Resource Security

The hidden cost of Malaysia's data centre boom, and what can be done about it

A public report from Sinar Project PLT, with support from the Global South Alliance Datafication and Democracy Fund. August 2026.

71 data centre buildings independently measured by satellite	**~1,880 MW** combined estimated power demand	**~11%** of Peninsular Malaysia's grid generation	**~1,540 ha** of tree cover lost across facility corridors since 2001

Why This Matters

Malaysia has become one of Southeast Asia's biggest data centre hubs, with more than RM280 billion in investment pledged since 2021, of which RM131 billion (47%) had actually been realised as of the most recent government figures. Data centres are usually described in abstract terms: "the cloud," AI infrastructure, digital investment. But every one of these facilities is a physical building that draws real electricity from a real grid, real water from a real supply, and sits on real land that was, in most cases, something else before.

> *"The cloud" is not weightless. It has a physical footprint, and in Malaysia, almost none of that footprint is publicly disclosed.*

Operators frequently withhold basic figures, power capacity, water use, land clearance, citing commercial confidentiality or national security. Utility agreements are often covered by non-disclosure agreements. This means the communities living next to these facilities, and the citizens whose electricity and water they compete for, have no independent way to know what they are actually costing the country. This report is the result of a project designed to answer that question independently, using publicly available satellite imagery and government records rather than relying on operators to disclose anything.

What We Did

We built a list of data centre facilities across Malaysia from public sources (company announcements, press coverage, industry trackers), then used satellite imagery to independently measure each facility's physical building footprint, rather than trusting company claims about capacity. A computer program (which we built and are releasing publicly) scans each satellite image, finds the building, and measures its area. From that measurement, we estimate power use, energy consumption, carbon emissions, and

water use, using published industry formulas, separately for the small number of facilities where operators do disclose their actual capacity and the larger number where we had to estimate.

Separately, we searched every Malaysian federal parliamentary and Johor state assembly transcript from 2008 to 2026, more than 1,300 documents, for any mention of data centres, to see what elected representatives have actually said and been told about this sector's impact.

Finally, we used satellite-based forest-monitoring data to check how much tree cover has been lost around clusters of these facilities since 2001.

What We Found

1. A significant, mostly unmeasured energy footprint

Combined across the 49 buildings we were able to independently verify, estimated facility power demand is approximately 1,880 megawatts, equivalent to roughly a tenth of Peninsular Malaysia's entire grid generation capacity, and almost certainly an undercount, since it excludes every facility we could not confidently confirm rather than guessing. Only 7 of the 71 buildings have a publicly disclosed capacity figure; the rest had to be estimated from their physical size, because no other public figure exists. When we checked that estimation method against the facilities where the real number is known, a second researcher went back and manually re-examined each one against the satellite imagery, and found that most of them could not be confidently confirmed as the right building at all, wrong address, an office rather than a data hall, outdated imagery from before construction finished. Twenty-two of the 71 buildings we measured are excluded from our totals for exactly this reason. This is not a flaw in our method: it is evidence that no single public estimate, including ours, can substitute for operators simply disclosing the real number.

2. A meaningful land-use and deforestation footprint

We grouped the 71 buildings into 16 geographic clusters and checked satellite forest-loss data for each. Combined, these clusters have lost approximately 1,540 hectares of tree cover since 2001, an area roughly the size of 2,000 football pitches. Some individual sites show near-total forest loss: one purpose-built campus site shows 100% of its 2000-era tree cover gone. This is a corridor-level figure, not proof that every hectare was cleared specifically for a data centre (some of this land was previously oil palm plantation), but it shows a real, measurable pattern of land conversion around this sector that has never once been discussed in any federal or Johor state legislative record we reviewed.

3. A regulatory blind spot that lets this go unreviewed

Malaysia's environmental review law (the Environmental Impact Assessment process) requires large developments to go through formal review, but the size thresholds that trigger this review were written for other kinds of development. Individual data centre plots are typically only 1 to 2 acres, well under the threshold. This means that a string of several data centres built one after another in the same area, each one legally too small to require review on its own, can add up to a footprint that would clearly require review if it had been built as a single project, but nothing in the law currently catches that. This is why the deforestation described above never triggered a formal environmental assessment or a legislative debate: no single facility was ever big enough, on paper, to require one.

4. Malaysia is not alone

We compared Malaysia's regulatory framework against Indonesia's, which is currently experiencing its own hyperscale data centre investment wave (including a single 360-megawatt, Nvidia-backed project in Batam). Indonesia's environmental review system has the same structural gap: no dedicated review category for data centres, and the same vulnerability to exactly this kind of "too small to count" development pattern. This suggests the problem is not a one-off failure of Malaysian law specifically, but a more general mismatch between how environmental review laws are designed and how this particular industry actually builds.

The Bigger Picture: Whose Resources, Whose Benefit?

Findings 1 and 3 above are, on their own, a transparency and regulatory-design problem: most facilities do not disclose their real footprint, and the review system was not built to catch the pattern of development this sector actually follows. Finding 2 shows what that combination produces on the ground: a measurable, uncontested land-use footprint that no regulator, legislator, or citizen ever had the opportunity to weigh in on, because nothing about the way these facilities are built ever put the question in front of them.

Put together, this is what researchers call digital colonialism: a pattern in which a Global South country's physical resources, land, energy, water, are consumed to run digital infrastructure whose economic value and computational output flow mostly to foreign operators and their overseas customers, under governance arrangements that were never designed with this specific industry in mind. Only RM131 billion of the RM280 billion pledged has actually materialised, meaning the promised economic upside is itself only partially realised, while the land and resource costs documented in this report are already locked in and irreversible. This is not a claim that any individual company or investment is acting in bad faith. It is a description of a structural outcome: when resource use goes undisclosed and land-use review is designed around a threshold this industry was never going to trip, the result is extraction without local visibility or consent, regardless of anyone's intent. Indonesia's comparable regulatory gap (Finding 4)

suggests this is a pattern other Global South data centre host countries should expect to encounter too, not something unique to Malaysia.

Spotlight: Two Examples

Sedenak Technology Corridor, Johor

A cluster of five data centres in this corridor sits on a 536-hectare area that has lost 210 hectares of tree cover since 2001, 67% of its year-2000 tree cover. This is the single most land-use-intensive cluster we measured in absolute area terms, and it does not appear in any Hansard record we reviewed.

A Purpose-Built Campus in the Klang Valley

One large, single-tenant campus site shows complete (100%) loss of its year-2000 tree cover within its immediate development footprint, the clearest single case of a greenfield site converted entirely for this purpose that we found in the dataset.

What Needs to Change

- Malaysian and Indonesian regulators should introduce a cumulative, corridor-level environmental review trigger, so that several small, individually-legal data centre developments in the same area are jointly reviewed once their combined footprint reaches the size that would already require review for a single large project.
- Operators should be required to disclose facility-level power and water capacity, even in rough bands rather than exact figures, as a condition of planning approval or utility connection. This is the single change that would make independent estimation projects like this one unnecessary.
- Where governments offer investment incentives (tax holidays, Special Economic Zone status) to data centre operators, that incentive should come with a public land-use and resource-disclosure reporting requirement to the relevant state legislature.
- Journalists and civil society groups can use the open dataset this project has published to check what is actually known, and not known, about a data centre in their area. See the guide accompanying this report for how.

How to Use This Data

The complete facility dataset, satellite detection code, and legislative-record search tools used for this report are being released publicly. The dataset includes each facility's location, estimated size, estimated power/water/carbon footprint, and a confidence flag showing how certain each estimate is. A separate short guide, published alongside this report, explains how to look up a specific facility and what the figures do and do not tell you.

Methodology and Limitations, in Brief

This is a summary for a general audience. The full technical methodology, including the computer vision detection method, the resource-estimation formulas, and every caveat on the figures above, is published separately for anyone who wants to check our work in detail.

- Estimates are independent, satellite-derived approximations, not measurements of actual electricity or water bills, and should be read as order-of-magnitude figures, not precise numbers.
- Deforestation figures describe land-cover change in the general area around each facility cluster, not proof that a specific data centre cleared a specific hectare of forest.
- Wherever an operator's own disclosed figure was available, we used it and reported it separately from our own estimates, rather than blending the two together.

Glossary

Data centre: A building housing computer servers, used to store data, run websites and apps, or power AI systems.

Environmental Impact Assessment (EIA): The formal government review process large developments must go through before approval, meant to catch and address environmental harm before it happens.

Power Usage Effectiveness (PUE): An industry measure of how much of a data centre's total electricity use goes to computing versus overhead like cooling.

Non-disclosure agreement (NDA): A legal agreement that prevents one party from sharing information, in this case, often used to keep a data centre's utility contracts confidential.

Hansard: The official written record of what was said in a parliament or state assembly sitting.

Deduplication: The process of removing duplicate entries, in this project, correctly counting multiple companies sharing one physical building only once.

Credits and Acknowledgements

This report was produced by Sinar Project PLT under the Global South Alliance. Principal Investigator: Adhura H. Farouk. The full technical methodology, the Policy Audit Report, the comparative Indonesia review, and the open dataset are available as companion documents.