PUBLIC HEARING:

Bill No. 3018 of 2024, which provides for the regulation of artificial intelligence data centers.

10-minute virtual participation in the Brazilian Federal Senate
Committee on Science, Technology, Innovation, and Information Technology

By Paz Peña
Latin American Institute for Terraforming
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I. Introduction

I have three objectives for my presentation:

- To show that the socio-environmental impacts of data centers for Artificial Intelligence are manifold.
- To summarize some elements of the discussion in Latin America, focusing on what is happening in Chile and the lessons that can be drawn from there for the discussion of the bill in Brazil.
- And, finally, to suggest some points for the Brazilian legislative approach.

II. Socio-environmental Impacts of AI Data Centers

First, it is important to reiterate that the socio-environmental impacts of AI data centers are multifaceted and extend beyond energy and water consumption alone. It is imperative, therefore, that we take a comprehensive view of these impacts; there are several dangers in narrowing this perspective, particularly regarding costs to the environment and people's health.

There are at least four main areas of socio-environmental impact that are of concern.

1. Energy and Climate Change

We know that data center energy consumption could double by 2030. Their high demand can strain electrical grids and cause air pollution from backup diesel generators and noise pollution that affects both nearby communities and the rest of the region's ecosystems.

Although many companies rely on renewable energy, various studies warn that this does not always replace the use of fossil fuels; furthermore, it can concentrate a country's renewable energy capacity through private contracts and exacerbate inequalities in access to energy and land.

2. Water Management

Data centers consume large amounts of water for cooling. Many facilities are located in water-stressed areas, where they compete with human consumption and contribute to pressure on aquifers, and indirectly require water through electricity generation. This situation has led to social conflicts and controversies over water concessions granted to technology companies in contexts of scarcity, such as in Mexico and Chile.

3. E-waste and Hazardous Chemicals

Hardware in AI data centers is typically replaced every 3 to 5 years. This waste contains heavy metals and persistent toxic substances linked to liver damage, cancer, and childhood developmental problems. Furthermore, when e-waste is disposed of through incineration or landfilling, it can release greenhouse gases, including methane, exacerbating its climate impact.

4. Land Use and Territory

Data centers require large tracts of land, which can compete with land use for housing and contribute to rising real estate prices. Their expansion also transforms rural and agricultural areas into digital infrastructure. In various countries, such as India and Mexico, conflicts have been reported over land occupation, the use of communal lands, and non-transparent processes for the allocation or donation of public lands.

These four pillars summarize what we currently know based on scientific evidence; however, significant gaps remain in our understanding of data centers' impacts on the environment and community health[1] .

What do I hope to convey in this first part of my presentation?

- That AI data centers are infrastructure projects with far-reaching socio-environmental impacts, and that **the precautionary principle—as a rule for environmental protection and public health—appears to be the appropriate public policy approach to** address the growing and as yet unknown impacts of this infrastructure.

III. Regional Discussion on the Socio-Environmental Impacts of Data Centers

I would like to highlight two recent regional documents:

1) "Latin American Artificial Intelligence Index (ILIA) 2025" produced by ECLAC

The document concludes that sustainability is a missing principle in regional technological development:

- **Low environmental certification:** Only 20% (1 in 5) of data centers in Latin America and the Caribbean comply with international sustainability standards (*ISO 50001* or *LEED*).
- Sustainability **is not meaningfully integrated** into countries' public policies.

2) 2026 Declaration by the IACHR's REDESCA on the impacts of digital infrastructure:

It calls on States to urgently regulate the expansion of AI. This requires specific regulatory frameworks, integrated environmental and climate impact assessments, public access to information, effective community participation, and measures for a just energy transition.

It also notes that approving large-scale projects without assessing cumulative impacts violates the state's duty of prevention. In fact, it urges the implementation of temporary moratoriums if there are serious risks to water, the environment, or health.

What does the regional discussion tell us?

- Governments across the continent have a debt to settle when it comes to the sustainability of AI
- Self-regulation does not work for the sustainability of data centers.
- The challenge (according to REDESCA) requires specific regulatory frameworks with a set of conditions.

[1] Yu Tao, Peng Gao (2025). Global Data Center Expansion and Human Health: A Call for Empirical Research, Eco-Environment & Health, Volume 4, Issue 3, 100157, ISSN 2772-9850, https://doi.org/10.1016/j.eehl.2025.100157.

IV. The Consequences of the Lack of Regulation in Chile

Along with Brazil, Chile seeks to position itself as a regional digital *hub* by attracting investment in data centers. But due to the lack of clear legal safeguards regulating the socio-environmental impacts of this infrastructure, **data center projects often end up in court, which entails significant capital costs and uncertainty for the companies and affected communities**.

There is no certainty in the environmental assessment for three reasons:

a) Currently, there is no specific application category for data centers within the Environmental Impact Assessment System:

Their classification is assessed on a case-by-case basis, generally based on two related criteria:
- Handling of flammable substances (diesel)
- Electrical infrastructure (construction of power lines)

Consequences: **A comprehensive environmental impact assessment of this infrastructure is lacking, as information asymmetry makes it difficult for the community, academia, and the government itself to understand the full impact of the data center. Furthermore, the full impact is not assessed for data center hubs.**

b) There is no public oversight:

Various administrative changes have resulted in most data centers submitting only Environmental Impact Statements (rather than Environmental Impact Studies), in which public participation is not mandatory.

c) Projects end up in court:

Because the environmental impact assessment does not guarantee a robust space for participation, communities have opted for legal action. They are turning to environmental courts to defend the security of their basic resources, such as water and energy.

What does the case of Chile teach us?

- That the lack of adequate legal frameworks and public policies has **delayed** plans to develop this infrastructure.
- That such infrastructure cannot be developed without communities' involvement **throughout the entire environmental assessment process**.

V. Suggestions for Bill 3018/2024

To avoid the risks of litigation and the inefficiency and high costs this entails for all parties involved, here are some suggestions:

1. Strategic and participatory socio-environmental planning as a role of the State

The State must establish a preventive administrative procedure to analyze the multidimensional local and regional socio-environmental impacts of installing data center hubs in various territories. Each territory will have its own socio-environmental conditions that must be consistently weighed, including the possibility of moratoriums on new data center installations in accordance with the precautionary principle.

In this regard, the government could establish legally binding systems so that, in the event of water or energy shortages, human needs and essential services are prioritized over data centers' needs.

In this process, municipalities must play a leading role in land-use planning for the installation of these large-scale centers. Likewise, the participation of academia and communities must be guaranteed to ensure the transparency of the process and access to information.

Why is participatory strategic planning by the government necessary?
Because we must avoid following the United States' example: in that country, states compete aggressively to attract hyperscale data centers, and decision-making is shifting from public forums to private agreements and executive orders. This model privatizes benefits and control while socializing economic risks and environmental damage. It also weakens democratic accountability and resilience in the face of ecological limits[2] .

2. Requirement to undergo participatory and territory-specific environmental permitting procedures

Expressly establish in law that data centers must undergo environmental licensing, based on the principles of prevention and precaution.

3. Requirements for metrics and accountability mechanisms

Adoption of international indicators across various data parameters, such as power usage effectiveness (PUE), water usage effectiveness (WUE), renewable energy factor (REF), and e-waste recycling rate (percentage of WEEE officially collected and recycled), etc. Additionally, independent audits must be mandated.

4. Ensuring Energy Justice Mechanisms

For example, assessing the environmental impact of energy infrastructure linked to data centers; and implementing rate protection—that is, creating regulatory safeguards to ensure that the high energy demand of this infrastructure does not result in higher electricity rates for residential consumers.

5. Keeping an Eye on Fundamental Issues in Public Policy

In addition to socio-environmental impacts, there are other aspects of AI to consider for public policy:

- The social value of AI is questioned: according to the Pew Research Center (2026)[3] , the American public is predominantly cautious about artificial intelligence; concerns about its effects on employment, creativity, and human relationships predominate.
- Low impact on employment: Data centers are capital- and electricity-intensive but generate few permanent jobs.
- Economic and financial risks of the AI bubble: The boom in data centers could fuel a speculative bubble and pose risks to corporate debt, supply chains, and markets if investments fail to yield the expected returns.

Given the increasingly contested social value of AI and the dangers of a data-center-fueled financial bubble, the open question is how Brazil should legislate to address these risks and shield its economy and population.

Thank you very much.

[2] Kollar, J. (2026), GOVERNING THE CLOUD: Infrastructural Statecraft and the Political Ecology of Digital Expansion in Oregon. Int. J. Urban Reg. Res.. https://doi.org/10.1111/1468-2427.70098

[3] https://www.pewresearch.org/short-reads/2026/03/12/key-findings-about-how-americans-view-artificial-intelligence/