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# SA's data centre boom raises questions over water, power and transparency

South Africa's rapidly expanding data centre sector is highlighting a fundamental gap in how the country plans and regulates major digital infrastructure: there is no comprehensive public record of how many facilities are operating, where they are located, or how much electricity, water and land they use.

Dr Pitso Tsibolane, a senior lecturer in the Department of Information Systems at the University of Cape Town (UCT) and an associate of the Centre for IT & National Development in Africa, said that greater transparency is needed if government, communities and investors are to properly understand the cumulative impact of the country's data centre expansion.

"You cannot govern what you cannot count," said Dr Tsibolane. "A regulator cannot assess cumulative pressure on a grid or a catchment if it does not know how many facilities exist, where they are or what they draw."

Tsibolane is calling for a national data centre register containing information such as the location and site area of each facility, installed and contracted electrical capacity, actual annual electricity consumption, water source and annual consumption, cooling technology, backup generation capacity and fuel, as well as the approvals and operating conditions for each facility.

The European Union has required this kind of annual reporting from every data centre with an installed IT power demand of 500 kilowatts or more since 2024.

There is currently no reliable official count of data centres operating in the country. Sources cited by Tsibolane put the number at 55, roughly 60 or 79 facilities. Projections point to significant growth in electricity demand, and there is no aggregate figure for the sector's water consumption because facilities are not required to report it.

"Communities cannot weigh a new application against what is already there," he said. "And responsible operators cannot distinguish themselves from the rest, because nobody's numbers are on the table."

Operators already hold this information and it is not commercially secret, he argued. No law requires it to be compiled into a single public record.

## Water and electricity at the centre of the debate

Water is one area where Tsibolane said greater disclosure is particularly important. He cautioned against assuming that all data centres have the same water requirements.

"Modern hyperscale facilities can use closed-loop, air-based cooling with modest water demand," he said. "A facility relying on evaporative cooling is a different matter, and there is a wide range between the two. So the answer depends on the design, which is exactly why the design must be disclosed."

His concern is therefore not that data centres are necessarily high-water users, but that authorities are already approving facilities without knowing precisely how much water they will require. He proposed that operators disclose their water source, annual volume, peak demand, cooling technology and treatment of discharge before approval, with those figures becoming binding conditions of approval.

Electricity presents a similar challenge. Tsibolane said the rapid expansion of data centres could place significant pressure on the electricity grid, particularly because large facilities require substantial and continuous power connections.

He stressed the importance of distinguishing between electrical capacity and actual consumption. A facility's connection capacity is the maximum load it is entitled to draw, not what it will actually consume.

"Only actual consumption reporting tells a grid planner what is happening," he said.

Tsibolane also said that allocating scarce electricity capacity is ultimately a policy decision. Data centres can provide benefits to utilities as large, stable customers, but those benefits should be demonstrated through transparent information about consumption, infrastructure requirements and economic contributions.

"What is not legitimate is settling it in supply agreements nobody sees," he said.

## Planning for communities

Tsibolane said communities should look beyond the size of a site to the process by which development rights over it were granted, often through a series of incremental amendments. "Communities should ask not only how much land, but how the rights over it were assembled and whether anyone ever assessed the cumulative result."

He argued that existing planning and environmental processes often consider different components of a data centre separately: planning authorities assess the building, water authorities assess connections, electricity regulators assess customers and environmental processes may be triggered by specific activities. This fragmentation can make it difficult to assess the full footprint of a large facility.

For communities, he said, the essential information should include expected water and electricity use, the sources of those resources, backup generation, emissions and noise, employment and infrastructure commitments, and the conditions that will govern the facility.

## A framework before the boom accelerates

Tsibolane proposed three elements for a more transparent regulatory system: a mandatory national disclosure regime; an independent assessment of the sector's actual and projected

demand for electricity, water and land; and a dedicated approval pathway for large, or hyperscale, facilities.

He said a national register could be maintained by the Department of Communications and Digital Technologies, drawing mandatory information from relevant energy, water and municipal authorities.

Tsibolane pointed to Ireland, where data centres' share of metered electricity rose from 5% in 2015 to 23% in 2025, as an example of constraints arriving after the strain. Singapore, by contrast, paused new approvals in 2019, wrote a clear framework, lifted the pause in 2022 and remains a global hub.

"The boom is coming here partly because our rules are unwritten; writing them is the most valuable thing we can do, for households, for the grid, and for every investor who intends to stay," Tsibolane said.

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