Paying the Price of the Green Transition

Communities Affected By Brazil's Bauxite-Aluminum Supply Chain Still Don't Have Enough Say

TRANSPARENTEM

ABOUT TRANSPARENTEM

Transparentem transforms industries by allying with workers and communities to uncover abuses in global supply chains and drive labor and environmental justice. Through in-depth investigations, strategic engagement with companies, and policy advocacy, we drive change across entire industries.

We choose our areas of focus for the greatest impact, investigating endemic abuses that affect the health and welfare of thousands of community members and workers.

Ultimately, through collective action and collaboration, we strive to fundamentally transform industry practices and bring real, tangible justice to some of the world's most vulnerable populations.

We are philanthropically funded by foundations and individuals and are tax exempt in the United States under Section 501(c)(3) of the Internal Revenue Code.

Aerial view of the Igarapé Jambuaçú basin, a tributary of the Mojú River and a vital watershed for the Quilombola communities of the Jambuaçú Complex, located in the area impacted by the pipeline that connects the Paragominas mine and the refinery complex in Barcarena, Pará.

Terminology

In this report, the term **"buyer"** refers to a company that purchased material directly from investigated suppliers or from an entity in the investigated suppliers' supply chains. The term does not indicate certainty that material from the investigated suppliers is in the company's products in all instances. It indicates a supply chain connection to investigated suppliers that may have resulted in material from the suppliers in the company's products.

In this report, the terms **"community leader"** or **"leader of a community"** refers to individuals who perform leadership roles in their communities. Leadership was demonstrated through formal positions in community councils and associations, and/or through community recognition for being a source of guidance and representation in matters relating to the issues identified in this report.

Quilombola is a person who is a member or descendant of a historical quilombo community in Brazil. These communities originated as settlements formed by people who escaped slavery and symbolize collective resistance to slavery. They have maintained unique social, territorial, cultural, and political identities over time. The Brazilian Constitution recognizes the rights of quilombo communities to own their collective territories.

Traditional communities in Brazil are groups that recognize themselves as culturally distinct with their own social organization. Traditional communities preserve and utilize knowledge, innovations and practices passed between generations. The Brazilian State recognizes 28 traditional peoples and communities, including indigenous and **Quilombola** people. [1]

Summary

From smartphones to beverage cans to cars, consumers use products made of aluminum every day. Used to manufacture solar panels, wind turbines, electric vehicles, and transmission cables, this versatile metal has also become crucial for the green energy transition. A responsible transition to a green economy must attend to and protect against the human impacts of raw material extraction, including bauxite mining and processing.

In recent decades, the use of aluminum has expanded significantly, impacting the rights and well-being of countless families and communities. Companies mine and process bauxite to obtain alumina, which is then smelted to produce aluminum.[2] Brazil was one of the top five bauxite-producing nations in 2024, according to the US Geological Survey (USGS).[3] More than 80% of its aluminum ores come from the state of Pará.[4] In 2024, Brazil exported more than $230 million in aluminum ores and concentrates, according to UN Comtrade data.[5] The top five importers of its ore were Canada, China, Greece, Ireland, and Saudi Arabia.[6]

Between January and July 2025, Transparentem investigated the Brazilian bauxite and aluminium supply chain, interviewing 59 people who were members or leaders of 40 communities located near bauxite or alumina operations. Some interviewees said they were Quilombola or had indigenous or Quilombola ancestry. Our investigations revealed significant concerns of environmental destruction caused by the companies and a lack of proper consultation and/or remedy.

Transparentem contacted 60 buyers with supply chain connections to these bauxite mining and processing operations, but was concerned by how few of these buyers constructively engaged on the issues. Just 16 buyers received detailed evidentiary findings after responding to Transparentem's outreach. Of those, only eight submitted responses to Transparentem in writing. Forty-four buyers did not respond to Transparentem's efforts to reach them, which was disappointing and inconsistent with Transparentem's engagements in other sectors where companies have responded at much higher rates. Those who did respond cited relevant policies and efforts already in place before being contacted by Transparentem — policies that, according to community interviewees, have not been sufficient to address their concerns. These companies include major players in the automotive and aerospace industries.

Aerial view near the Quilombola communities of Centro Ouro and Nossa Senhora das Graças of the Jambuaçú Complex, where the bauxite pipeline linking the Paragominas mine to Norsk Hydro's refineries in Barcarena, Pará passes through.

The sites Transparentem investigated were the Alumar refinery, the Alunorte refinery, the Juruti mine, the Mineração Rio do Norte (MRN) mine, and the Paragominas pipeline. Investigators also spoke to academic researchers and members of civil society organizations that work with the communities.

Transparentem contacted private-sector companies that owned at least two percent of an investigated site, reaching out to a total of seven site owners across the five investigated sites. Mines may be operated by one company, but owned by another, and then sell bauxite to companies that produce the aluminum, which then have ties further up the supply chain. Four of the site owners responded to Transparentem. In their reports and responses, the companies pointed to their community outreach and progress on due diligence, but communities continue to describe feeling unheard. The similarity in communities' experiences across all five investigated sites suggests that problems are symptomatic of the entire sector in this region of Brazil.

Table 1: Key Companies Contacted by Transparentem that Own the Investigated Sites *

Investigated Site	Key Companies Contacted by Transparentem that Own or Operate the Investigated Sites
Alumar	Alcoa Corporation, Rio Tinto Group, South32 Limited
Alunorte	Glencore plc, Mitsui & Co., Ltd., Nippon Amazon Aluminium Co., Ltd. (NAAC), Norsk Hydro ASA
Juruti	Alcoa Corporation
MRN	Glencore plc, Mineração Rio do Norte (MRN), Rio Tinto Group, South32 Limited
Paragominas	Norsk Hydro ASA

* Transparentem contacted private sector companies that owned at least two percent of an investigated site, for a total of seven site owners across the five investigated sites. Sites may be owned by a company but operated by another.

Aerial view of the Alunorte Refinery, Barcarena, Pará, Brazil.

Loading area of the Alcoa bauxite processing plant, adjacent to the railway line connecting the mine to the company's shipping port, Pará, Brazil.

Transparentem's investigation, facilitated with support from local partners and community members, found evidence of the issues that follow, among others.

ENVIRONMENTAL RISKS AND COMMUNITY IMPACTS

Leaders and members of communities surrounding four of the five investigated sites (Alumar, Alunorte, Juruti, and MRN) raised concerns related to tailings dam and waste deposit safety, as well as air, water, and noise pollution. Alcoa, owner of Alumar and Juruti, and MRN reported compliance with Brazilian law and international standards for tailings dam and waste deposit safety but community concerns regarding the potential risks they present remain high near all four sites.

Interviewees from communities near Alumar, Alunorte, Juruti, and Paragominas said they were concerned about air and water contamination connected to company operations. Residents near Alumar and Juruti reported that bauxite dust affected crops and homes. Near Alunorte, all interviewees expressed serious health concerns related to the environmental impact of the refinery's operations. Interviewees also described disruptive noise originating from Juruti and Paragominas' operations. Norsk Hydro, Mitsui, and NAAC provided no response to any of the issues reported by community members. Norsk Hydro owns Paragominas, and all three companies are owners of Alunorte.

LACK OF CONSULTATION, REMEDY & ACCESSIBLE GRIEVANCE CHANNELS

Many interviewees from communities near all five sites reported that companies were not providing meaningful consultation, remedy, and accessible grievance mechanisms. Leaders of communities near Juruti and Alumar described feeling unheard even after their repeated outreach to companies. Alcoa, which owns Juruti and is a part-owner of Alumar, acknowledged gaps in this area but highlighted efforts to improve. At Alunorte and Paragominas, community interviewees reported experiencing serious problems in seeking meaningful dialogue with operators and with Norsk Hydro, an owner of both sites. Some said that as a result, most communities felt compelled to pursue legal action to secure proper remedy.

In short, many community members near all sites expressed that they feel excluded from decisions that significantly impact their lives and that remediation has

GENERATIONS ON THE LAND, A COMMUNITY AT RISK

Paula's [pseudonym] family has lived in the Brazilian municipality of Barcarena for generations in a community that depends on foraging and agriculture for food and income.

With the arrival and subsequent expansions of Alunorte, an alumina refinery, Paula's community lost access to many areas traditionally used for those livelihood activities. Paula saw that increasing pollution around Alunorte harmed the fruit that grew on local trees, often rendering it inedible. And she said the powerlines built by the company prevented açai trees, a plant of cultural and dietary significance, from growing properly.

During every heavy rainstorm, Paula is terrified of the potential risk that Alunorte's tailing basins, engineered containment structures used to store refining byproducts, will overflow. "Going to sleep and not waking up, falling into eternal sleep. I'm afraid, very afraid." This fear partially stems from well-known tailing dam disasters, in which dozens and hundreds perished, engulfed in floods and mudflows. Paula said the company raised the height of the land where the basins are located, so when it rains a lot, the water runs directly into her community.

Panoramic view of the Quilombola Community of São Manoel, Moju, Pará.

been inadequate, indicating that company engagement is falling short. This is the case even after attention has been raised over the years about these issues.

LAND, TERRITORY & LIVELIHOOD LOSS

Interviewees from communities near all five sites were concerned about loss of land and livelihood in connection to the sites' operations and expansions. Near Alumar and Juruti, community leaders described declining fishing, farming, hunting, and forest harvesting as company activity intensified. In its response, Alcoa acknowledged opportunities to enhance land acquisition and engagement practices but also highlighted several benefit-sharing mechanisms. Leaders and community members near Alunorte said they were continually losing land as operations expanded. Community leaders along the Paragominas pipeline linked the company's operations to farming, fishing, and hunting losses. Norsk Hydro, Mitsui, and NAAC did not respond to these concerns. MRN pointed to broader environmental changes as the source of impacts to community livelihoods. But community members' experiences indicate that grave company impacts are not being adequately remedied.

Company Responses

As the bauxite and aluminum sector expands due to the green energy transition, the gap between corporate reporting and community experience represents growing reputational risks and warrants enhanced transparency, independent impact evaluations, strengthened community engagement, and independent mediation to determine remedies. Transparentem traced supply chains and identified 68 companies potentially connected to the investigated sites. Of the 68, eight are owners, part-owners, or operators of the investigated sites; the remaining downstream companies include consumer-facing brands and distributors (broadly categorized together as 'buyers' in this report).

In October 2025, Transparentem reached out to seven owners of the five sites and to the site operator MRN. Four of the companies responded to Transparentem: **Alcoa, MRN, Rio Tinto,** and **South32**.

- **Alcoa** affirmed a commitment to respecting human rights and said its policies, mechanisms, and programs reflected steps already taken to address community concerns.
- **MRN** said it operates in full legal compliance and also adopts international standards voluntarily.
- **Rio Tinto** noted that it would discuss concerns directly with MRN and aligned itself with Alcoa's responses about Alumar. Rio Tinto also encouraged Transparentem to engage MRN and Alumar directly.
- **South32** encouraged Transparentem to seek information directly from site operators Alcoa and MRN.

Four companies failed to engage substantively with Transparentem:

- **Glencore** declined to meet or receive information from Transparentem.
- **Mitsui** did not respond by email nor to voice messages.
- **NAAC** did not respond in writing, but Transparentem reached a representative by phone, who confirmed receipt of our outreach. NAAC did not respond further.
- After one meeting, **Norsk Hydro** also declined to engage further or receive information from Transparentem. Norsk Hydro referred Transparentem to its publicly available materials.

Panoramic view of the Alunorte refinery, its bauxite tailings deposits, and the Quilombola communities of Burajuba and Sítio São João, Barcarena, Pará, Brazil.

Buyers Transparentem Identified with Supply Chain Connections to the Investigated Sites

Airbus SE
AMAG Austria Metall AG
Amcor plc
Anheuser-Busch InBev SA/NV
Apple Inc.
Arconic Corporation
BAE Systems plc
Ball Corporation
Bayerische Motoren Werke Aktiengesellschaft (BMW)
Bombardier Inc.
Commonwealth Rolled Products, Inc.
Constellium SE
Crown Holdings, Inc.
Embraer S.A.
Ford Motor Company
General Dynamics Corporation
General Motors Company
Groupe Industriel Marcel Dassault SAS
Hammerer Aluminum Industries GmbH
Honda Motor Co., Ltd.
Hyundai Motor Group
Isuzu Motors Ltd.
Itochu Corporation
Kaiser Aluminum Corporation
Lear Corporation
Leonardo S.p.A.
Lockheed Martin Corporation
Magna International Inc.
Marubeni Corporation
Mazda Motor Corporation
Melrose Industries plc
Mercedes-Benz Group AG
Mitsubishi Heavy Industries, Ltd.
Mitsubishi Motors
Nexans S.A.
Nissan Motor Co., Ltd.
Northrop Grumman Corporation
Novelis Inc.
PepsiCo, Inc.
Pilatus Aircraft Ltd.
Prysmian S.p.A.
Renault S.A.
Rivian Automotive, Inc.
Robert Bosch GmbH
RTX Corporation
Safran S.A.
Samsung Electronics Co., Ltd.
Siemens AG
Stellantis N.V.
Suzuki Motor Corporation
Tata Motors Limited
Tesla, Inc.
Textron Inc.
The Boeing Company
The Coca-Cola Company
thyssenkrupp AG
Toyota Motor Corporation
Volkswagen AG
Yamaha Motor Co., Ltd.
Zhejiang Geely Holding Group Co., Ltd.

For details on company responses to Transparentem's outreach and findings, see page 22 of the **full report**.

Panoramic view of the Quilombola village of Santa Luzia do Tracuateua which is bisected by the pipeline connecting the Paragominas bauxite mine to Norsk Hydro's refineries in Barcarena, Pará.

Art in the Vila de São Manoel, part of the Jambuaçú Complex, where Quilombola communities maintain and pass down cultural traditions through generations, Moju, Pará.

Recommendations

The global transition to a green economy depends on a steady supply of bauxite and alumina — which are needed to produce aluminum for electric vehicles, renewable energy infrastructure, and other "clean" technologies. The green transition, intended for the benefit of all, cannot come at the expense of some of the world's most marginalized people. Communities living alongside bauxite production and processing sites have had to bear a disproportionate burden, resulting in a green economy that is neither just nor truly sustainable. Companies, investors, and governments must ensure that the decarbonization of the global economy goes hand in hand with the protection of the rights, livelihoods, and well-being of the most impacted communities. Consumers, in turn, should favor products from companies that uphold these standards and publicly disclose their supply chains — including the origin of raw materials and the environmental and social practices they apply.

FOR COMPANIES

- Companies, including operators and supplier owners, should address community members' ongoing fears of potential hazards associated with the investigated sites' operations. It is not sufficient to say they have already taken action if community members are still reporting ongoing concerns.
- Companies, including operators and supplier owners, must redouble their efforts to ensure that communities are properly consulted.
- Companies must make their grievance mechanisms more effective, including making them more accessible and more independent.
- Companies should provide accessible, detailed information to community members in response to their concerns.
- Companies should ensure meaningful community participation during impact assessments and publicly disclose all assessment methodologies and results in accessible and understandable formats.
- Buyers should trace their entire supply chain from bauxite extraction to commercial use of aluminum to exert greater leverage and support their suppliers to improve conditions.

FOR GOVERNMENTS

- Government agencies should convene all relevant stakeholders to ensure better resolution of community concerns.
- State environmental agencies should require independent verification of company water and air quality monitoring as standard conditions when renewing operating licenses, with automatic enforcement when pollution exceeds legal limits.
- Federal and state governments must provide environmental agencies with adequate resources to independently verify company monitoring data and conduct regular inspections of mining operations.
- Environmental licensing agencies must require identification of affected communities; public participation in the licensing process; free, prior, and informed consultation for indigenous peoples and traditional communities; and technical review.
- Mining authorities must not grant or renew mining concessions that overlap with titled traditional territories without documented community consent.
- Federal and state land agencies must complete pending land title registrations for traditional, Quilombola, and indigenous communities, particularly those affected by mining and refining operations.
- The National Mining Agency must publish all tailings dam safety inspection reports within 30 days to enable affected communities to understand risks.

FOR INVESTORS

- To reduce material risk in their investments, investors should urge portfolio companies to fulfill their human rights due diligence obligations, including by adopting the recommendations in this report. See Appendix 5 on page 48 of the **full report** for questions investors can ask of their investees to facilitate meaningful risk assessment and stewardship.

Endnotes

[1] Brazil's Decree No. 6,040, February 7, 2007, accessed October 7, 2025, https://www.planalto.gov.br/ccivil_03/_ato2007-2010/2007/decreto/d6040.htm; "Povos e Comunidades Tradicionais," Government of Brazil, Ministério do Meio Ambiente e Mudança do Clima (website), accessed October 7, 2025, https://www.gov.br/mma/pt-br/assuntos/povos-e-comunidades-tradicionais

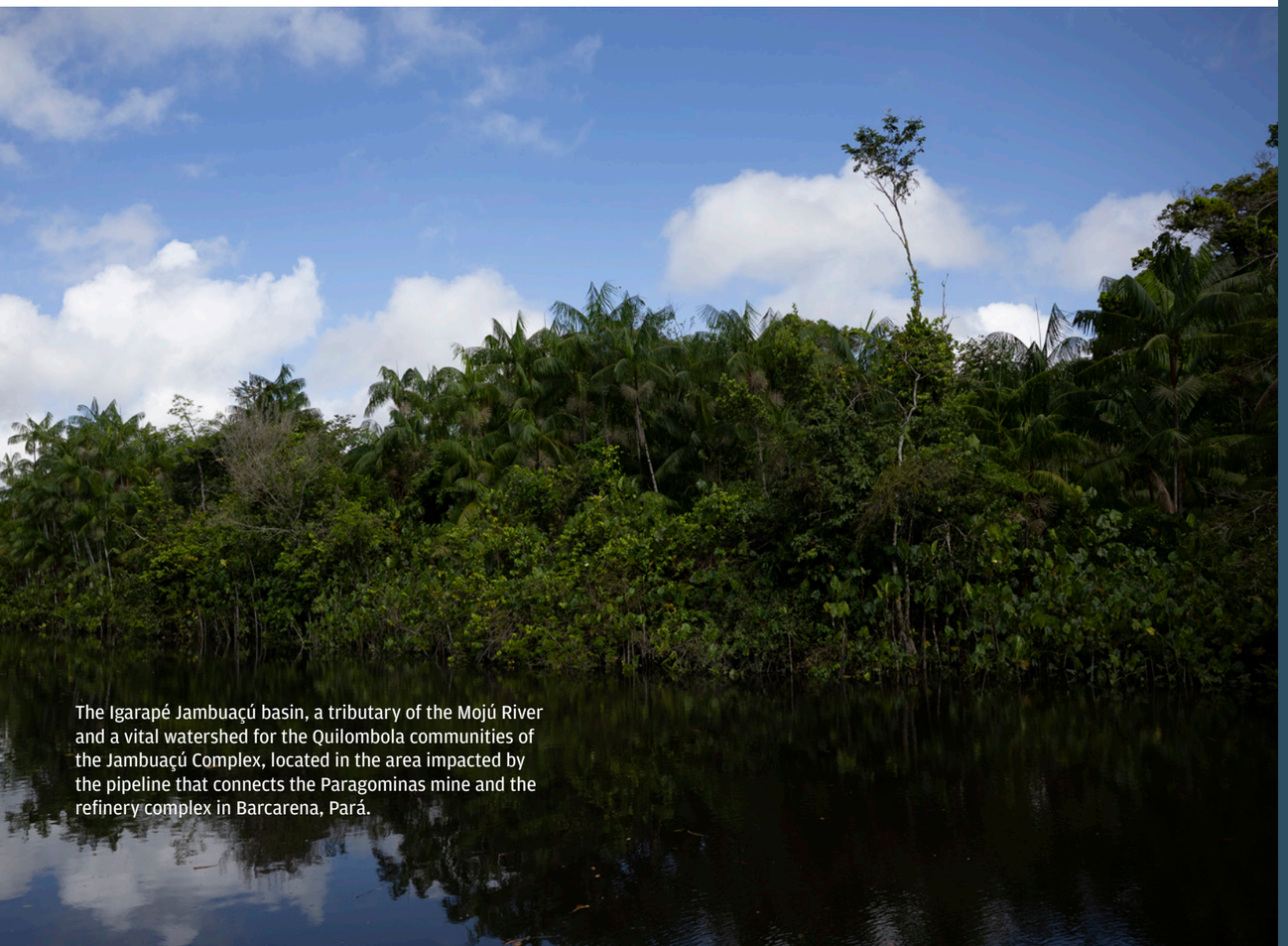
[2] Melissa Pistilli, "Top 10 Aluminum-producing Countries," Investing News Network, February 13, 2025, accessed October 7, 2025, https://investingnews.com/aluminum-production-by-country/

[3] United States Department of Interior, U.S. Geological Survey: Mineral Commodity Summaries 2025, March 2025, accessed October 7, 2025, https://pubs.usgs.gov/periodicals/mcs2025/mcs2025.pdf

[4] "Brazil Is One of the Main Exporters of Bauxite and Aluminum," Government of Brazil (website), August 12, 2022, accessed October 7, 2025, https://www.gov.br/en/government-of-brazil/latest-news/2022/brazil-is-one-of-the-main-exporters-of-bauxite-and-aluminum

[5] Trade Flow Data for Aluminium Ores and Concentrates, Exports from Brazil, UN Comtrade (website), n.d., accessed October 7, 2025, https://comtradeplus.un.org/

[6] Aluminum Ore in Brazil," Observatory of Economic Complexity, [MISSING: date], accessed October 7, 2025, https://oec.world/en/profile/bilateral-product/aluminium-ore/reporter/bra



The Igarapé Jambuaçú basin, a tributary of the Mojú River and a vital watershed for the Quilombola communities of the Jambuaçú Complex, located in the area impacted by the pipeline that connects the Paragominas mine and the refinery complex in Barcarena, Pará.

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A note on sources: Where requested, the names of interviewees and sources have been withheld to protect their safety. Pseudonyms, where used, are indicated in the text.

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