainability (Coronel-Tarancón et al., 2026). Only by bridging these divides can India forge a data centre policy that is technologically advanced, ecologically sound, and socially just.

VII. CONCLUSION: ON THE RIGHT KIND OF AMBITION

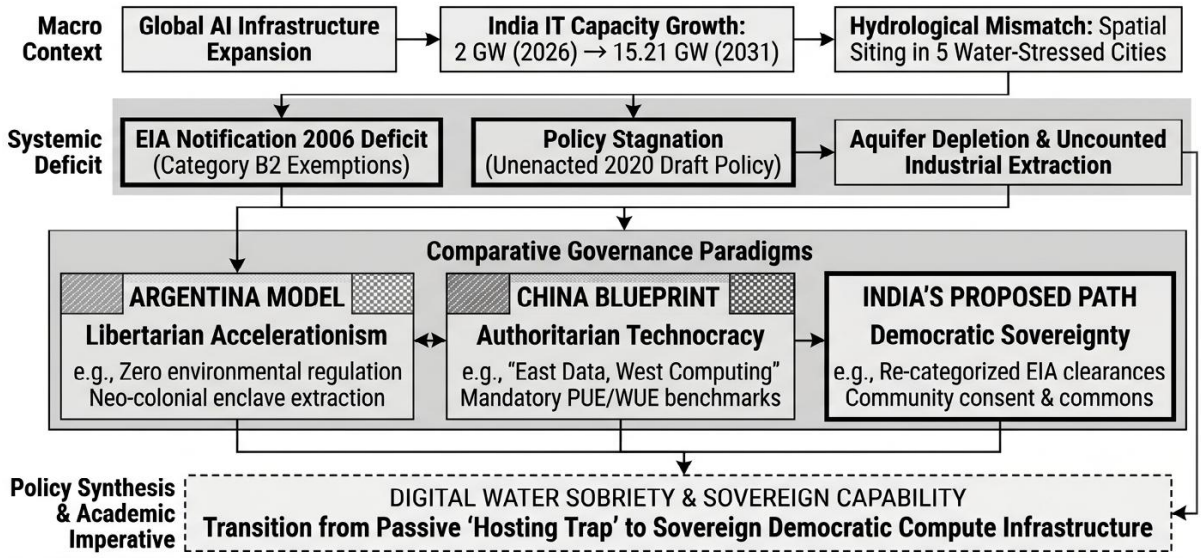


Figure 4: *Theoretical concept diagram mapping structural drivers (Global AI growth), domestic regulatory deficits (EIA Category B2 gap, Policy stagnation), the three comparative governance archetypes, and the proposed 'Democratic Sovereign' synthesis to achieve Digital Water Sobriety.*

Tusiana village has a sunken terrain. Not metaphorically but literally. Since a data centre has come into town, the water table is down 50 feet (Krishnamurthy, 2025). Environmental clearance did not involve a voice of the farmers who depend on the water for their livelihoods. It is not the story of merely one village. It's a story about the process of making a nation's digital future on a set of institutions that weren't built for it, and aren't kept up to date for it. The decline of the water table in Tusiana is considered a key sustainability event and cannot be ignored through the regulatory approach; it needs accountable decision making and institutional action (Veidemane et al., 2025).

India's claim to be a key player in the global AI economy is well-justified, serious, and based on history. It's a genuine asset: its STEM workforce, its democratic government, its legal system, its domestic market and its history of technical excellence. However, the lack of a data centre policy, EIA loophole, water blindspot and the six-year draft are potential threats that are all being squandered in the race of investments, which India must take on its own terms.

Argentina need not fear for the loss of competition, but rather their own, a model. This is a lesson that India need to learn from. The lack of responsibility to an AI firm that a country is offering is unparallel with any democracy. The "non-human corporation" is not subject to law, is not responsible to environmental law, is not subject to public debate, absorbs value from Patagonia and the waters of the Andes, no one is responsible, it is not an economic freedom model. It's an instance of institutional neglect. But if that is the path global AI governance is taking, it's because there's not a compelling alternative from countries like India yet.

China has demonstrated that a state can go for AI infrastructure at scale scales and at the same time, and importantly, lay down significant governance conditions – efficiency requirements, spatial requirements, water pricing, Technology requirements. The Chinese model too, has its profound faults and this is due to the lack of democratic accountability. But it has proved that good governance and growth can go hand in hand. India's problem is to demonstrate that it could not just be compatible, but complementary – that a democratic country with well-knit judiciary, an active civil society and a commitment to the protection of environmental rights can be a good leader of the AI economy and invest in the best place in the world to invest.

Ultimately, India's path requires moving beyond the false dichotomy of deregulation versus centralization. By operationalizing 'digital water sobriety' through federal-spatial planning and mandatory hydrological disclosures, India can transform its democratic friction from a perceived investor deterrent into its core sovereign advantage. A track that will be able to find the empty wells of the village of Tusiana not as a cost imposed by development but as a strong message that the governance system must be changed.

Indian water is not a gift of the world's aspirations for AI. It's a common good of its people. Any data centre policy that does not take this into account should be considered a failure. Any data centre policy that can remember it and responds to it, is worthy of leadership.

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