

Environmental Impact Assessment (EIA) & Human Rights Impact Assessment (HRIA) : Potential Synergies and Use of IT Solutions

Human Rights Impact Assessment of Digital Technology ■ May 3rd, 2025 ■ 9h00 – 10h30



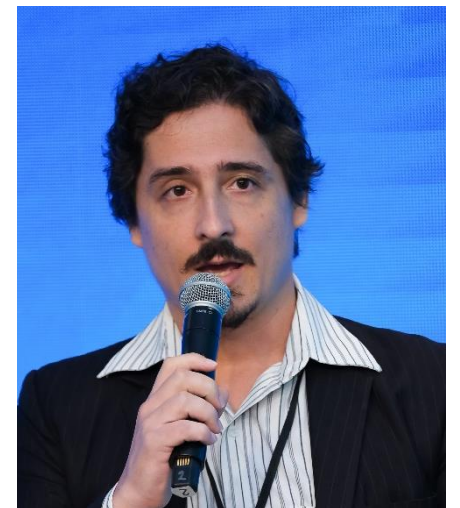
Pedro Villela Capanema Garcia

Head of Social Responsibility ■ Eletrobras

 Brazil

<https://www.linkedin.com/in/pedro-villela-capanema-garcia-7895a9145/>

www.eletrobras.com ■ pedro.garcia@eletrobras.com



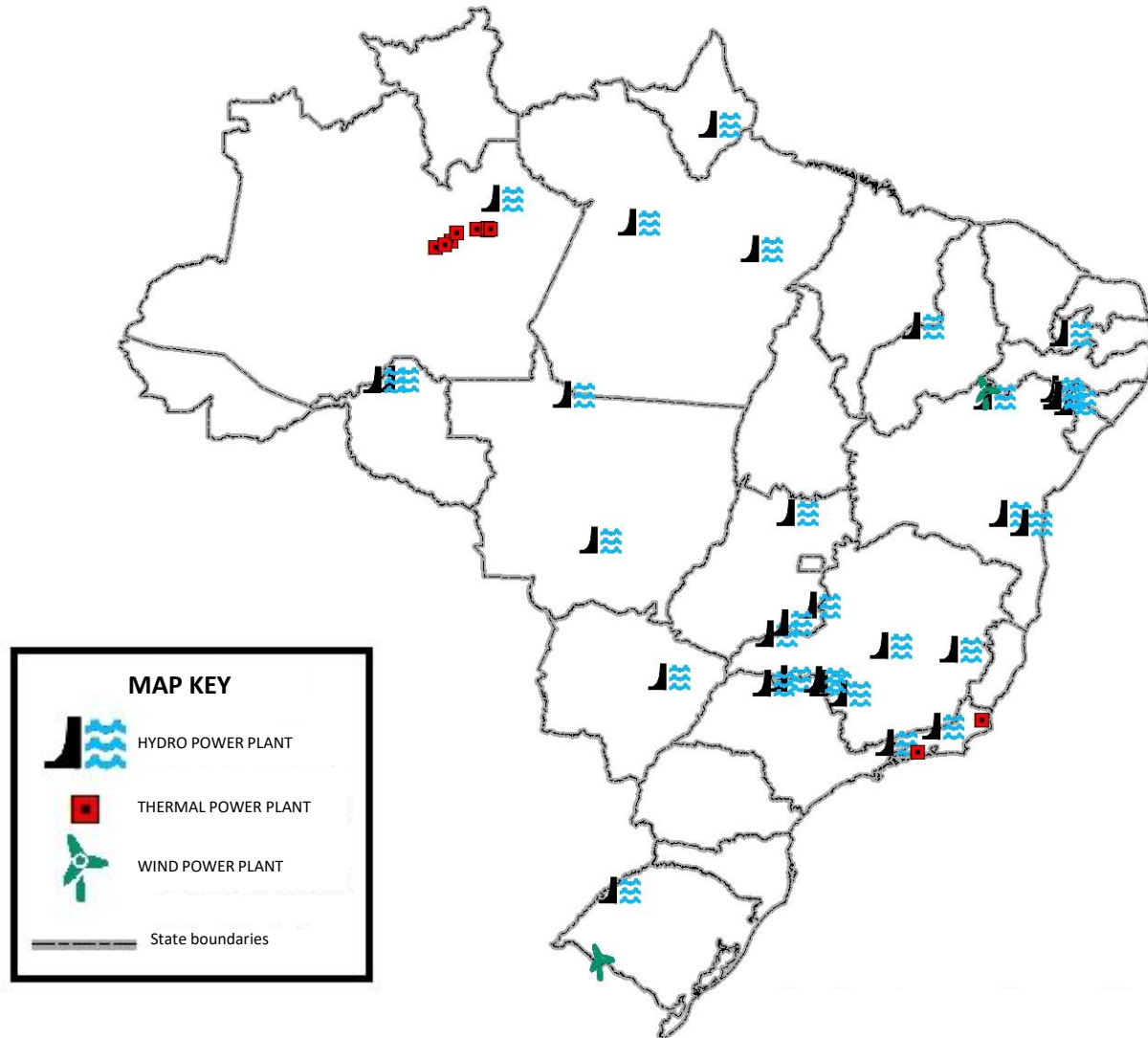
ABSTRACT ■

Based on the author's corporate practice and doctoral work, this presentation aims at discussing two challenges and possible integrated solutions for infrastructure projects in Brazil: (i) the lack of effective convergence between, on one hand, Environmental Impact Assessment (EIA) required by legal licensing procedures and, on the other hand, Human Rights Impact Assessment (HRIA) or Due Diligence (HRDD), which is yet to be regulated in the country: considerable efforts and investments are put into undertaking EIA prior to the implementation of assets, including social and economic aspects, but there are still missed opportunities to associate HRDD efforts and continuous meaningful engagement practices throughout asset lifecycle; and (ii) the vast and broad amount of stakeholders, territories, risks, impacts and issues to engage with, assess and continuously monitor in order to identify and mitigate adverse impacts for people and the environment: for instance, Eletrobras, the largest electric utility in Latin America, operates 100 power plants and 74,000 km of transmission lines across 1,500 municipalities throughout Brazil (27% of the country), including relations with 35 indigenous ethnic groups. Through theoretical and concrete examples, the presentation will raise some of these important conceptual, methodological and practical challenges that may be addressed by a smart mix of new regulations, corporate initiatives and IT solutions to monitor and engage with stakeholders, thus fostering effectiveness, efficiency and safeguarding rights.

AUTHOR ■

Sociologist, MSc in Dynamics of Health and Welfare, PhD student in Human Rights and Sustainability, Head of Social Responsibility, Human Rights and Indigenous Peoples Relations at Eletrobras.

ELETROBRAS' SOCIAL AND ENVIRONMENTAL SCOPE ■



100
power plants



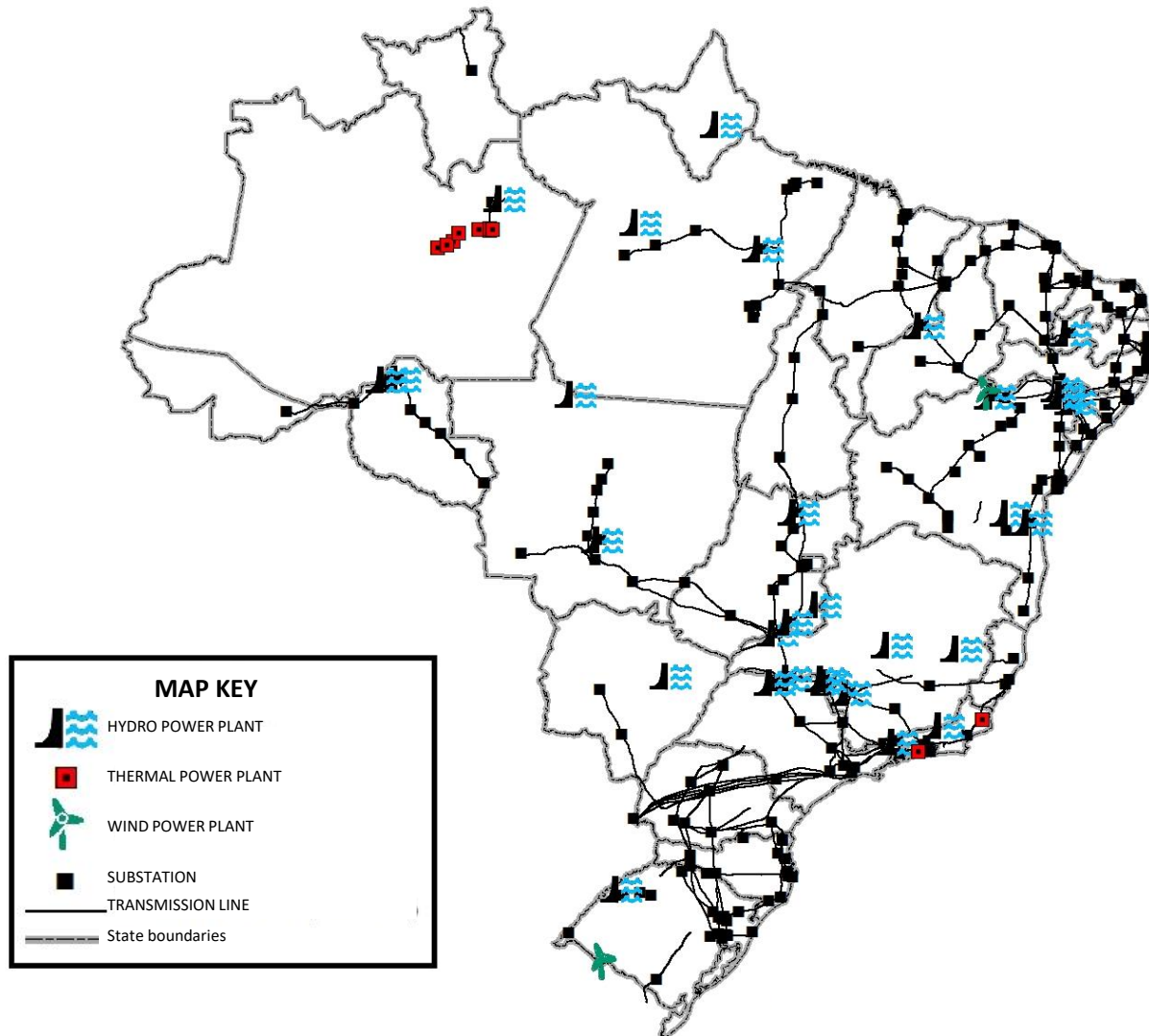
44,654.5 MW
installed capacity ■ 22% of Brazil



~7,500
employees

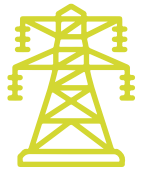


ELETROBRAS' SOCIAL AND ENVIRONMENTAL SCOPE ■



73,788 km

transmission lines ■ 37% of Brazil



1.84

trip around the Earth

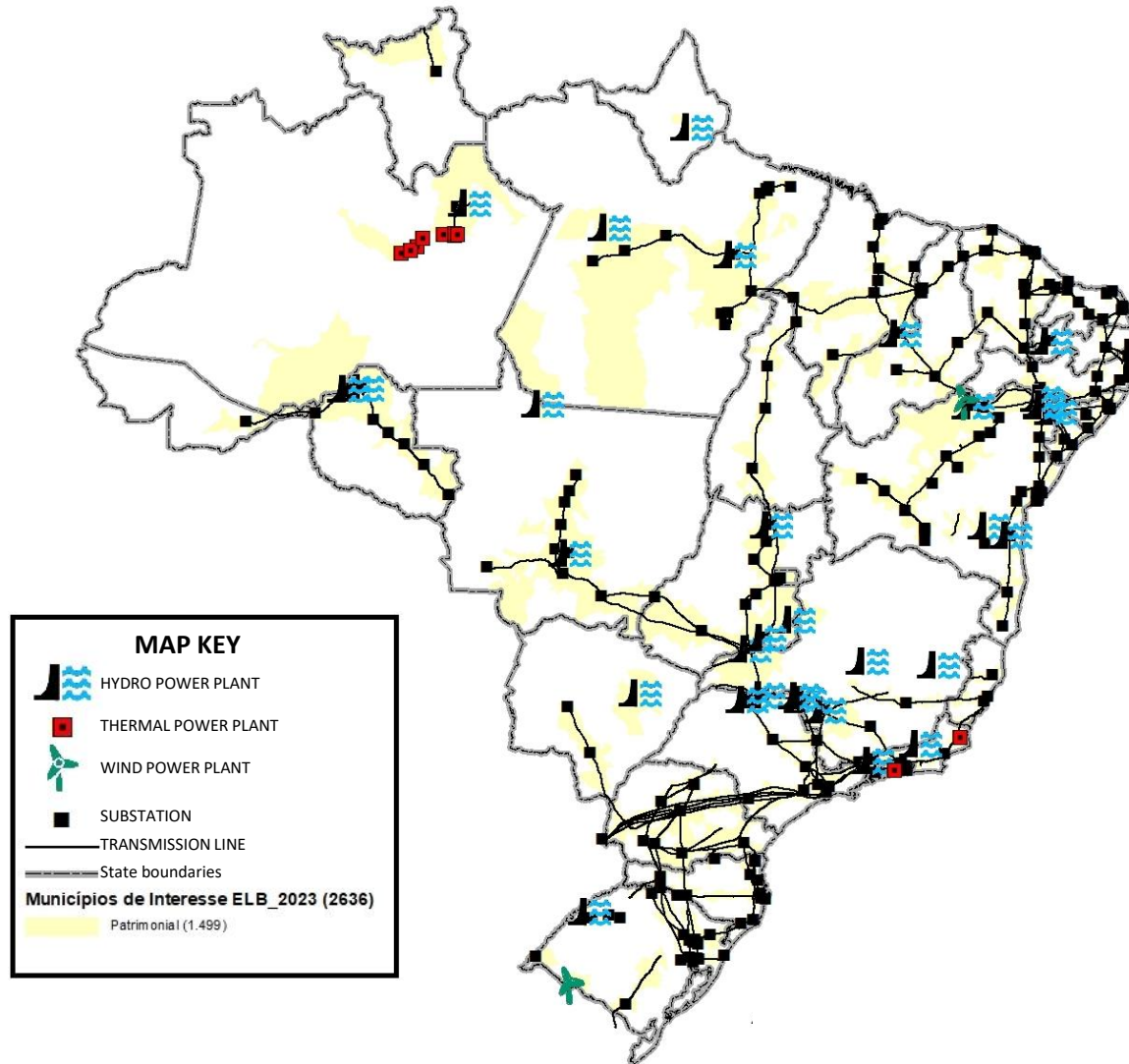


Up to 6,000

active suppliers at any given moment



ELETROBRAS' SOCIAL AND ENVIRONMENTAL SCOPE ■



1,499

counties with assets
operated by Eletrobras



27%

of Brazil



250,011 ha

forested areas in
concession areas

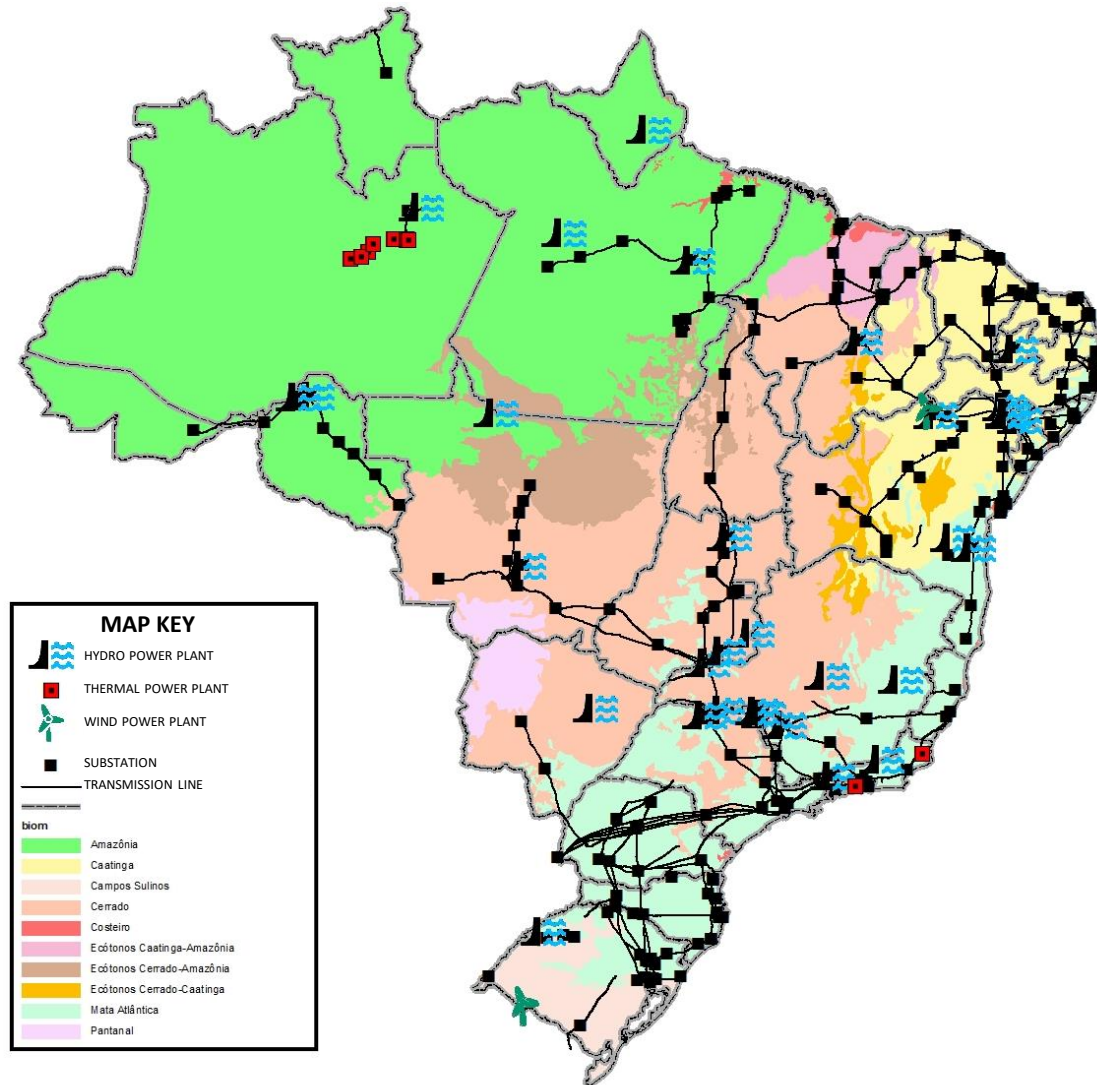
=

350,155

football fields



ELETROBRAS' SOCIAL AND ENVIRONMENTAL SCOPE ■



5

biomes with assets
run by Eletrobras



74

endangered species included
in conservation projects

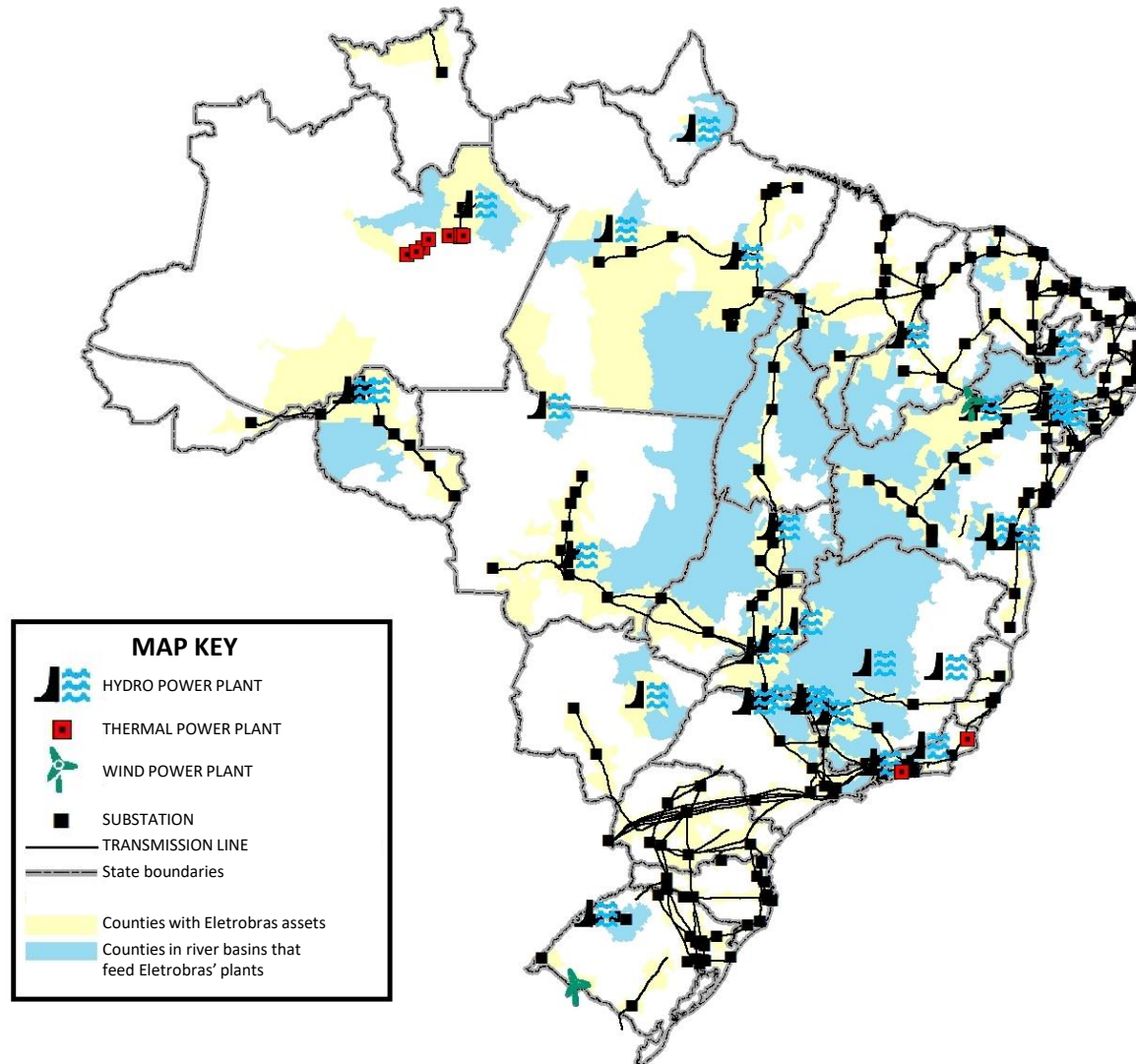


2,000,000+ ha

area of conservation units and
indigenous lands supported



ELETROBRAS' SOCIAL AND ENVIRONMENTAL SCOPE ■



1,137

counties within river basins
that feed hydro power
plants run by Eletrobras



20%

of Brazil

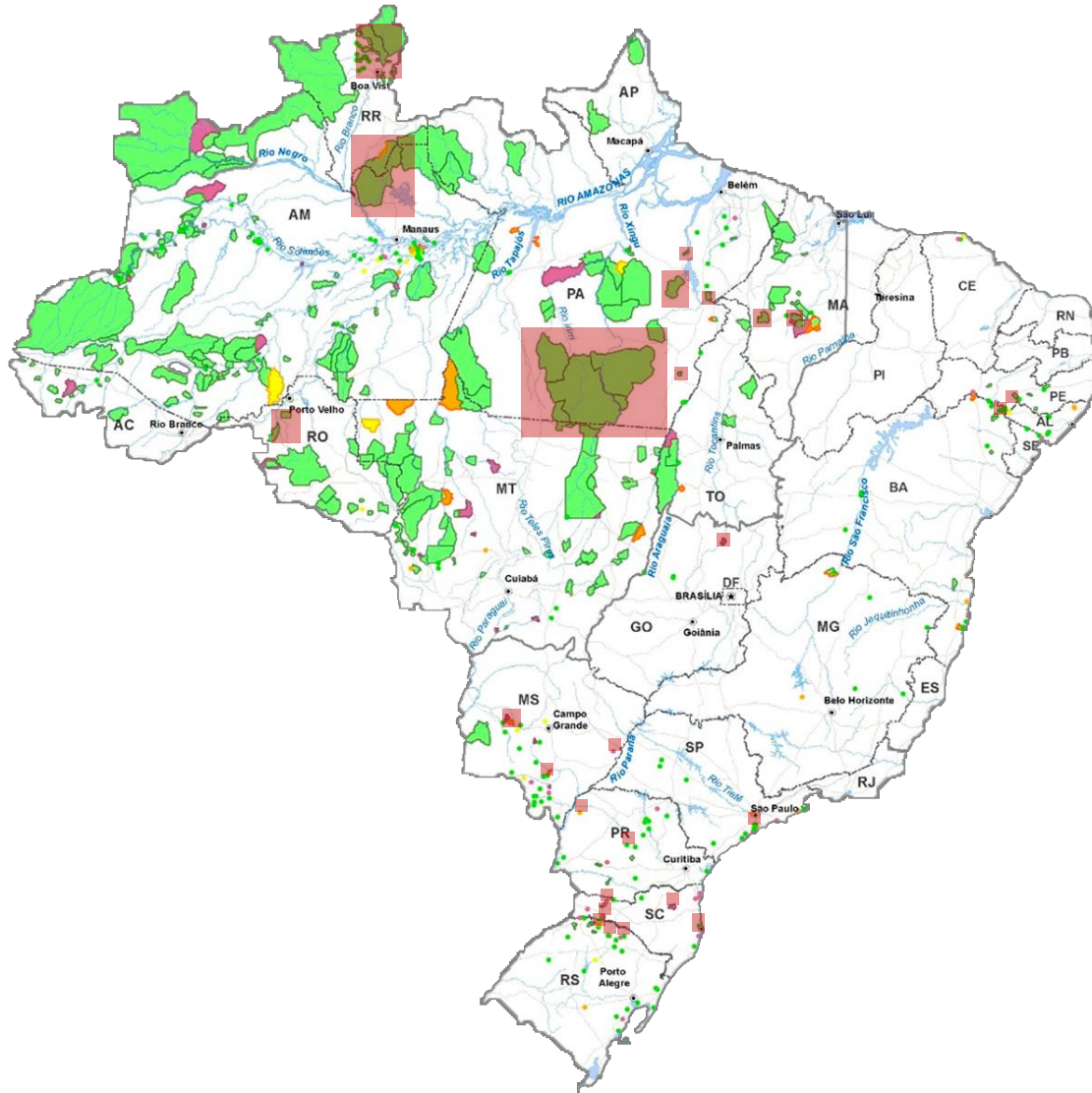


12

river basin with assets
run by Eletrobras



ELETROBRAS' SOCIAL AND ENVIRONMENTAL SCOPE ■



The company that engages the most with indigenous peoples in Brazil

35
ethnic groups



64
indigenous lands



98%+
preserved natural coverage
in these indigenous lands



OUR HUMAN RIGHTS AGENDA ■

What have we been doing since 2023-2024?

- First independent Human Rights Impact Assessment (HRIA) of a Hydro Power Plant (HPP) in Brazil
- ESG Due Diligence of third parties (suppliers, partners etc.)
- Human Rights Due Diligence (HRDD) of joint ventures
- Dedicated Human Rights Policy
- First Free, Prior and Informed Consent (FPIC) process with a quilombola (maroon) community alongside the National Institute for Agrarian Reform and Colonization (INCRA)

What are we doing from 2025-2026?

- Company-wide independent Human Rights risk assessment
- Alignment of grievance mechanisms to the United Nations Guiding Principles (mainly #31)
- Development of a playbook on remedy and repair of Human Rights violations
- General review and enhancement of HRDD processes
- Setting up and integrated governance for all of the company's community relations initiatives

PLANNED AI AND IT TOOLS ■

Human Rights Data Lake

In-house development underway

- Centralized repository to store, process, and secure large amounts of structured & unstructured data from:
 - Internal systems (grievance, HR, procurement, audits, legal processes)
 - External sources (social media, news, NGO reports)
- AI application for pattern recognition and anomaly detection
- Scans of unstructured text (complaints, reviews, reports) for Human Rights-related terms like forced labor & discrimination
- Machine learning models for monitoring & triggering alerts and actions (an unusual spike in worker grievances, suspicious patterns in subcontractor data)
- Organizing KPIs & findings into dashboards and reports

Stakeholder Relationship Management (SRM) System

Procurement underway

- SRM system with integrated AI tools to enhance stakeholder engagement and streamline data management processes
- Machine learning algorithms to automatically clean and update stakeholder records, ensuring that contact information, affiliations, and engagement histories remain accurate and current, reducing manual data entry and minimizing errors
- AI-driven analytics can detect patterns and provide predictive insights into potential risks associated with relationships
- Automated generation of comprehensive reports aggregating and analyzing data, allowing for timely and accurate reporting
- Seamless integration with other databases, CRM systems and channels via application programming interfaces (APIs), ensuring smooth workflow and data consistency

BUT OUR IMPACT ASSESSMENT AGENDA HAS STARTED LONG BEFORE ■

In Brazil, the **environmental licensing** process for so-called polluting activities is governed by the **National Environmental Policy** (federal law 6,938/1981), resolutions of the **National Environmental Council (Conama)** and other related provisions.

Previous License (LP)			Installation License (LI)	Operation License (LO)
Terms of Reference (ToR)	Environmental Impact Study / Report (EIA-RIMA)	Public hearing	Basic Environmental Plan (PBA)	
	Participatory survey of different impacts : <ul style="list-style-type: none">PhysicalBioticSocioeconomic	Allows the community to learn about the project and present suggestions and criticisms for evaluation by the licensing body	Participatory construction of compensation and mitigation actions for the impacts identified	
The Belo Monte HPP EIA-RIMA has 12,000+ pages			7,000+ compensation and mitigation action in place and monitored	

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Human Rights Due Diligence (HRDD)

- From the beginning of the process, taking advantage of the mobilization of impact assessment human and financial resources
- Continuous and cyclical, throughout the entire execution and eventual decommissioning of the project
- Including internal and external stake/rightsholders, such as the supply chain, and placing the impacts on people at the center of the process

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How many references to environmental licensing are there in the bill that aims to create the National Framework for Business and Human Rights?

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How many references to environmental licensing are there in the bill that aims to create the National Framework for Business and Human Rights?
None

A RATHER CURIOUS IMPACT ASSESSMENT CASE AND AI RESPONSE TO IT ■

Once the **Brazilian Institute of Environment and Renewable Natural Resources (IBAMA)**, the federal body responsible for granting environmental licenses, was asked to evaluate an **archaeological survey** as part of a broader **EIA** of a new transmission line.

The image below was presented as evidence of a **cave rock painting**:



Source:

Borges, Henrique; Nabuco, Felipe; Demori, Vinicius; IBAMA.
“Complementações no Licenciamento Ambiental de Sistemas
de Transmissão de Energia: uma Análise do Contexto Federal”.
Paper presented at the 2024 SMARS Seminar in Rio de Janeiro

A RATHER CURIOUS IMPACT ASSESSMENT CASE AND AI RESPONSE TO IT ■

I shared this image with **ChatGPT** and asked it 2 questions:

In an ongoing archaeological survey that found, part of the Environmental Impact Assessment of a new power transmission line, the pictured rock painting was found. Produce a preliminary archaeological report on it.



1. Introduction

During a preliminary archaeological survey as part of the Environmental Impact Assessment (EIA) for the proposed power transmission line, a potential instance of rock art was identified within a cave.

2. Description of the Motif

The image depicts a triradial (three-lobed) figure composed of three curved arms converging at a central point. The pigment appears to be a reddish-brown or ochre tone, applied to a lighter stone surface. The lines are relatively uniform, suggesting application via brush or rudimentary instrument.

3. Iconographic Interpretation

The motif may be interpreted based on regional archaeological parallels and ethnographic analogies:

Trinomial/Triradial Symbolism:

Triradial symbols are often associated with cycles (e.g., life, death, rebirth), solar representations, or spiritual trinity concepts in many prehistoric traditions.

Zoomorphic Representation

The figure may be an abstract rendering of a living organism, possibly an arthropod or trilobite-like creature, carrying symbolic meanings related to fertility, nature, or supernatural beings.

4. Recommendations

Given the potential archaeological significance of the motif, the following measures are recommended:

- Immediate site registration with the national or state heritage authority (e.g., IPHAN or relevant agency).
- Detailed archaeological study, including: microscopic pigment analysis & radiocarbon dating
- Inclusion in EIA planning, incorporating one or more of the following:
 - Adjustment of the transmission line route
 - In-situ conservation and monitoring



A RATHER CURIOUS IMPACT ASSESSMENT CASE AND AI RESPONSE TO IT ■

I shared this image with **ChatGPT** and asked it 2 questions:

Where do you think this picture was taken?



The image appears to show a rock or fossil-bearing surface with what looks like preserved organic impressions or trace fossils—likely from marine organisms. This kind of fossil is typically found in sedimentary rock formations.

It closely resembles fossils from the Burgess Shale in Canada—one of the most famous fossil sites in the world, known for its exceptional preservation of soft-bodied organisms from the Cambrian period, around 508 million years ago.

The shape might belong to a creature like Marrella, Wiwaxia, or another Cambrian arthropod, but it's difficult to identify precisely or confirm the location without more context.

Do you know where the photo was taken or have any additional details?



A RATHER CURIOUS IMPACT ASSESSMENT CASE AND AI RESPONSE TO IT ■



It is a loaf of bread!

ON BEING MEANINGFUL AND BUILDING TRUST ■

Data Bias

Most algorithms & generative AI models are trained and continuously fed predominantly on Western-centric datasets (text, images, cultural references from the Global North), leading to biased outputs and erasure of local & Indigenous cultures.

Exclusion from AI Development

Local and indigenous communities are often not involved in AI development, meaning their systems of knowledge, ethical frameworks & sovereignty concerns are not included in algorithm design or deployment.

Lack of community consent for data use

Generative AI models are often trained on web-scraped data, including indigenous texts, artworks & oral history transcriptions, frequently without informed consent or benefit sharing with the communities who created them.

If we don't account for already existing biases and imbalances, AI will reproduce patterns of exclusion and injustice, undermining conditions for meaningful and trustworthy engagement.

If AI allows us to spend less time number crunching, going through extensive data sets and consolidating information, we shall use this "newfound time" to exercise human faculties such as listening, pondering ethical choices, empathy, presence, self-awareness & warmth.



Dante Alighieri
(1265 – 1321)

“The darkest places in hell are reserved for those who maintain their neutrality in times of moral crisis.”

AI may make us clever, but it's upon us to be wise and choose according to values



Nina da Hora

“Data has history. Algorithms are not neutral. If we don't challenge their design, we may reproduce exclusion.”

Brazilian anti-racist hacker of technology



Let's continue the conversation!

Message me your questions or comments in the IAIA25 app.

Pedro Villela Capanema Garcia

Head of Social Responsibility ■ Eletrobras

 Brazil

<https://www.linkedin.com/in/pedro-villela-capanema-garcia-7895a9145/>

#iaia25

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