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A Resource Reality Check for Sri Lanka's AI Data Centre Ambition

Sri Lanka's 2026 budget sets its sights on AI data centres, allocating Rs. 500 million and concessions on land, energy, and finance to drive digital ambition. For a nation in recovery, data centres are attractive assets that help secure digital sovereignty and invite capital inflows. Yet they are deceptively resource-intensive, demanding large volumes of electricity, water, and land rarely acknowledged in policy. These pressures weigh heavily on Sri Lanka's resource constraints and commitments to decarbonisation and responsible AI.

In recognising the advantages and challenges before the country, this Policy Note serves to provide a realistic view of the resource demands that data centres impose on 3 critical resources: electricity, water, and land. It urges a cautious and considered approach by drawing lessons from global cases where contentions have arisen, what corrective measures were adopted, if any, and what these inspire for policy ideas for Sri Lanka to develop sustainable pathways.

Electricity Sector Readiness and Scale Pressures

What would the electricity draw of data centres look like in Sri Lanka? To provide indicative estimates that help frame the scale of potential grid impacts, consider the following: In 2024, Sri Lanka's net electricity generation was 17,364 GWh, while peak demand reached about 2,673 for the first 10 months. A single hyperscale data centre, the preferred model of major tech firms like Google and Microsoft, typically requires around 100 MW of power. If such a facility operated at 100 MW around the clock (noting that actual demand can change), it would:

- Account for about 5% of the country's total annual electricity generation.
- Add nearly 4% to peak demand.
- Consume as much electricity per year as 1.16 million Domestic and Religious Purpose consumer accounts (as per data available for 6,079,414 accounts).

While these estimates are based on specific assumptions and aren't clear-cut forecasts, they serve to illustrate the scale and context of what a single hyperscale facility could represent if it were to add a continuous load to Sri Lanka's grid.

International evidence demonstrates that even mature grid systems struggle with data centre expansion, with some countries having to eventually course correct. In the US, home to the most data centres, electricity demand rose to 183 TWh in 2024, or over 4% of national use, matching Pakistan's total consumption. Other early movers to attract AI investments, like Dublin and Singapore, took reactive measures and imposed moratoria on new facilities. Malaysia's Johor state, which benefited from Singapore's pause, went on to reject nearly 30% of data centre applications on efficiency grounds. Sri Lanka may encounter similar challenges if substations become overwhelmed and people experience frequent outages.

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In certain cases, unchecked data centre growth locked countries and cities into high-emission pathways and derailed climate targets. This was seen in Mumbai, where coal operators leveraged high data centre-related demand to justify delaying plant closures and transitioning to renewable energy. Data centre companies also found ways to mask their full environmental footprint by leasing or co-locating facilities. The cost of these choices is now being borne by nearby communities, who face the health toll of breathing toxic air.

The absence of clear cost-sharing rules leaves uncertainty about who pays for data centre-related expansion. Experiences across the US showcase how data centre-related grid upgrades were often shifted onto consumers, effectively socialising private costs. A case from Louisiana saw a Meta data centre drive more than $3 billion in energy infrastructure upgrades. While Meta will cover part of the cost, 'hidden' agreements have left communities uncertain about their financial burden.

The Sri Lankan government's plans to grant data centres electricity concessions arise in the context of mounting affordability pressures and invites consideration about what a fair cost distribution would look like. In 2024, disconnections for non-payment rose to 3,443. 70% of customers are also being supplied below cost, while other segments are taxed at higher rates to cover losses. How will data centre concessions be reconciled with Sri Lanka's affordability pressures? Within Sri Lanka's multiple tariff tiers (e.g., domestic, commercial, industry), which category will data centres fall under, and what cross-subsidisation implications follow? Electricity concessions should not impose further cost shocks on vulnerable consumers as new demand is added.

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Policy Pathways and Planning Considerations

Policy measures around renewable integration, cooperation and regulatory steps highlight areas that could support Sri Lanka's planning efforts. These include:

- **Clear efficiency standards:** the European Union's Energy Efficiency Directive requires disclosure of metrics such as Power Usage Effectiveness (PUE) and waste heat utilisation, with timelines for modernising older facilities. Singapore's SS 697:2023 introduced standards for data centres operating in tropical conditions, allowing the country to select 'best-in-class' facilities that align with its national objectives.

- **Operator-pay principles and consumer protection regulation**: regulatory measures are beginning to classify data centres as a separate category, as in Oregon's Protecting Oregonians With Energy Responsibility (POWER) Act, which requires operators to pay for their consumption. Belgium is considering a similar approach to cap data centre energy use and insulate households.

- **Sector-wide commitments and cooperation:** several industry agreements show collective capacity to align on greening methods. For example, the Climate Neutral Data Centre Pact brings together over 100 data centre operators and trade associations to achieve carbon neutrality by 2030. The Coalition for Sustainable AI unites technology firms, international organisations, and 11 countries towards pursuing sustainable AI. India's Green Data Centre Coalition, launched by The Energy and Resources Institute and the National Solar Energy Federation of India, advances research, policy, and implementation strategies.

- **Renewable energy integration:** avenues for directly linking renewable generation to data centre expansion are also emerging, such as Malaysia's 1000 MW solar farm that aims to supply clean energy to the Johor-Singapore Special Economic Zone.

Water Security

Although Sri Lanka is often described as 'water-rich', holding about 52 BCM of surface water, 7 BCM of groundwater and another 7 BCM of overlapping water, these figures obscure spatial and temporal variations that mask actual water availability.

Sri Lanka's water stress stands at 90.8%, meaning the country consumes nearly all of its freshwater each year, leaving little reserve to manage shortages or competing user demands. More than a third of the population lacks reliable access, with water scarcity ranking as the second-highest contributor of multidimensional vulnerability in at least six districts. Nearly half of the country's districts also face severe drought. Data centres would draw water from this already stressed system, both directly through cooling and indirectly through hydroelectricity.

The following estimations help get a sense of what data centre water consumption might mean for Sri Lanka: a medium-sized facility can use up to 416 million litres annually for cooling, while a large facility can consume as much as 6.9 billion litres. That is the equivalent of 2,050 households per year in the Western Province for a medium data centre or 34,250 households per year for a large data centre. While this shows the scale of potential demand, actual impacts will depend on several factors, including water source, cooling technology, and seasonal variation.

Sri Lanka's climate conditions and water insecurities will need to be carefully considered with data centre operating choices. Operators often build facilities in dry or low-humidity climates because reduced moisture lowers the risk of equipment damage and eases cooling loads. Sri Lanka's high humidity, however, means data centres may forgo those advantages and instead be forced to aggressively ramp up cooling and dehumidification, increasing both water and energy use.

The risks facing Sri Lanka's data centres are part of a broader global pattern. Across the world, more than 600 facilities sit in climates hotter than the ideal temperature range of 18-27°C recommended by the American Society of Heating, Refrigerating and Air-Conditioning Engineers. In these environments, cooling becomes costlier and more energy-intensive, making heat one of the most pressing risks for data centre operations.

Data centres also tend to draw from treated mains to protect equipment from potential corrosion or mineral deposits from untreated water. But this reliance ties them to the same supply networks as households and raises concerns about allocation choices, especially in sensitive periods of drought. The industry's own disclosures reflect the strain data centres add to water systems. In 2023, nearly 80% of Google's withdrawals came from potable sources (water that's safe for drinking), while 42% of Microsoft's consumption occurred in water-stressed regions and was lost to evaporation. Google's 14% year-on-year surge in water use signals industry needs are accelerating at pace and shows no signs of slowing down.

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Water-stressed communities worldwide are resisting arrangements that channel water to data centres while households and farmers struggle. During Uruguay's worst drought in 74 years, protestors opposed a proposed facility that would take 7.6 million litres a day from drinking water, enough for 55,000 people. In Chile, a local court partially suspended a Google facility during a decade-long drought and sought compliance with less water-intensive systems. In Spain's Aragon region, the campaign, 'Your Cloud is Drying my River', emerged after three new Amazon data centres secured licenses to draw 755,720 m³ annually, enough to irrigate 233 hectares of corn.

For Sri Lanka, any reallocation of water will fall heavily on agriculture, which accounts for 87% of freshwater withdrawals. Impacts may ripple through food security, rural livelihoods, and social stability, particularly if industry withdrawals affect community supply.

Rising temperatures and prolonged dry spells could add further strain, as cooling requirements for data centres peak during the hottest months when water availability is at its lowest.

Technology firms are introducing replenishment and offsetting schemes in response to these issues. Yet these measures provide little relief if they fail to resolve the core issue: withdrawing water from one location and replenishing it elsewhere leaves source communities without relief.

The lack of clear standards on industrial water use, a gap noted by large corporations like Microsoft, also means companies must determine their own targets without proper oversight.

Policy Pathways and Planning Considerations

Emerging practices around how best to measure water use and reduce consumption serve to sustain and improve Sri Lanka's water security. These include:

- **Effective consumption measurements:** the Green Grid's Water Usage Effectiveness (WUE), recognised by ISO/IEC 30134-9:2022 and the forthcoming ISO/IECAWI30134-9, offers a way to assess total water demand. WUE can be calculated at the site level (direct cooling) or source level (including electricity generation), with the latter giving a fuller picture of stress on local systems. Sri Lanka's WUE benchmarks may be shaped by average water use in direct consumption and electricity, while projecting peaks and climate-driven shifts.

- **Innovative methods**: low-water-use cooling methods like closed-loop systems have shown effective gains by cutting freshwater use by up to 70% through recycled wastewater and harvested rainwater. Malaysia is investing in this approach by developing its largest wastewater recycling scheme for data centres. Liquid-based techniques such as direct-to-chip and immersion cooling are also reported to reduce water use by 31-52%.
- **Experimental platforms:** Singapore's Sustainable Tropical Data Centre Testbed, reportedly the first of its kind in a tropical climate, is trialling new cooling approaches that are suited to hotter and humid environments. The findings from this initiative may hold relevance for Sri Lanka, given its similar climate.

Land Governance and Development

Sri Lanka's land ownership and usage patterns complicate prospects for sizeable infrastructure development. While 80% of the land is state-owned, it's split across multiple agencies and requires different points of approval. Nearly half of the country's land is used for agriculture, while forests cover 30.4%, and built-up areas account for 2.5%. Terrains also carry environmental risks, with 96% of disasters being climate-related. Any new infrastructure will therefore need to contend with the country's existing demarcations and will likely sit close to agricultural, cultural, ecological, and community spaces.

Past initiatives show how large-scale allocations with overlapping concerns and limited transparency have drawn scrutiny.

For example, plans for a Special Zone for Heavy Industry in Sampur were abandoned after war-displaced landowners challenged them in court. A coal power plant planned with India in a nearby location was also cancelled amid ecological and health concerns. Related concerns over coastal erosion and threats to fishing livelihoods emerged during the Colombo Port City project, while Hambantota's proposed industrial zone escalated fears over land loss.

These tensions mirror debates in the Netherlands, where, much like in Sri Lanka, land carries strong social and economic value. Dutch farmers opposed data centre projects they saw as taking away fertile land and straining local resources. In Netherland's Zeewolde municipality, Meta used a subsidiary company to purchase land. This action was seen as a corporate strategy to conceal its actual land consumption. Across Latin America, similar patterns have emerged, where NDAs have limited assessments of data centre-related land decisions.

Mistrust of land allocation practices elsewhere may find a parallel with Sri Lanka's own legacy of 'land grabs' and misuse of the Land Acquisition Act. These may inevitably shape how local communities interpret and respond to data centre development. Recent protests in Mannar, which stretched over 100 days against a wind energy project, strongly reflect how communities remain sensitive to these histories. While immediate concerns against the project focused on damage to fragile ecosystems and possible uninhabitability, community resistance drew from longer memories of exclusion from decision-making, including accounts of forced state land acquisitions and industrial encroachment. Ideally, Environmental

Impact Assessments are meant to serve as a vital check against land misuse. But these are often vague and justify projects on speculative assumptions like job creation or property value increases. This creates more room for mistrust and leaves communities with the sense that existing channels provide neither meaningful support nor safeguards against misuse.

Policy Pathways and Planning Considerations

Global and local measures show scope for how land governance can deliver socially responsible and resource-efficient pathways.

- **Community benefit assessment:** Ireland's principles for data centre development treat facilities as part of the wider built environment. When data centres are located near communities, operators are expected to engage with regional stakeholders in demonstrating their societal and economic benefits.
- **Co-sharing facilities in economic zones:** Singapore's green data centre park on Jurong Island showcases how zoning within energy hubs can maximise efficiency. By establishing data centres inside a dedicated green zone, operators can leverage shared assets such as energy storage, utilities, and emerging low-carbon sources.
- **Structured approach to site identification:** a data-driven framework for site selection will be useful for Sri Lanka given its land constraints, climate pressures, and governance gaps. The Board of Investment and Harvard's Growth Lab previously developed methodologies linking land characteristics with sector requirements. This assessments can be expanded to incorporate infrastructure and resource availability, demographic density, and climate-risk mapping (especially landslides, floods, cyclones, droughts, and heat) among other areas. Such a structured approach would ensure that land allocation decisions are evidence-based and environmentally responsible.

A Measured, Forward-Looking Approach

Sri Lanka's pursuit of AI data centres carries the promise of giving the country a competitive edge and strengthening its digital backbone. Yet these large facilities will sit in a hot and humid climate, on an island with limited land and contested allocations, and add pressure to already strained resources.

Sri Lanka's advantage lies in its timing. It benefits from the experiences of others who have gone down this path to identify which pain points emerged and what options are available. The country now has an opportunity to act with foresight by drawing from a range of measures, including setting clear efficiency standards and requiring performance disclosures, adopting transparent and data-driven land allocation frameworks and introducing equitable pricing schemes.

Taking a measured, forward-looking approach at this stage will equip the country to integrate digital infrastructure in a way that aligns with its strategic priorities, without compromising the welfare of its people or the integrity of its resources.

Centre for a Smart Future is an interdisciplinary public policy think tank based in Colombo, Sri Lanka with researchers, advisors, practitioners and partners around the world. We conduct high-quality research, promote collaboration across disciplines, and generate actionable ideas. Our current work is anchored to influencing a just recovery from Sri Lanka's polycrisis, with the environment and human wellbeing at the core.

Our partners include Institute of Development Studies, Open Society Foundations, Blue Resources Trust, London School of Economics, Biodiversity Sri Lanka, Good Life X, SEVANATHA Urban Resource Center, among others.

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