

# Annual Report 2021



Damare Prado da  
Conceição, logistics  
analyst, Corporate  
Office (SP)

# Summary

Emanuelli Constantino  
Silveira Moraes, alumina  
maintenance planner,  
Alumínio Plant (SP)



- Aluminum is essential ..... 3
- Report overview..... 4
- Institutional ..... 6
  - Message from the Board of Directors..... 7
  - Message from the CEO..... 8
  - Sustainability journey..... 10
- CBA, from mine to end product ..... 11
- A comprehensive commitment to sustainability..... 29
- Governance is essential ..... 38
- Social value ..... 54
  - Our people ..... 55
  - Community support ..... 71
- Environmental preservation ..... 79
- Financial management ..... 106
- Future readiness ..... 117
- GRI and SASB Content Index ..... 119



# Aluminum is essential

Stock image. Photos of models not wearing masks were taken before the COVID-19 pandemic.

Whether you're at home or at work, whether you're enjoying recreation or riding a bus, or whether you're opening a food or pharmaceutical package. Aluminum is present in your everyday life. Much more than you imagine.

And aluminum will be even more prevalent in the years to come, as the metal of choice for a more sustainable future. It is durable, flexible, lightweight and infinitely recyclable, making it a more environmentally friendly and, often, a lower-cost option.

CBA has a role to play in building this future as a leading producer of low-carbon aluminum for a diverse set of industries that are transforming society.

This is our belief and our ambition: **creating aluminum solutions that transform people's lives.**

# Report overview

GRI 102-1, 102-49, 102-50, 102-52, 102-54

Welcome to the Companhia Brasileira de Alumínio (CBA) Annual Report, an account of our key strategies and initiatives from January 1 to December 31, 2021. The report addresses environmental, social, economic, operational and governance aspects across all of our operations in Brazil, with the exception of our Energy business and Alux do Brasil. These operations are currently in the process of integration into CBA and should be fully incorporated into the Company by 2022. Information about these operations will be included in next year's report.

The boundary of this report has been set based on CBA's materiality assessment in 2020. The key highlights for the year are summarized in a business model inspired by the Integrated Reporting (IR) Framework.

To better present our sustainability strategy (learn more in [ESG 2030 Strategy, a comprehensive commitment to sustainability](#)), the core chapters of this report have been structured in accordance

with the Environmental, Social and Governance (ESG) pillars, providing information about CBA across the environmental, social and governance dimensions. Each chapter is mapped to the relevant material topics, the levers in our ESG 2030 Strategy, the United Nations (UN) Sustainable Development Goals (SDGs) and the Global Compact principles.

Following our listing as a public company in 2021, this report has been prepared in accordance with the GRI Standards: Core option. This edition also incorporates disclosures in line with the Sustainability Accounting Standards Board (SASB) Metals and Mining Standard, as applicable to our mines and industrial plants.

This report has been independently assured by PwC for transparency and integrity. For the Materiality Disclosures Service, GRI Services reviewed that the GRI content index is clearly presented and the references for Disclosures 102-40 to 102-49 align with appropriate sections in the body of the report.

A caster roll at  
CBA's Alumínio  
Plant (SP)



## Materiality Assessment

GRI 102-44, 102-46, 102-47

In the second half of 2020, we reviewed our materiality matrix to identify the topics that are most material to CBA—those aspects that reflect our significant economic, environmental and social impacts, or that substantively influence the assessments and decisions of stakeholders.

Twelve material topics were identified in the materiality assessment:

### ENVIRONMENTAL

- \* Waste management
- \* Climate change
- \* Efficient and renewable energy
- \* Dam safety management
- \* Water resource management
- \* Biodiversity protection
- \* Materials efficiency and aluminum recycling

### SOCIAL

- \* Diversity and inclusion of minorities
- \* Employee health, safety and wellness
- \* Local development and impacts on surrounding communities

### GOVERNANCE

- \* Ethics and compliance

### CROSS-CUTTING TOPIC

- \* Innovation and technology

These topics are also consistent with the SASB disclosure topics for the Mining industry.

The Additional Disclosures Supplement provides a description of the material topics, their impacts on CBA and our stakeholders, and how they relate to the SDGs, the ESG pillars, and the SASB disclosure topics.

If you have any questions, suggestions or comments about this Annual Report, the report team can be contacted by email to: [comunicacaocorp@cba.com.br](mailto:comunicacaocorp@cba.com.br).

GRI 102-53

**Click here**

*to learn more about ESG pillars and SASB material topics*

Rodrigo da Silva Barros, environmental coordinator, Zona da Mata Mines (MG)

# Institutional

An ingot  
produced at  
CBA's Alumínio  
Plant (SP)

- > Message from the Board of Directors
- > Message from the CEO
- > Sustainability journey

# Message from the Board of Directors

GRI 102-14



**Luis Ermirio de Moraes**  
Chairman of the Board  
of Directors, Companhia  
Brasileira de Alumínio  
(CBA)

## Growing responsibly

CBA has made substantial investments in recent years across our production, administrative and governance processes.

We have improved our management practices, become more competitive, and invested in people, society and the environment. These efforts were crowned in 2021 by our listing as a publicly traded company, with CBA becoming the first aluminum company in Brazil to be listed on the Brazilian stock exchange, in the *Novo Mercado* segment.

Throughout our journey as a company, CBA has always emphasized the importance of environmental stewardship and valuing our employees, and this has led us to a position of industry leadership for ESG today. Environmental, social and governance issues are taken seriously and addressed transparently at all levels of the organization. We understand the role that businesses have to play in their ecosystems, and recognize that as a publicly traded company, we have an even greater responsibility toward investors and, above all, toward to society as a whole.

We can see several clear pathways for sustainable growth and value creation on the horizon.

CBA creates aluminum solutions that transform people's lives, and works closely with customers as a trusted partner. As part of our approach to innovation at CBA, we establish valuable

collaborations with startups to co-develop innovative solutions and products that meet customers' unique needs, expanding into an increasingly dynamic future market.

A focus on environmental protection and, more recently, climate change has always been integral to our corporate culture at CBA, and we are proud to say that CBA has achieved one of the lowest greenhouse gas (GHG) emissions rates in the aluminum industry—precisely because we have been among the industry's top investors in clean energy and sustainable practices over the decades. We expect to achieve further progress in the short term through our investments to expand the share of recycled aluminum in our operations, helping to conserve natural resources in an increasingly circular economy.

And with close integration between our executive leadership team and the Board of Directors, united in their determination and focus on steering the business toward a more promising and environmentally friendly future, CBA is well poised for its role as a global industry leader for sustainability.

The challenge now is how to accelerate this ambition and achieve growth—responsibly. As in everything we set ourselves to do—and relying on our values of integrity, courage and collaboration—we are prepared to succeed in this mission as we have in previous ones.

# Message from the CEO

GRI 102-14



**Ricardo Carvalho**  
CEO, Companhia Brasileira de Alumínio (CBA)

## The future is already here

2021 was a historic year for CBA, and looking back at everything we achieved gives me an immense sense of pride. We envisioned, planned and worked together to implement a highly challenging effort during the year: our listing as a public company on the Brazilian stock exchange, B3, in the *Novo Mercado* listing segment. We completed the process with the support of a dedicated team that was determined to take Our CBA to the next level. Our successful listing, completed in July, confirms that our strategy is now mature, with sound governance, clearly articulated goals on different fronts, and commitments to international initiatives such as the Global Compact, the 2030 Agenda, and the Science Based Targets initiative. The market has certainly welcomed CBA's ambition for innovation and leadership in ESG.

The global market outlook over the coming years is trending favorably for the aluminum industry. We are alert to and uniquely positioned to capitalize on these trends, and to support our customers' growth in the industries we operate. Our operations are not only vertically integrated, but have fully renewable generation capacity for 100% of

our electricity requirement. As an important development in 2021, CBA's hydropower plants—which were previously operated by Votorantim Energia (VE)—were transferred to a newly created, dedicated Energy business unit within CBA. As a result, our team of professionals has now grown as we welcome newcomers from VE; we look forward to drawing on their expertise in the energy market, just as they will draw on our know-how in the aluminum market.

CBA's self-generation capacity, and our vertical integration from mine to downstream, positions us in the first quartile of the global cost curve and as one of the lowest carbon aluminum producers globally<sup>1</sup>. By way of comparison, emissions in aluminum smelting average 12.8 metric tons of CO<sub>2</sub>e per metric ton produced globally<sup>2</sup>. Aluminum is considered to be low-carbon at an emissions level lower than 4<sup>3</sup> metric tons of CO<sub>2</sub>e and CBA's operations are already well beneath this threshold at 2.56. But even as a top performer for emissions, we have set a goal in our ESG strategy to further reduce our carbon footprint, and have established a science-based target aligned with the SBTi initiative.

<sup>1</sup>CRU

<sup>2</sup>Source: Greenhouse Gas Emissions - Primary Aluminium - International Aluminium Institute ([international-aluminium.org](http://international-aluminium.org))

<sup>3</sup>Source: Carbon Trust - The Case for low Carbon Primary Aluminium Labeling

**GRI 102-7**

Financial performance was another highlight in the year. CBA posted strong growth in 2021 with revenue of R\$ 8.4 billion and adjusted EBITDA of R\$ 1.5 billion, a gain of respectively 56% and 132% on 2020. Sales volume also improved from 441,000 metric tons in 2020 to 485,000 metric tons in 2021. And we achieved this performance with our workforce either telecommuting or working on site with all precautions required by the pandemic. Taking care of our employees remains non-negotiable, whatever the circumstances, and we have spared no effort to continuously improve our safety practices.

Our focus on people is also reflected in our equity, inclusion and diversity efforts to create a workplace that is open to diverse ideas, personalities, cultures and choices. In 2021 we organized a range of internal initiatives to promote CBA's diversity ambition. Employees from affinity groups engaged in discussions, events and debates around making CBA as inclusive as possible and respectful of diverse opinions.

There will be much to be done going forward. With our recent IPO, a large number of investment-intensive projects have been greenlighted and are in progress, including our Pot Room Technology Upgrade and restart of two smelting pot rooms—1 and 3; investments in wind power; switching from wet to dry dam disposal; increasing scrap processing

capacity at Metalex; and the acquisition of 80% of Alux do Brasil in November 2021.

The Alux acquisition builds on our long-term strategy for the recycling market, and marks our entry into the secondary aluminum segment. It will also expand our team of industry experts and our expertise in different industry sectors.

Everything we are developing and building together, from our continuous innovation efforts to our social and environmental initiatives, is guided by our desire to build a better society. That is why we invest continuously in the communities where we operate. CBA's social action strategy is grounded in three pillars: Education Development, Public Management Support and Economic Development. We recognize the role we have to play in the sustainable development of the people living near our operations.

We will continue leave a legacy by producing low-carbon aluminum and solutions that transform people's lives. And we invite all our stakeholders to be part of this journey. CBA is poised for a more sustainable and prosperous future, and we know it will only make sense if we do it together: with our employees, suppliers, investors, communities, customers and associations. We feel very honored to share this journey together!



Billets produced  
at Metalex (SP)

# Sustainability journey

The *Legado das Águas* Reserve (SP), Reservas Votorantim



It was incredible to see a company of our scale going public the way we did in 2021. This confirms that as a Company we are operating to the highest levels of competitiveness, governance, people management and engagement with communities. It has given us the credentials to lead in our industry. When I think about the future, I see opportunities in energy, in our social programs and in our commitment to reducing greenhouse gas emissions. But what I'm most excited about is the opportunity to transform the business through recycling. All aluminum scrap can be re-melted and reprocessed, creating significant cost savings at the plant. And CBA is well-positioned to lead this movement."

**José Roberto Ermirio de Moraes Filho,**  
Member of the CBA Board of Directors and Sustainability Committee



I'm delighted to see how our executive leadership at CBA, with backing from the Board, is addressing the major sustainability issues to build the Company we want for the future. Our Sustainability Committee supports top management in this task and, crucially, in increasing understanding of the different impacts from our business. And this is especially salient. The aluminum industry generates significant impacts. Recognizing this, and acting to turn the situation around, can lead to a better future for our industry. We need to positively impact our world. And CBA has the ability to do this. Our decision to list the company on the stock exchange in 2021 is creating new opportunities for CBA, but also increased responsibility for Board members. 2030 is right around the corner."

**Franklin Feder, Member of the CBA Board of Directors and Sustainability Committee**



Setting up a Sustainability Committee to advise the Board of Directors, alongside the Executive Sustainability Committee, including independent members, is a good governance practice that better informs decision-making at the strategic level. It is a privilege to be a member of these bodies and to see how discussions flow organically and in a structured manner. Although this practice is widely recommended, the benefits are not immediately obvious, and need to be recognized. It is also rare to see such a high level of integration across the social, environmental and governance dimensions. How many other companies have environmental assets such as our Legacy reserves, that are preserved and managed in a way that is directly connected to the business, delivering benefits for people and our communities? The future is built upon the present. And CBA has a very well-established present. We have good practices, good planning and publicly disclosed targets. And we will continue to launch new challenges going forward. The more voices speaking the language of sustainability, the better for progress on this agenda."

**Sonia Consiglio Favaretto, CBA Sustainability Committee member**

# CBA, from mine to end product

- > About us
- > Value creation model
- > New fronts of business
- > Innovation and technology
- > Co-creation

A bauxite yard at the  
Alumínio Plant (SP)



# About us

GRI 102-1, 102-2, 102-6

Delivering aluminum solutions that transform people's lives. This is CBA's purpose. Through our products, we are present in the lives of millions of people—making their lives easier, shortening distances and improving well-being.

CBA is the only fully vertically integrated aluminum company in Brazil. Founded in 1941, CBA became a publicly traded corporation in 2021 and the first aluminum company in Brazil to list on the B3 stock exchange, on the Novo Mercado listing segment. We are proud to be a fully Brazilian owned business and a member of the Votorantim S.A. investment portfolio.

Throughout our journey as a Company, we have worked to build a better and more sustainable world, and to be responsive to the needs of our industry, our society and our planet. Inspired by our purpose, we have put sustainability and innovation at the core of our strategy.

Our operations begin at the mines where we extract bauxite, an ore that is then processed into alumina, molten aluminum and finally primary and downstream aluminum products. CBA also works with customers and business partners to supply customized products and cutting-edge solutions, such as higher value-added sheet and extruded profiles, as well as additional processing operations (cutting, bending, welding, machining and assembly). Our downstream products are supplied primarily to customers in the Americas, largely in Brazil and other countries in South and North America.

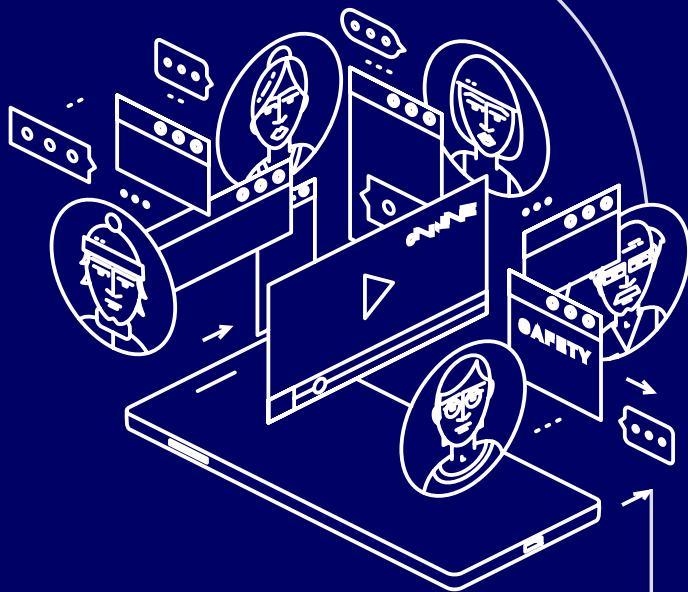
CBA is also a leading player in industrial-scale aluminum recycling in Brazil. Through our Metalex operation, we recycle scrap produced by our own production process and by our customers and partners. This improves both sustainability and profitability, as aluminum recycling uses just 5% of the electricity required to produce primary aluminum according to [International Aluminium Institute \(IAI\)](#). In 2021 we approved a project to install an additional recycling line at Metalex ([learn more on page 88](#)).

Daniele de Oliveira Pedrosa, communications analyst, Mine Operations

Material topic related to this chapter:  
**Innovation and technology**

SDGs related to this chapter:





### Purpose

Our Purpose reflects our history, our identity and our look towards the future.

**Aluminum solutions that transform people's lives.**

Damare Prado da Conceição, logistics analyst, Corporate Office (SP)



### Principles and Values

Votorantim Principles and Values permeate all Votorantim subsidiaries and represent our way of being, of doing, and going beyond. They are also the values of Companhia Brasileira de Alumínio ("CBA").

**Clarity about our essence. Past, present and future balanced. For us, HOW we do it matters. Our way...**

#### ...OF BEING

##### INTEGRITY

- #Doing what's right
- #Respect and Ethics
- #Valuing Differences

#### ...OF GOING BEYOND

##### COURAGE

- #Leadership
- #Innovation
- #Building the Future

#### ...OF DOING THINGS

##### COLLABORATION

- #Creating Shared Value
- #Networking
- #Valuing People



### Organizational culture

CBA's culture is built on the following pillars:

- Teamwork
- Constructive disagreement
- Sense of ownership
- Ambition for competition

# The aluminum value chain

## 1 Mining

Bauxite is mined in Zona da Mata Mineira and Poços de Caldas, in the southeastern state of Minas Gerais, and in Barro Alto, in the Midwest state of Goiás, using best practices in sustainable land management. The bauxite ore is then beneficiated and transported—first by truck and then by rail—to the plant in Alumínio (SP). Mined land is reclaimed and returned to farmers in better environmental condition than before it was mined.



### Process improvement and sustainability projects carried out along the production chain

- Rondon Project (1)
- Dry Disposal Project (2)
- Biomass Boiler (2)
- Pot Room Technology Upgrade (3)
- ReAL (2) and (3)
- Renewables energy (2), (3), (4) and (5)
- Recycling Increase (4)

## 3 Smelters

The alumina is carried in silo trucks to smelting facilities. At the Smelters, anode paste—a mix of coal-tar pitch and petroleum coke—and electrolyte bath—consisting primarily of fluoride—are added to the alumina. Electrolytic reduction in Soderberg cells transforms the alumina into molten aluminum, which is then carried in trucks to different departments at the Casthouse.



## 2 Alumina Refinery

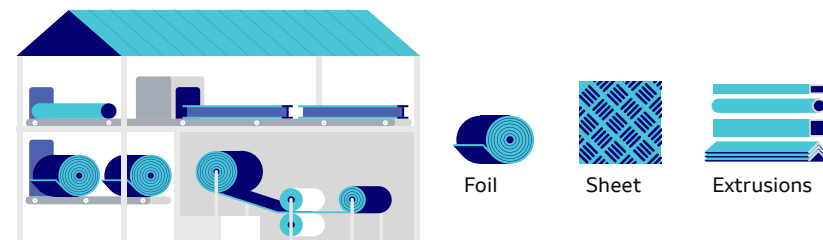
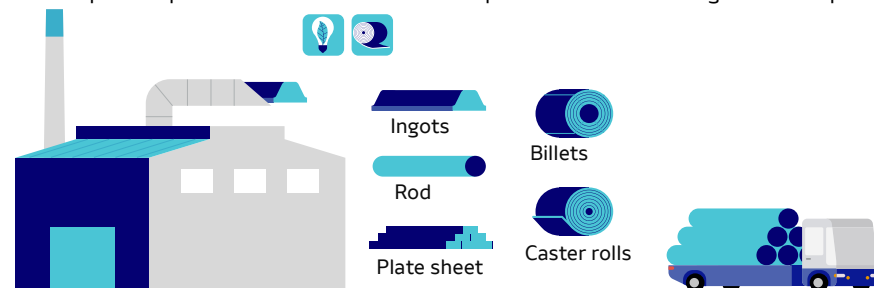
On arrival at the plant, the bauxite ore is blended based on its physical and chemical properties. At the Refinery, the first step in the process is extracting aluminum oxide (alumina) from the bauxite. This is achieved through chemical reactions using alkaline solutions at high temperatures, in what is known as the Bayer process. The bauxite residue, or red mud, is stored in a dam.

## 4 Casthouse

The molten aluminum is fed along with master alloys and scrap into the Casthouse furnaces, where it is cast into ingots, billets, plate sheet, caster rolls and rod. In addition to the Alumínio Plant (SP), this process is used at our Metalex operation in Araçaguama (SP) to produce billets, and at our Itapissuma (PE) operation to produce plate sheet and caster rolls. Both operations use a mix of ingots and scrap.

## 5 Downstream

Value-added, downstream products are manufactured via rolling, extrusion and surface treatment processes. Many of these products are custom-developed with our customers to meet their stringent needs. Our Alumínio Plant (SP) produces the full range of downstream products, while the Itapissuma (PE) operation is dedicated to rolled products.





### Primary products:

- Bauxite
- Hydrate
- Alumina
- Ingots
- Plate sheets
- Billets
- Rod



### Downstream products:

- Caster rolls
- Sheet and coils
- Foil
- Extruded profiles
- Roofing and siding
- Parts and components

An aluminum profile produced at CBA



### Markets served

GRI 102-2, 102-6



We deliver solutions and services for the following markets:



- Automotive
- Building and construction
- Energy
- Agribusiness
- Consumer goods
- Packaging
- Transportation

# Nationwide presence

GRI 102-2, 102-3, 102-4, 102-6, 102-7, 102-10

## Our units and operations

### ADMINISTRATIVE UNITS

- Corporate Office**  
São Paulo  
São Paulo (SP)
- Distribution Center and Solutions & Services Center**  
Caxias do Sul (RS)
- Solutions & Services Center**  
Alumínio (SP)

### MINES

- Itamarati de Minas Mine**  
Itamarati de Minas (MG)
- Miraí Mine**  
Miraí (MG)
- Poços de Caldas Mine**  
Poços de Caldas (MG)
- Barro Alto Mine<sup>1</sup>**  
Barro Alto (GO)
- Alumina Rondon<sup>2</sup>**  
Rondon (PA)

<sup>1</sup> Operated by a partner.  
<sup>2</sup> Currently under licensing.

### INDUSTRIAL OPERATIONS

- CBA plant**  
Alumínio (SP)
- Sorocaba facility (metal work and equipment machining)**  
Sorocaba (SP)
- Metalex (aluminum recycling)**  
Araçariguama (SP)
- Alux Brazil<sup>3</sup> (aluminum recycling)**  
Nova Odessa (SP)
- Itapissuma rolling mill**  
Itapissuma (PE)

<sup>3</sup> The acquisition of this facility will be completed in February 2022.

### LEGACY RESERVES<sup>4</sup>

- Legado das Águas**  
Miracatu (SP)
- Legado Verdes do Cerrado**  
Niquelândia (GO)

<sup>4</sup> Managed by Reservas Votorantim.

### WIND FARMS<sup>7</sup>

- Ventos de Santo Anselmo**  
Curral Novo (PI), Betânia (PI), Araripina (PE)
- Ventos de Santo Isidoro**  
Maracanaú (CE)

<sup>7</sup> Investments in these new assets were announced in 2021, with startup scheduled for 2023.

### HYDROPOWER PLANTS<sup>8,9</sup>

- |  |  |
|--|--|
| <b>Santa Helena MHP</b><br>Votorantim (SP) | <b>Jurupará HPP</b><br>Piedade (SP)                        |
| <b>Votorantim MHP</b><br>Votorantim (SP)   | <b>Ourinhos HPP</b><br>Ourinhos (SP)                       |
| <b>Porto Raso SHP</b><br>Tapiraí (SP)      | <b>Piraju HPP</b><br>Piraju (SP)                           |
| <b>UHE Alecrim HPP</b><br>Miracatu (SP)    | <b>Salto do Iporanga HPP</b><br>Juquiá (SP)                |
| <b>Barra HPP</b><br>Tapiraí (SP)           | <b>Salto do Rio Verdinho HPP</b><br>Itarumã (GO)           |
| <b>França HPP</b><br>Juquitiba (SP)        | <b>Serraria HPP</b><br>Juquiá (SP)                         |
| <b>Fumaça HPP</b><br>Ibiúna (SP)           | <b>Sobragi HPP</b><br>Simão Pereira and Belmiro Braga (MG) |
| <b>Itupararanga HPP</b><br>Votorantim (SP) |  |

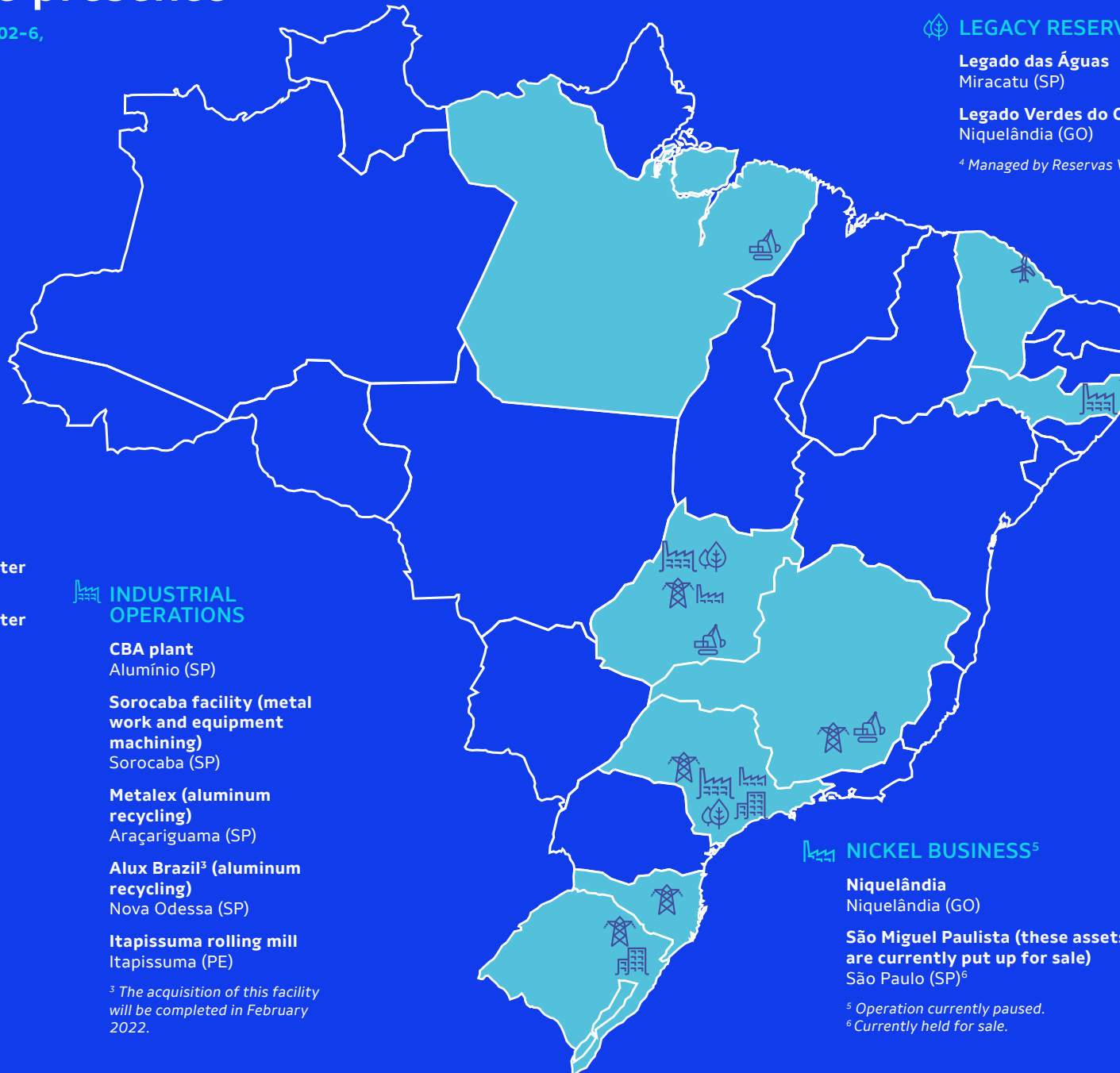
<sup>8</sup> Hydropower plants previously managed by Votorantim Energia were transferred to CBA in February 2022.

<sup>9</sup> Our generation assets also include another six Hydropower plants operated by joint ventures: Machadinho (Maximiliano -RS and Piratuba-SC), Canoas I (Parapanema-SP), Canoas II (Andirá-PR), Salto Pilião (Lontras, Ibirama and Apiúna -SC), Baesa (Pinhal da Serra/SC) and Enercan (Campos Novo/SC).

### NICKEL BUSINESS<sup>5</sup>

- Niquelândia**  
Niquelândia (GO)
- São Miguel Paulista (these assets are currently put up for sale)**  
São Paulo (SP)<sup>6</sup>

<sup>5</sup> Operation currently paused.  
<sup>6</sup> Currently held for sale.

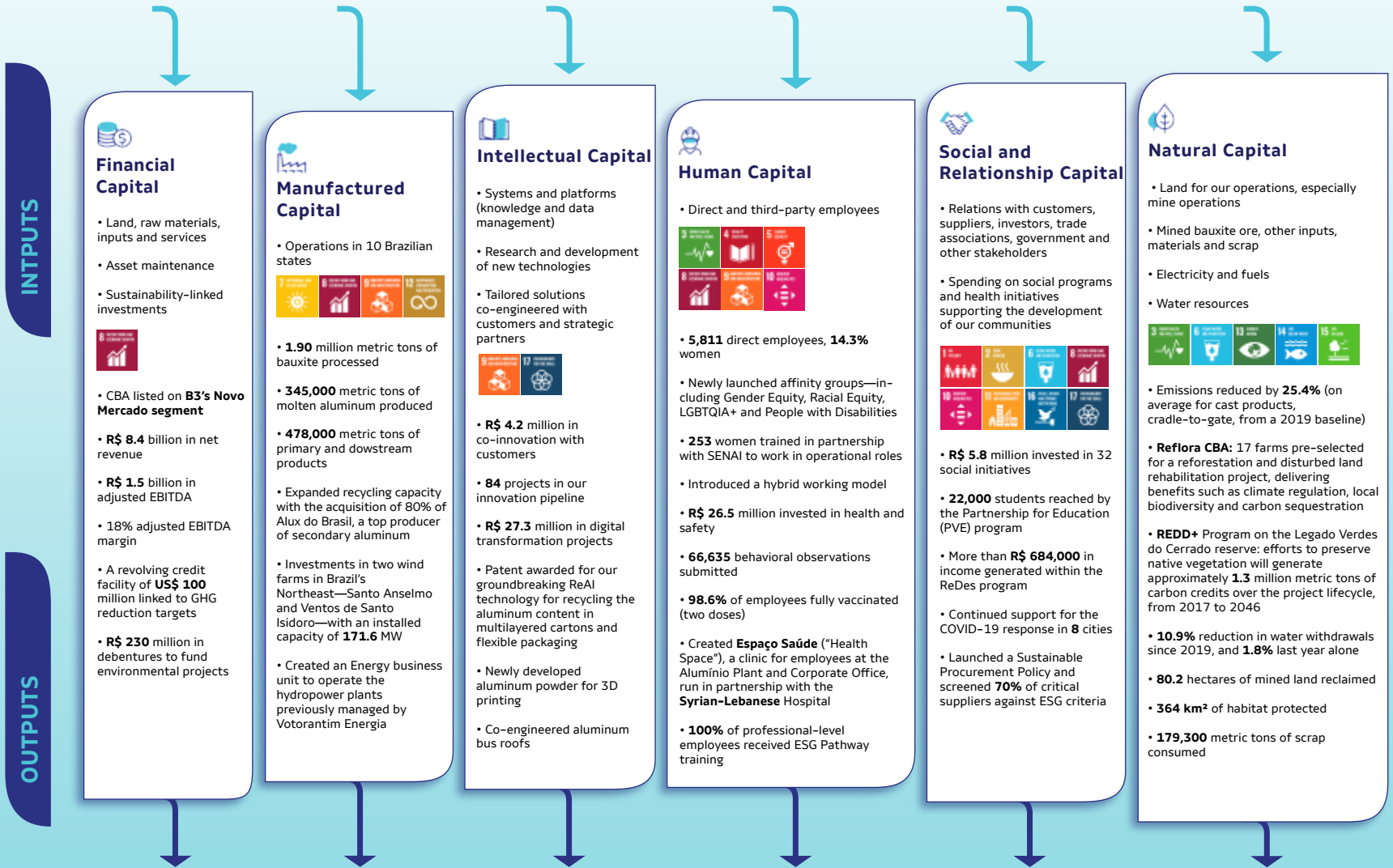
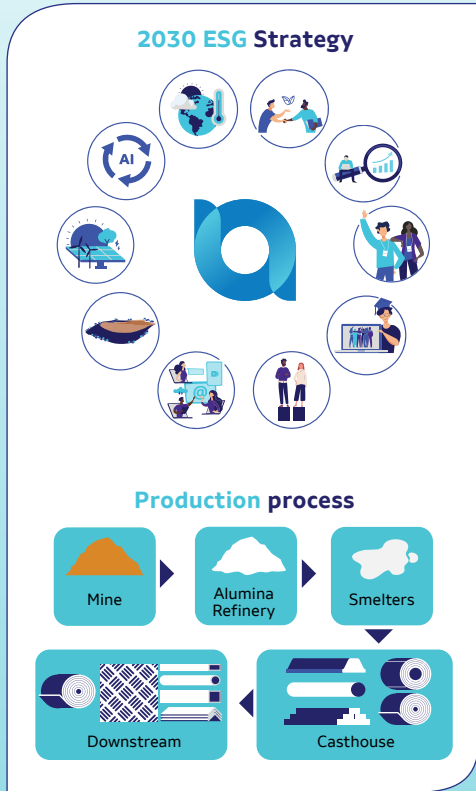


# Value Creation Model

GRI 102-7, EM-MM-000.A



Aluminum solutions that transform people's lives.



## New fronts of business

GRI 102-6, 102-10

Today's market leaders are companies that have courage to evolve and are constantly alert to opportunities and trends both within and outside their industry. CBA is at the forefront of its industry, and in 2021 invested in new businesses to retain its leadership and drive sustainable growth.

### EXPANDED RECYCLING

As part of our commitment to building a circular economy, in November CBA announced the acquisition of 80% of Alux do Brasil, one of Brazil's top producers of secondary aluminum, with an option to buy the remaining 20% from the third year after completing

the transaction. In January 2022 Brazil's antitrust regulator granted final approval of the deal, with integration beginning in February 2022.

CBA's acquisition of Alux is aligned with our long-term strategy to expand our aluminum recycling capacity and will deliver on our commitment to consistently reduce our carbon footprint. It will also allow us to enter a new business segment of selling secondary aluminum alloys.

Potential synergies between Metalex and Alux include the joint use of its new scrap separation and cleaning line and continued growth in the recycling market.


Founded in 2002 in Nova Odessa (SP), Alux do Brasil has a production capacity of 46,000 metric tons per year, and has been certified to ISO 9001, 14001 and IATF since 2006.



production capacity of

# 46,000

metric tons per year

acquisition of  
**80%**   
of Alux  
do Brasil

one of Brazil's top  
producers of  
secondary aluminum

### Initiatives in this section support:



Alux do Brasil Plant,  
Nova Odessa (SP)





Serraria HPP,  
Juquiá Complex  
(SP)

## MORE CLEAN ENERGY FOR THE FUTURE

Generating electricity from renewable sources has always been integral to our strategy at CBA. We have 15 wholly owned and 6 jointly owned hydropower plants, with enough generation capacity to meet the entire electricity requirement at our Alumínio Plant. This positions us in the first quartile of the global cost curve in the aluminum industry.

Our hydropower plants are located in the South, Southeast and Midwest of Brazil, with an installed capacity of 1.4 GW. Of this capacity, approximately 0.6 GW is operated directly by CBA and the remainder by joint-venture partners.



# 21

## Hydropower plants,

15 wholly owned  
and 6 jointly owned

To further expand our electricity assets under management and strengthen our position as a self-generator, in October 2021 we announced the creation of a new business unit dedicated to managing our electricity assets, starting in 2022. As a result, our hydropower plants, which were previously managed by Votorantim Energia under a service agreement, have been operated internally by CBA since February 2022. The transition began in 2021, with a focus on operational safety, maintaining service quality, and avoiding impacts on current power purchase agreements.



Vertical integration and self-generation capacity have helped to drive our production costs down to far below the industry average, giving us a competitive advantage”

**Luciano Alves, CFO and Investor Relations Officer**



## DIVERSIFYING OUR ENERGY MIX

In 2021, CBA announced investments in wind power as part of a strategy to diversify our energy mix. In August, we completed the acquisition of a stake in Ventos de Santo Anselmo and Ventos de Santo Isidoro, two wind farms owned by VTRM, a joint venture between Votorantim Energia and the Canada Pension Plan Investment Board (CPP Investments).

These wind farms are part of two larger wind complexes—Piauí I and II—located in Brazil’s northeastern states of Pernambuco, Piauí and Ceará, with an aggregate installed capacity of 171.6 MW and a guaranteed average capacity of 74.4 MW. The electricity output will be supplied to our plants in Itapissuma and Alumínio, beginning in 2023. CBA’s planned investment in renewable electricity, a total of R\$ 190 million, will diversify our electricity mix and support growth in primary aluminum production over the coming years.



## Supplying aluminum to the power sector

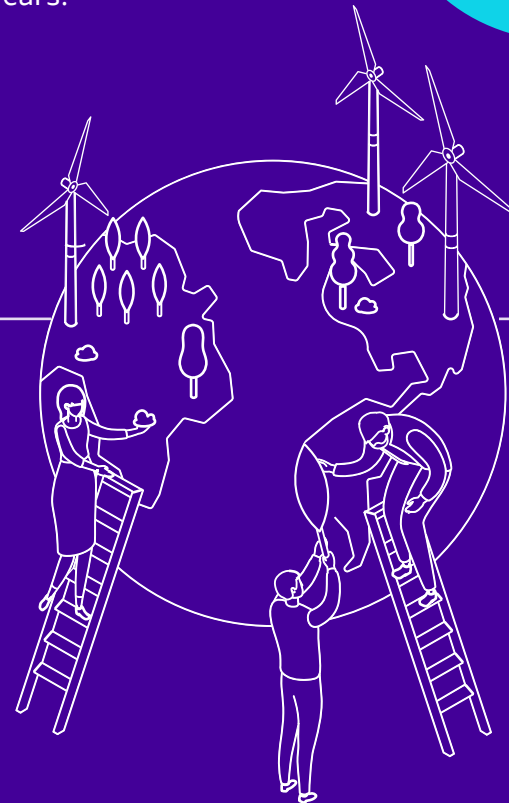
A CBA produces aluminum products that are used across all three segments of the electricity supply chain: generation, transmission and distribution.

In generation, we provide solutions for photovoltaic panels, aluminum roofing structures for floating plants, and aluminum for large hydropower plants projects.

In transmission, we supply sheet and foil to transformer manufacturers.

In distribution, we supply aluminum rod to produce conductors for transmission and distribution lines, and electric wires used in the consumer goods, capital goods and civil construction industries.

### Initiatives in this section support:



# R\$ 190 million

was the total invested by CBA to diversify the electricity mix

## Ilumina Pantanal

Aluminum can make a practical difference in people's lives. With this in mind, CBA recently joined a project, called Ilumina Pantanal, in a partnership between the Energisa Group, the state government of Mato Grosso do Sul, the Brazilian Ministry of Mining & Energy and the Brazilian power sector regulator, ANEEL.

The Pantanal, a biodiversity sanctuary in the south of Brazil's Midwest state of Mato Grosso, is home to more than 2,000 families (approximately 10,000 people) living in

remote communities spread across an area of 90,000 square kilometers. Some locations take dozens of hours and multiple modes of transport to reach. To provide renewable power supply to these families, each property will receive an innovative system consisting of four photovoltaic modules made of recycled aluminum.

Aluminum is lightweight, durable, versatile and easily transportable. The system has been co-engineered with our customer, Omexom, to be easily handled and assembled even in extremely remote

locations. Omexom selected CBA to supply 80 metric tons of aluminum to build the solar panel support towers. Installation work began in July 2021, and is expected to be completed in April 2022. Each panel assembly has a capacity to produce 80 kWh of electricity per month, and a power rating of 1,380 Wp—enough to power a home with a refrigerator, television, radio set, washing machine and three lights, for example. The electricity is stored in a battery array that ensures a continuous supply of electricity, even on cloudy or rainy days.

The benefited properties previously relied on highly polluting generator sets for power supply—consuming as much as 5,000 liters of diesel per week in some periods. In addition to environmental benefits, the project is also delivering cost savings for consumers: electricity generated by the new photovoltaic system will cost approximately R\$ 30 per month.

In October 2021, the project won one of the world's most prestigious awards for solar power innovation, the Solar & Storage Live Awards 2021.

### Initiatives in this section support:



## GOING DIGITAL

**GRI 103-1, 103-2, 103-3: CBA topic - Innovation and technology**

People, processes, cybersecurity and technology integrated together through digital initiatives, operations and mindsets. This is CBA 4.0, our digital transformation journey. Projects within CBA 4.0 fall under one of two categories: Technology Roadmap—which accounts for approximately 66% of total projects in our Information Technology (IT) pipeline; and Cultural Transformation—projects to develop the behaviors and mindsets needed to sustain change, and Minimum Viable Changes (MVCs) to support initiatives within the Technology Roadmap.

In 2021 the pandemic again created a combination of challenges and opportunities. This meant that CBA 4.0 projects were carried

out almost entirely via telecommuting, but without this slowing progress. On the contrary: total investment in digital transformation projects rose by 102% in the year: from R\$ 13.6 million to R\$ 27.3 million.

In recent years we've invested in expanding process sensorization to collect operational data; in enhancing corporate and logistics controls, connecting customers to our different departments; and in using virtual reality (3D goggles) for training, and mixed reality—virtual reality and augmented reality using 3D goggles—to develop customer products within the Minimum Viable Concept (MVC) model, among other initiatives.

By 2025 we plan to invest R\$ 60 million in production line upgrades, artificial intelligence, advanced analytics, robotization and process automation, operational mobility, and pilot production lines and prototyping.

In 2021 our IT department was restructured into Business Relationship, Solutions Architecture, Projects, Infrastructure/Operations, Information Security and IT Governance fronts. We also launched our #onecba journey, a program to integrate the newly acquired Itapissuma facility into our processes, governance, infrastructure and IT systems. As another important milestone, we incorporated a Digital pillar within our Strategic Engagement process



Samantha de Oliveira Andrade, HR business partner, Corporate Office (SP)



## Technology on the ground

- Expanding the use of artificial intelligence in Smelting, and implementing new data models to improve accuracy, sensitivity, and cost-effectiveness.
- Deploying artificial intelligence in on-line pot management to improve planning, scheduling and distribution of molten aluminum to feed the Casthouses. This project is addressing two major fronts: optimizing truck routes at the Alumínio Plant (SP), and improving blends to ensure an optimal chemical composition for each aluminum alloy, reducing the use of natural gas in the casting process.
- Leveraging advanced analytics and artificial intelligence in people management, and implementing flight risk solutions to mitigate turnover risk.



## Greater connectivity in mining

Mining Hub is an open innovation initiative in which mining companies, suppliers, startups, researchers and investors are collaborating to develop solutions to common challenges in the industry.

CBA is a member of the hub, and in 2021 continued a project to find solutions for reusing clay from the bauxite concentration process. Our partner in this project is Prronto!, a startup that has developed a technology to transform these dams into a round, pebble-like agglomerate that can be used for paving in replacement of crushed stone, and in making concrete mixes and pre-cast concrete.

To test the strength of the new agglomerate, we paved a parking lot with interlocking pavers produced with the new technology.

Another project in response to a challenge launched within Mining Hub, called Remote Mine Connectivity, is developing a model to implement internet connectivity across all bauxite mine fronts.

Initiatives in this section support the following SDGs:



A mine in Poços de Caldas (MG)

## Innovation and technology

GRI 102-2, 102-6, 103-1, 103-2, 103-3: CBA topic - Innovation and technology

Innovation is an imperative for growth. At CBA, innovation in aluminum is as important as producing aluminum. We invest in technology, research and co-creation with customers and partners to develop new products, markets and services, while continuously improving existing ones.

Our journey of cultural evolution in this area began in 2017, as part of an effort to rethink our business practices to ensure CBA is increasingly agile and competitive in a dramatically and rapidly changing world. In 2019 the program was renamed CBA 4.0, with a renewed focus on digital transformation.

Opportunities for innovation can come from different sources, such as CBA's IdeAI ideation program, our Competitiveness Management program, market intelligence, technology insights, inputs from commercial teams, customer requirements, innovation programs and industry interactions.

In July we launched a "Co-Create Challenge", our first innovation hackathon for employees across all departments and business units, with the best initiatives receiving prizes.

In 2021 the CBA 4.0 Journey changemaker network and *Potenciar*, an internal talent development program, worked together to organize an Innovation Week event from November 8 to 11, providing participants with an immersive experience in an innovation environment. In live streams and debates, employees, customers and suppliers discussed trends in the industry, the importance of diversity and people in the cultural transformation journey, augmented reality, autonomous robots, and other subjects. During the event the *Potenciar* team also unveiled its Catalisador 4i app. The new app is designed to connect people to share ideas and insights for new initiatives, catalyzing innovation within CBA.

In November 2021 we launched our "Innovation Manifesto", highlighting the importance of innovation for our business (read the manifesto below).

  
**Click here**  
to read *CBA Innovation Manifesto*

Initiatives in this section support the following SDG:



The hackathon had:

**48**  
participating  
**departments**

**10**  
hours  
of pitches delivered to internal guests and experts in different innovation areas

**48**  
hours  
of mentoring

**161**  
entries

Employees participating in our Innovation Hackathon 2021





**R\$ 4.2**  
**million invested**

in innovation in 2021.

Learn more in the [Additional Disclosures Supplement](#).

**CBA-1**

## CBA innovation at a glance

- 16 solutions launched throughout the year
- 40 new projects created and incorporated in the 2021 pipeline
- 84 projects in total in our innovation pipeline
  - > 43% in transportation, 12% in construction, 10% in packaging and 34% in new markets
- Different approaches and methods used for co-creation with the market: design thinking, rapid prototyping and 3D printing, digital simulation, Lean Inception, Startup, Value Proposition Canvas, BMC, Scrum, Kanban, digital visual management, and OKRs
- All market-oriented innovation projects are assessed on sustainability across the environmental, social and governance aspects. CBA has a portfolio of 24 projects with immediate sustainability attributes, with potential to reduce greenhouse gas emissions and waste generation
- Initiatives are carried out by squads—multidisciplinary teams that have the autonomy to make agile decisions
- Around 10% of revenues in the Downstream business in 2021 derived from innovation projects and new solutions



Eric Pereira de  
Andrade Silva,  
DM&I product  
development  
technician,  
Alumínio  
Plant (SP)

## Co-creation

GRI 102-2, 102-6, 103-1, 103-2, 103-3: CBA topic - Innovation and technology

At CBA, we put the expression “strength in unity” into practice, delivering results in innovation and technology. We work with partners and strategic customers to design customized solutions that meet the market’s or customers’ specific needs. Our pipeline of co-engineering and co-creation projects has continued to expand. Some of our key projects in 2021 included the development of an aluminum powder for 3D printing, and the start of production of bus roofs made of aluminum in replacement of fiberglass.

Co-creation solutions are developed in different departments at CBA. They are supported by our Market Development & Innovation department, and are tested at two Solutions & Services Centers (CSS), in Alumínio (SP) and Caxias do Sul (RS). These centers cater to customers’ aluminum processing needs within co-engineering projects—such as grit blasting, anodizing, coating, special cutting operations, welding, machining and market-ready kit assembly. We also have partners for customized processing to meet customer requirements. By working closely with our customers and suppliers, we cultivate long-term relationships as help to build a better future through collaboration.

## New Solutions & Services Center (CSS)

CBA’s second Solutions & Services Center (CSS) was launched in November 2021 in Brazil’s southern city of Caxias do Sul. In an investment of R\$ 4.1 million, the 900 square-meter facility will be dedicated to developing value-added solutions tailored to customers’ needs, including customized parts and services. The center started operation after three years of research and development of solutions for transportation companies in the region, including an aluminum roof project in collaboration with bus and coach manufacturer Marcopolo ([read more on page 28](#)).



Investment of

**R\$ 4.1**  
million

in the new Solutions & Services Center (CSS)

Marcopolo  
Supplier  
Conference





## Solutions for the automotive market

CBA has pioneered the development of co-engineered automotive structural components in the Brazilian market. Examples of these solutions include aluminum door protection bars and bumpers that increase vehicle safety. The high-strength extruded aluminum used to make these parts offers geometric flexibility and avoids the high tooling costs involved in producing stamped steel parts. Simulations have shown that aluminum door protection bars offer superior rigidity to steel bars.

CBA has also been selected to supply battery supports for electric vehicles in partnership with an OEM supplier. The supports were co-engineered to reduce initial weight by more than 60%, improve assembly ergonomics, and increase vehicle performance..

## 3D PRINTING IN ADVANCED MANUFACTURING

CBA has developed an aluminum powder designed for additive manufacturing and creating metal parts using 3D printing. Additive manufacturing is used to build parts from a digital 3D model, typically layer by layer. Products produced by this method are lighter-weight, stronger and more flexible. They are also more cost-effective and have a lower impact on the environment as they generate less waste, reduce energy use and ensure raw materials are used more efficiently. Aluminum powder for 3D printing was previously only available outside Brazil. CBA realized the opportunity and benefits of the material, and started a pioneering project to develop a national produced 3D printing powder. The project is being developed in collaboration with the National Industrial Training Service (SENAI) and the Federal University of São Carlos (UFSCar).

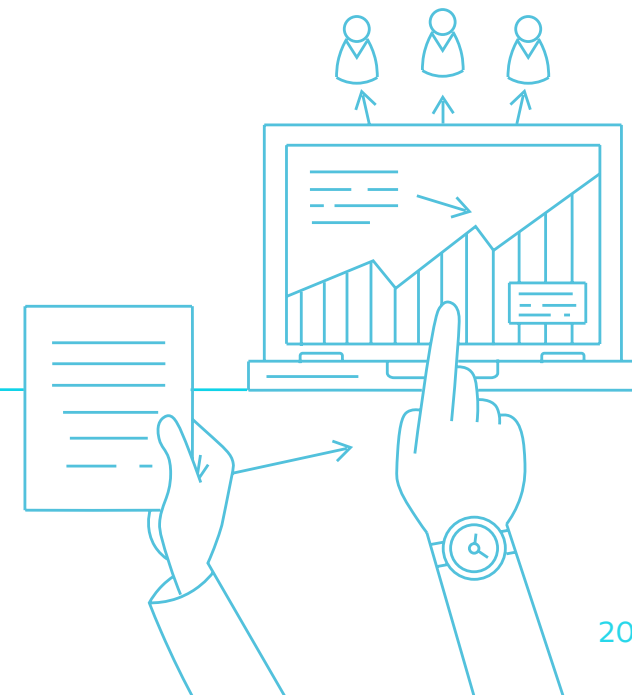
A locally developed aluminum powder could make metal 3D printing a viable solution for prototyping and production of lighter-weight and stronger parts with a better finish

Benefits of 3D printing with aluminum powder:

- Cost savings
- Speed
- Complex geometries
- Customization
- Sustainability
- Safety
- Quality.



### This project supports:



## MAKING BUSES MORE SUSTAINABLE

In a collaborative project to develop innovative solutions for public transportation, CBA and Marcopolo, a globally leading bus and coach manufacturer, created an innovative aluminum roof for the company's Generation 8 coaches and its Attivi bus model with a fully electric chassis.

The co-engineering project developed a world-first hybrid panel and profile joining technology that combines

structural bonding with clinching. In addition to improving surface finish, aluminum roofs are robust, oxidation-resistant and easy to handle in the customer's production line.


Substituting aluminum for fiberglass reduces roof weight by 20%, resulting in fuel savings and consequently lower greenhouse gas emissions compared with conventional buses. Another benefit for our customer is that aluminum, which is infinitely recyclable, eliminates the environmental liability of non-recyclable fiber glass.

Fabiano Schneider Urso, commercial manager, and Luiz Fernando Correa Sottano, strategic account manager, at the Marcopolo Supplier Conference



## An innovative journey

- More than 2,000 hours of laboratory testing to select the ideal alloy
- R\$ 4 million invested from early research and development to part fabrication
- Final assembly line set up for full-scale operation in June 2021
- Capacity to deliver 100 parts per month, expandable to 200 parts.

More than   
**2,000**  
 hours  
 of laboratory testing to  
 select the ideal alloy

### This project supports:



The *Legado Verdes do Cerrado* reserve, a CBA-sponsored protected area in the state of Goiás

# A comprehensive commitment to sustainability

- > Evolution of CBA's sustainability strategy
- > ESG 2030 Strategy
- > Commitment to humanity

As a shared responsibility, sustainability is among our commitments. Although it has always been high on our agenda, in 2020 we took steps to further evolve our ESG (Environmental, Social and Governance) culture within CBA with the launch of our ESG 2030 Strategy.

## Evolution of CBA's sustainability strategy



### 2018

Established a sustainability strategy and commitment for 2025

### 2019

Creation of a Sustainability Department and Sustainability Committee to support the Executive Board

### 2020

Evolved to our ESG 2030 Strategy, which incorporates environmental, social and governance aspects in business decisions and sets commitments through 2030



### 2021

Set up a new Sustainability Committee to advise the Board of Directors and ensure we not only deliver but also improve on our ESG 2030 Strategy. The Committee supporting the Executive Board has now been renamed as the Executive Sustainability Committee. Sonia Consiglio Favaretto, a renowned sustainability expert, is an independent member on both committees. The Sustainability Department has also been strengthened and placed under a General Manager reporting in a matrix structure to the CEO.

Variable compensation ESG targets related to our 2030 Strategy have been created for employees at all levels of the Aluminum business. These targets are department-specific, and average performance across all targets affects variable compensation for top management. The target for Ethics & Transparency, for example, measures progress in our Compliance Program and on integrity-related issues. This is among the targets on the ESG Dashboard for the Legal, Governance & Compliance Department, and is included in the average target for top management.



Sustainability is the foundation that guides our planning and decision-making. We have developed a robust 2030 ESG Strategy that sets out ambitious goals across all aspects of ESG. Our recent listing on B3's Novo Mercado Segment shows that CBA has achieved a high level of maturity in governance as well as in environmental and social issues."

**Leandro Campos de Faria,**  
Sustainability General Manager

# ESG 2030 Strategy

CBA's ESG 2030 Strategy aims to ensure we deliver low-carbon aluminum and sustainable solutions in partnership with stakeholders, while developing the communities where we operate and positively influencing the broader aluminum value chain. The strategy spans across the environmental, social and governance pillars.

These three pillars break down into 10 levers—4 in the environmental pillar, 2 in the social pillar, 3 in the governance pillar, and 1 cross-cutting lever covering all business areas. Linked to these pillars are 15 programs, each with goals set for 2030.

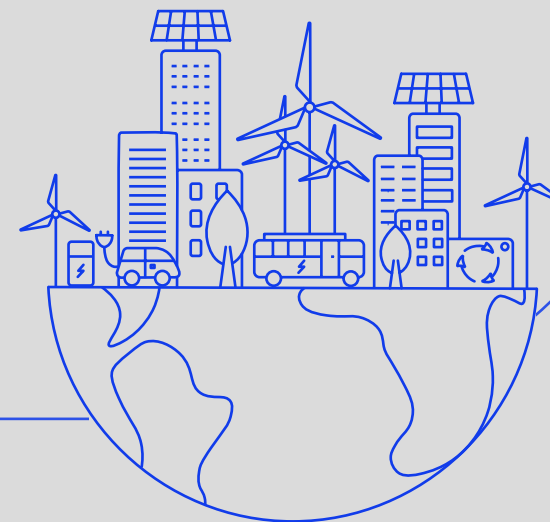
The benefits from CBA's new strategy include: better access to **capital markets**; greater **operational efficiency**, with lower costs, stable operations and improved management of natural resources; a more consistent

**organizational culture**; and **improved management of risks** relating to environmental, social and governance aspects.

The following chapters describe CBA's initiatives across the social, environmental and governance dimensions, and progress so far on our ESG 2030 Strategy.

## 10 ESG levers














## Programs within our ESG 2030 Strategy and progress to date

Levers	Programs	2030 Goals	Status in 2021	Progress in 2021	Learn more in	
Environment	1. Climate change management	P1. Greenhouse gas emissions management	- Reduce CO <sub>2</sub> e emissions by 40% (on average for cast products, cradle-to-gate)	●	- Emissions reduced by 25.4% since 2019. The main projects contributing to this reduction were our biomass-fueled boiler project, pot room technology update and recycling expansion	<a href="#">Climate change management</a>
			- Offer customers a carbon-neutral product range	●	- Carbon credit programs set up in partnership with Reservas Votorantim	<a href="#">Biodiversity stewardship – Reflora CBA</a>
			- Create a roadmap to becoming emissions neutral by 2050	●	- Submitted emissions reduction targets to the SBTi initiative. A roadmap is being developed to neutralize our emissions	<a href="#">Climate change management</a>
			- Develop a climate change adaptation plan	●	- Our climate change risk management processes have been restructured within the TCFD framework, and mitigation and adaptation measures have been identified	<a href="#">Climate change management – Managing climate risks and opportunities</a> <a href="#">Additional Disclosures Supplement</a>

● According to plan

Levers		Programs	2030 Goals	Status in 2021	Progress in 2021	Learn more in
Environment	1. Climate change management	P2. Energy management	- Source 100% of our plants' power requirement from renewable sources		- 100% of electricity consumed is renewable and traceable - Electricity mix diversified with newly acquired wind power assets	<a href="#">Energy management</a>
			- Reduce our energy intensity (electric power and fuels)		- Conducted an energy efficiency assessment and designed an energy management model and implementation roadmap - Projects approved for implementation in 2023	<a href="#">Energy management</a>
Environment	2. Circular economy	P3. Aluminum recycling	- Increase the ratio of aluminum recycled from industrial and end-of-life scrap at Metalex to 80%		- 63% recycling rate at Metalex - This will increase further in 2023 with the installation of a new scrap processing line	<a href="#">Progress on recycling - Expansion at Metalex</a>
			- Increase the ratio of aluminum recycled from industrial and end-of-life scrap in billet production at the Alumínio Plant to 50%		- 23% billet recycling rate at the Alumínio Plant; - This will increase further in 2023 with the installation of a new recycling line at Metalex to recycle internal scrap. New projects are under discussion to increase recycling content	<a href="#">Expanding recycling</a>
			- Increase the ratio of scrap collected from external sources for recycling		- 59,427 metric tons of scrap consumed, in line with our target for the year	<a href="#">Expanding recycling</a>
Environment	2. Circular economy	P4. Carton and flexible packaging recycling	- Recycle 40,000 metric tons of cartons and flexible packaging per year		- Business model approved for the ReAL project	<a href="#">Progress on recycling - Recycling more packaging</a>
Environment	3. Natural resources	P5. Water stewardship	- Reduce water withdrawals per metric ton of molten aluminum by 20%		- 10.9% reduction in water withdrawals since 2019 - Conducted an assessment at Alumínio on the potential implementation of a closed-loop system in the coming years	<a href="#">Efficient water stewardship</a>
Environment	3. Natural resources	P6. Biodiversity	- Create/expand 1 hectare of wildlife corridors for every 10 hectares of mined and reclaimed land		- Implemented a pilot project that planted 1 hectare of native tree species (111 seedlings of 20 different species), in partnership with the Federal University of Viçosa (UFV)	<a href="#">Biodiversity stewardship</a>
			- 10% of key suppliers and customers co-investing in forest and biodiversity programs		- Developed a portfolio of projects in partnership with Reservas Votorantim - Identified potential customers to work with in the coming years	<a href="#">Biodiversity stewardship</a>

Levers		Programs	2030 Goals	Status in 2021	Progress in 2021	Learn more in
Environment	4. Dam management	P7. Dams	- Eliminate residue disposal in dams		- Dry Disposal Project in progress, due to be delivered in 2024 - Developed mobile beneficiation and Tecnosolo technology to eliminate the need for dams in mining	<a href="#">Impoundment management - Dryer dams;</a> <a href="#">Mobile beneficiation</a>
			- Send 100% of dry red mud residue for use in cement production and other applications		- Studies conducted on the potential reuse of red mud in construction and cement making applications	<a href="#">Dam management - Bauxite residue as a co-product</a>
Social	5. Valuing people	P8. Diversity and inclusion	- Achieve 50% gender diversity in leadership positions within the Company		- 14.3% women in total workforce <sup>1</sup> - Conducted diversity programs, such as training women for industrial positions	<a href="#">Our people - Diverse and plural</a>
Social	5. Valuing people	P9. Health and safety	- Zero fatalities or severe injuries* in our operations <sup>2</sup> - Achieve an injury frequency rate lower than 1 <sup>3</sup>		- Zero fatalities and 1 finger pinch injury - An injury frequency rate of 1.68, 32% lower than in 2020	<a href="#">Our people - Safety first</a>
Social	6. Social legacy	P10. Social legacy	- 100% SLA conformity in social programs		- Our Social SLA was 104.3% - Significant projects in the year included <i>ReDes</i> , <i>PVE</i> and <i>AGP Saúde</i>	<a href="#">Community support</a>
			- Provide 1-to-1 match funding for corporate social investment	-	- Currently being structured for implementation in the coming years	-
			- Contribute to strengthening recycling cooperatives in Brazil		- Conducted research toward creating a nationwide flexible and carton packaging recycling network, and identified potential business opportunities	<a href="#">Progress on recycling - Recycling more packaging</a>
Governance	7. Sustainable value chain	P11. Sustainable procurement	- 100% of suppliers compliant with CBA's Sustainable Procurement Policy <sup>4</sup> - Increase local sourcing from SMEs by 10%		- Launched a new Sustainable Procurement Policy - 70% of critical suppliers screened against ESG criteria	<a href="#">Sustainable Value Chain - Supplier relations</a>

<sup>1</sup> Excludes interns, apprentices and employees on leave

<sup>2</sup> Fatal injuries or injuries resulting in permanent disability (levels V and VI)

<sup>3</sup> Per 1 million MHW

<sup>4</sup> The policy was revised in 2021 to reflect our ESG commitments

Levers		Programs	2030 Goals	Status in 2021	Progress in 2021	Learn more in
Governance	7. Sustainable value chain	P12. Sustainable solutions for customers	- 100% of billets produced at Metalex with greenhouse gas emissions lower than 1.4 tCO <sub>2</sub> e/t	-	- This commitment is currently in progress with the installation of new scrap processing lines at Metalex	<a href="#">Progress on recycling - Expansion at Metalex</a>
			- Increase revenue from sustainable solutions for downstream customers <sup>5</sup>	●	- All innovation projects are submitted to ESG evaluation - 24 co-creation projects delivering ESG benefits, representing 28% of revenue	<a href="#">Innovation and technology</a>
Governance	8. Ethics and transparency	P13. Ethics and transparency	- Achieve an average rating of 4 for our third-party-audited Compliance Program	●	- Achieved a score of 3.3 - Conducted an assessment of progress in our Compliance Program. The assessment found progress on 6 of the 9 pillars.	<a href="#">Corporate governance – Ethics &amp; Compliance</a>
Governance	9. ESG ownership	P14. ESG ownership	- 100% of operations certified to the ASI Performance and Chain of Custody standards	●	- In 2021 CBA achieved certification against the ASI Chain of Custody Standard at Itapissuma, and against the Performance Standard at Metalex.	<a href="#">Certifications, ratings, indices and other recognition</a>
			- 100% of employees with assigned ESG targets	●	- 100% of Aluminum Business employees have ESG-linked variable compensation targets.	<a href="#">ESG 2030 Strategy</a>
			- Apply ESG criteria in 100% of funding and investment decisions	●	- 89% of financial transactions took sustainability considerations into account, including our: Revolving Credit Facility and Green Debentures.	<a href="#">Indebtedness and liquidity</a>
			- Embed ESG considerations in all pillars of CBA's culture and business practices	●	- All professional-level employees received ESG Pathway training.	<a href="#">Employment – Always learning</a>
Crosscutting	10. ESG Communications	P15. ESG Communications	- Achieve a RepTrak Score greater	●	- Achieved a RepTrak reputation score of 70.4 ("strong").	<a href="#">Certifications, ratings, indices and other recognition</a> <a href="#">Additional Disclosures Supplement</a>

<sup>5</sup> At Alumínio and Itapissuma Plants.



Gabriela Macedo Rodrigues, maintenance mechanics, Alumínio Plant (SP)

## Commitment to humanity

GRI 103-2 – 412: Human rights assessment

In 2021 CBA became one of the first companies to join the 100% Transparency Movement, an initiative linked to the Global Compact Network Brazil. As a member of the movement, we have committed to achieve progress toward five targets.

CBA has agreed to achieve at least one of the targets by 2023, two by 2025, three by 2027 and all of them by 2030.

## 100% Transparency Movement

# 100%

\* **transparency in dealings**

with government officials

\* **integrity**

in top management compensation

\* **of the high-risk value chain**

trained on integrity

\* **% transparent**

compliance and governance structure

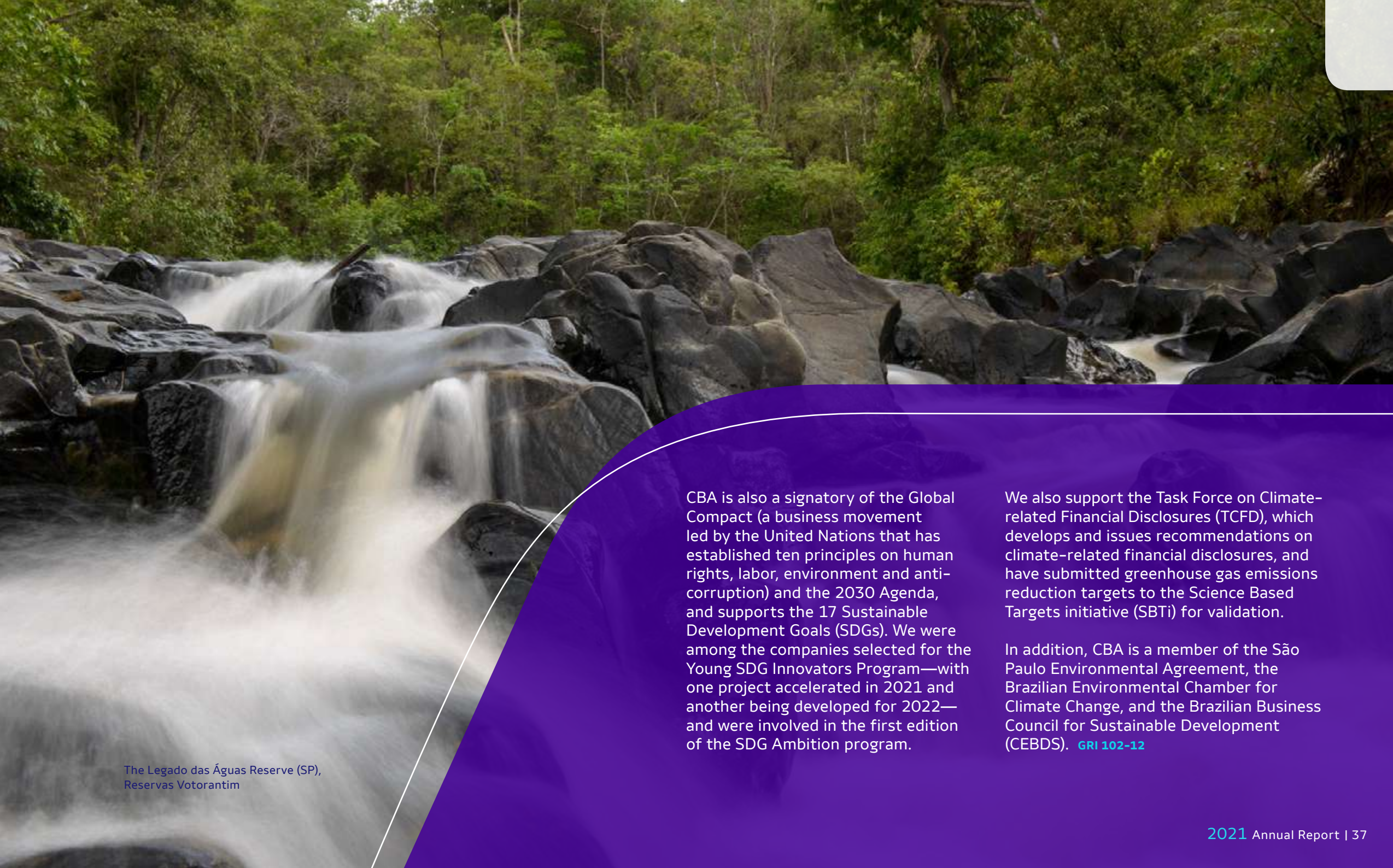
\* **% transparent**

whistleblowing channels

[Click here](#)

to watch CBA's Manifesto





The Legado das Águas Reserve (SP),  
Reservas Votorantim

CBA is also a signatory of the Global Compact (a business movement led by the United Nations that has established ten principles on human rights, labor, environment and anti-corruption) and the 2030 Agenda, and supports the 17 Sustainable Development Goals (SDGs). We were among the companies selected for the Young SDG Innovators Program—with one project accelerated in 2021 and another being developed for 2022—and were involved in the first edition of the SDG Ambition program.

We also support the Task Force on Climate-related Financial Disclosures (TCFD), which develops and issues recommendations on climate-related financial disclosures, and have submitted greenhouse gas emissions reduction targets to the Science Based Targets initiative (SBTi) for validation.

In addition, CBA is a member of the São Paulo Environmental Agreement, the Brazilian Environmental Chamber for Climate Change, and the Brazilian Business Council for Sustainable Development (CEBDS). [GRI 102-12](#)

# Governance is essential



Lilian Benassi  
Benatti,  
DHO analyst,  
Corporate  
Office (SP)

- > Corporate governance
- > Ethics and compliance
- > Risk management
- > Opportunities
- > A sustainable value chain
- > Certifications, ratings, indices and other recognition

**Material topics related to this chapter:**

- Ethics and compliance

**SDGs related to this chapter:**



**Global Compact Principles addressed in this chapter:**

1. Businesses should support and respect the protection of internationally proclaimed human rights within their sphere of influence.
2. Businesses should make sure that they are not complicit in human rights abuses.
4. Businesses should uphold the elimination of all forms of forced and compulsory labor.
5. Businesses should uphold the effective abolition of child labor.
10. Businesses should work against corruption in all its forms, including extortion and bribery.

**ESG 2030 Strategy: Levers**

7. Sustainable supply chains
8. Ethics and Transparency

## Corporate governance

GRI 102-18, 102-22

Doing what's right. This has always been a guiding principle at CBA, where we seek to adhere to the highest standards of corporate governance. CBA's solid governance structure made us eligible to list on Novo Mercado, a Brazilian stock exchange (B3) listing segment that requires companies to demonstrate the highest standards of governance.

In 2021, to further improve on governance, we implemented a number

of important adjustments throughout the year. These included a reformulation of CBA's Bylaws to establish a Statutory Audit Committee and a Sustainability Committee (placing us at the highest level of governance) that together advise the Board of Directors, alongside the Remuneration & People Committee.

The following policies were developed and approved by the Board of Directors: Related Party Transactions Policy and

other situations involving Conflicts of Interests; Compensation Policy; Securities Trading Policy; Risk Management Policy; Policy for Disclosing material Events or Facts; Policy for Appointing Members to the Board of Directors, Committees and Statutory Executive Board; Remuneration Policy; and Financial Policy. We also launched our own Code of Conduct, after previously going by the Votorantim S.A. Code of Conduct. As we do each year, in 2021 we revisited our anti-corruption policy.

Corporate Office (SP)



We completed a number of projects from January to June as part of the listing process. We created our own Code of Conduct, developed new policies and revised existing ones. Our successful IPO is a testament that we operate in line with best governance practices.”

**Renato Maia, Legal, Governance and Compliance VP**

Having independent members on the Board of Directors is another good governance practice that has been implemented at CBA. Of the six members of the Board of Directors—which is responsible for overseeing and deciding on high-level matters within the Company—three are independent members, and all are elected in a General Meeting.

The composition of the Board of Directors and its advisory committees, and our Nomination Policy for these bodies, are available in the Additional Disclosures Supplement to this report.

CBA is managed by an Executive Board composed of seven executives appointed by the Board of Directors.

The Executive Board is advised by seven executive committees: Sustainability, Dams, Sustainable Procurement, Conduct, Data Protection, Diversity and Crisis.

**Further information about CBA's governance model is available:**

**Organizational Structure supported by independent committees**



# Ethics and compliance

GRI 102-16

CBA has built a legacy of ethics, best practice and corporate social responsibility that guides our actions and decisions. Our Compliance program ensures that our employees work in accordance with established guidelines. The program is founded on the following core principles:

- Identify and comply with applicable laws and regulations, including anti-corruption and antitrust regulations and policies;
- Ensure all CBA facilities have the required licenses, permits and certifications;
- Honor the contracts and agreements to which CBA and our affiliates are party;
- Disclose financial and sustainability reports in accordance with applicable regulations and standards;
- Take an active approach to preventing fraud and losses.

Efforts within this program support the Ethics & Compliance lever of our ESG Strategy and drive progress on governance issues and toward our goal of achieving an average rating of 4 out of 5 for our

third-party-audited Compliance Program by 2030.

In 2021 we conducted an integrity risk assessment and surveyed the regulatory frameworks applicable to CBA. Based on this assessment, we established action plans for compliance risks, which were approved by the Statutory Audit Committee in December 2021.

Concurrently, we conducted a maturity assessment on the Compliance Program (the first assessment had been carried out in 2018). The audit reviewed internal documents, held interviews with executives, including top management, and identified the laws and regulations applicable to CBA's operations. An online questionnaire about the Program was administered to 5,604 employees.

The Compliance Program Maturity Assessment report found that, out of the 24 dimensions assessed, 11 were at an established stage, 9 were at an advanced stage and 2 were at a best-practice stage, with especially strong performance in the Values and Top Management Commitment dimensions.

## Key findings from the survey

**96%**  
of respondents

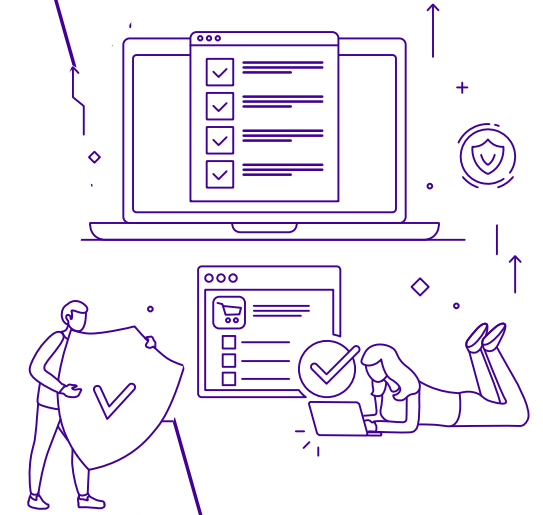
agreed that they had received sufficient advice on complying with the Code of Conduct

**95%**  
said

they were aware of CBA's Compliance Department

**95%**  
agreed

that the training they had received clearly explained the conduct expected of employees



## The initiatives described in this section support



## New Code of Conduct

The CBA Code of Conduct guides our actions and interactions with employees, suppliers, customers, communities and other stakeholders. A core component of our Compliance Program, the Code was completely reformulated in 2021—CBA previously followed the Votorantim S.A code of conduct as one of its portfolio companies.

The new Code, designed specifically for CBA, is structured into five chapters:

- \* Commitment to our people
- \* Commitment to our communities
- \* Commitment to CBA
- \* Commitment to business ethics
- \* Relationships with customers, suppliers and other business partners

Launched in June, the new Code addresses issues such as human rights compliance, data protection, money laundering and terrorist financing, and insider training. All employees and suppliers are required to affirm compliance with the Code after taking online training. A new game-based training program was launched in October on our E-learning platform.

Beatriz Camargo Salles, junior management systems analyst, and Alexandre Esperandio Fidencio, senior production technician, at the Alumínio Plant (SP)



## COMPLIANCE DAY

To mark the launch of our new Code of Conduct, we reorganized our traditional Compliance Day event into a week of workshops, discussions, communications and interaction with employees. The keynote speaker was former soccer referee and TV commentator Arnaldo Cesar Coelho. In a live stream accessible to all employees, he illustrated the importance of having a Compliance Program using a catchphrase he was famous in Brazil for: “A regra é clara” (“The rule is crystal clear”).

Other activities included: the launch of our Compliance Portal, Conflict-of-Interest

Declarations and our Consequences Management Policy, which provides guidance on the implications of breaking Company rules; a quiz on our Code of Conduct during the week, with the highest scoring employees receiving prizes; and distribution of fortune cookies at the entrances to our premises with phrases about compliance.

During the last day of the program, an event dedicated to CBA leadership—including the Executive Board and members of the Audit Committee—discussed the added responsibilities created by CBA becoming a public company. Karlis Novickis presented a virtual lecture that was attended by 150 employees in leadership positions.



## ANTI-CORRUPTION

GRI 103-1, 103-2, 103-3: 419 Socioeconomic compliance

GRI 103-1, 103-2, 103-3: 205 Anti-corruption

SASB EM-MM-510a.1 Description of the management system for prevention of corruption and bribery throughout the value chain

As a key pillar of governance, CBA prohibits and acts against any and all forms of corruption. We strive to manage the business with integrity and transparency, and to adhere to the highest standards. We have internal rules in place on anti-corruption actions and procedures, helping employees to understand the different forms of corruption and how to prevent them. Each and every employee is required to read and apply the rules and controls outlined in our [Anti-corruption Policy](#) (which is available for reference on the CBA website) and other CBA procedures published on the Brazilian Security Commission (CVM) website via our reference form, and to report any misconduct via the appropriate channels.

We provide training on our Anti-corruption Policy to all employees in critical positions, including executives, general managers and managers, and coordinators, consultants and analysts in the Procurement, Communications, Legal, Logistics, Corporate Social Responsibility, Environment, Treasury, Internal Controls & Risks, Commercial and Mining departments. All other CBA, Itapissuma and Metalex employees receive anti-corruption information as part of their training on the CBA Code of Conduct. CBA's Compliance Program includes an engagement and communication plan through which we provide regular anti-corruption information to all employees.

Until December, 2021,

**4,279**  
people, or

73.6%, of our workforce, completed our recently launched training on the CBA Code of Conduct and Anti-corruption Policy in 2021

GRI 205-2

The initiatives described in this section support:



Ruth da Cruz,  
Executive Board  
secretary, Corporate  
Office (SP)

[Click here](#)

to know CBA's  
Anti-corruption  
Policy

## ETHICS HOTLINE

ACBA has an Ethics Hotline to address any ethical concerns related to our Code of Conduct or violations of any laws, regulations, policies and other internal standards.

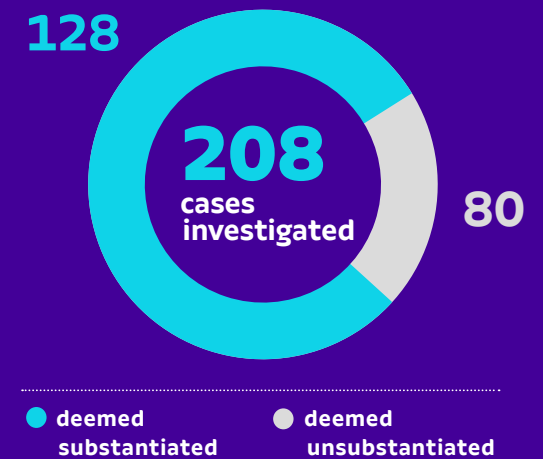
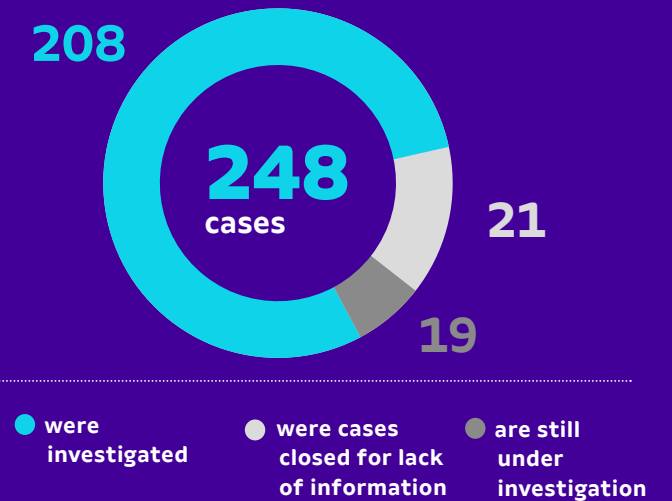
The channel is accessible to both CBA employees and external stakeholders, in English and Portuguese, via telephone or our [website](#).

Information about the parties involved in Ethics Hotline reports is kept confidential. Any questions and reports are addressed transparently and impartially via an independent channel managed by a third-party firm. Cases are first reviewed by a Business Conduct Committee appointed by the Board of Directors. The Audit Committee is periodically informed about case investigation activity.



Monalisa Mendes  
Goncalves, integrated  
systems consultant,  
Corporate Office (SP)

## The Ethics Hotline by the numbers in 2021:





Samanta de Moraes Xavier, a production operator in the Extrusion area at the Alumínio Plant (SP)

## Risk management

GRI 102-11

CBA uses a conservative approach to risk management, supported by a Risk Management Policy. At CBA, Strategic Risk Management is a continuous process to identify, assess, address, monitor, communicate and document potential events or situations that could prevent CBA from achieving its objectives.

In 2021 we updated our Risk Management Policy based on Brazilian Standard ABNT NBR ISO 31000:2018 – Risk Management – Guidelines; COSO – Enterprise Risk Management – Integrating with Strategy and Performance – 2017; The IIA’s Three Lines Model: An update of the Three Lines of Defense; the B3 Novo Mercado Listing Rules; and Brazilian Securities Commission (CVM) requirements. As part of the process, we also revisited our risk management guidelines and the relevant roles and responsibilities. The new version of the Policy has been approved by the Board of Directors.

Our risk management methodology was also revised to include guidance on impact and likelihood of occurrence, helping to improve our assessment of and, consequently, our response to risks.

In addition, we created a business risk dictionary to classify the different types of risks, including ESG risks, and facilitate their communication to and understanding by stakeholders. The high level risk categories are: strategic, financial, operational, social, environmental, governance and compliance.

As another important milestone, we completed a comprehensive assessment of business risks, including ESG risks. The assessment included climate risk factors in a process aligned with the TCFD recommendations. Learn more in [Environmental preservation](#).

In line with the Precautionary Principle, actions to address risks are defined assuming the worst-case impacts and the worst-case likelihood of occurrence.

Following the assessment, risk owners were appointed to be responsible for addressing and monitoring risks, supporting CBA in achieving strategic and sustainability goals.

Three different risk maps were developed throughout the year: Business, Compliance and Consolidated Risks. A workshop was then organized with company leadership to present risk management concepts and trends and our new risk management policy.

In 2022 our risk management function will continue to carry out assessments of business risks, including those affecting our newly established Energy business, and to implement risk monitoring indicators.

# Opportunities

## COMPETITIVENESS MANAGEMENT

CBA uses Competitiveness Management (CM) methodology to support and accelerate technology projects and capture growth and business improvement opportunities. MC is a robust methodology that helps to maintain discipline and ensure that initiatives are implemented without overlapping with routine activities, and can also help to measure the potential sustainability gains from proposed initiatives.

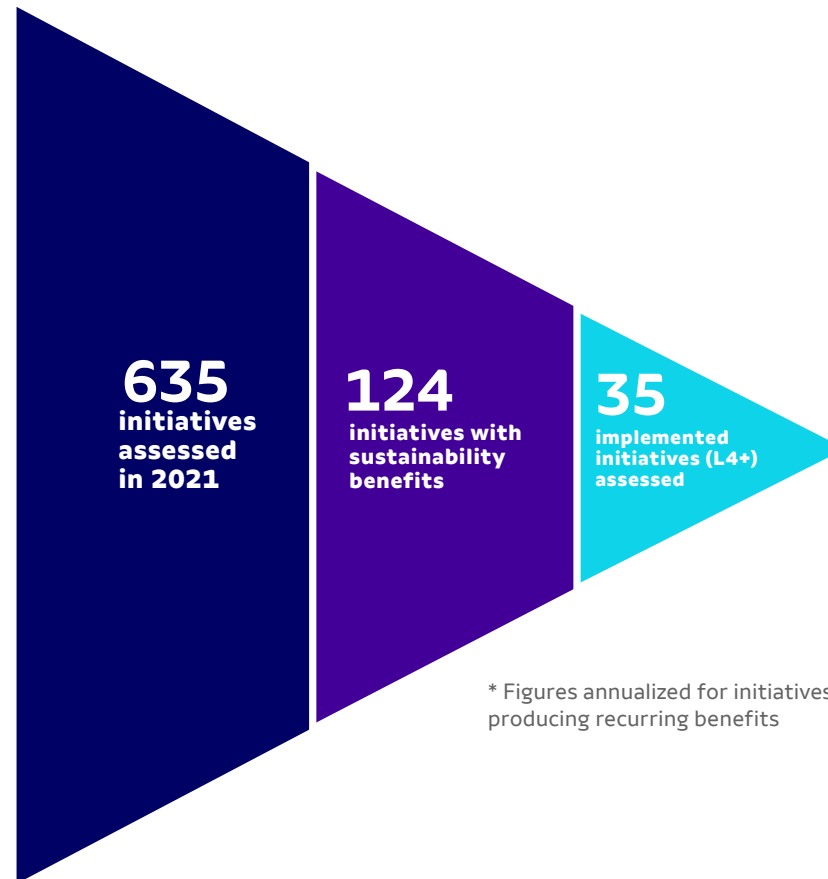
Process improvement, competitiveness and value creation initiatives are covered by weekly monitoring as part of the MC process, which liaises with the different functions throughout the organization through transformation offices.

**This project supports:**



## COMPETITIVENESS MANAGEMENT BY THE NUMBERS IN 2021 CBA-5

CM INITIATIVES IN 2021 HAVE DELIVERED A RANGE OF SUSTAINABILITY OUTCOMES FOR CBA\*



\* Figures annualized for initiatives producing recurring benefits

**R\$ 345 million**

in value creation during the year, compared to R\$ 291 million in 2020

**Stand-out projects:**

**3% higher scrap consumption**

at Casters 7 to 12—this also has a sustainability impact through lower greenhouse gas emissions


**3.3 g/L**

increase in refinery yield in 2021, with further sustainability impacts from lower steam consumption

Solutions &  
Services Center,  
Caxias do Sul (RS)




#### CLIMATE CHANGE OUTCOMES


 **109,000**  
**metric tons**  
of carbon emissions avoided

#### WASTE OUTCOMES

 **557**  
**metric tons**  
of wood waste  
materials avoided

 **35,000**  
**m<sup>3</sup> of water**  
returned from the Palmital dam to  
the Alumina production process\*

#### NATURAL RESOURCE OUTCOMES

 **2,500**  
**MWh**  
of electricity savings

 **944**  
**metric tons**  
of savings on materials such as fluoride,  
caustic soda and flocculants

 **27,000 L**  
of savings on rolling oil

[Click here](#)

See the Additional  
Disclosures Supplement  
for further information  
on sustainability gains  
from Management for  
Competitiveness initiatives

\* Non-recurring benefits

#### Operational excellence

An organization's reputation and success hinge directly on excellence in execution and delivery. At CBA we strive for excellence in everything we do, and Competitiveness Management methodology provides valuable support in achieving this goal. Processes, projects, teams and products are continuously assessed and improved organization-wide.

## A sustainable value chain

GRI 102-43

At CBA we believe in building fair, trust-based and transparent relationships with all stakeholders, across every link in the value chain. For stakeholders to feel engaged and informed, it is essential that we maintain constant communications with them.

### ALWAYS CLOSE TO OUR CUSTOMERS

CBA attaches high importance to our relationships, service and, especially, our proximity to customers, who are at the heart of our strategy. We strive for excellence in the aluminum industry and in developing sustainable products and solutions for our customers, through co-creation and tailored services (learn more in the chapter [CBA, from mine to end product](#)).

Every two years, CBA conducts a Customer Satisfaction Survey covering our Primary and Downstream businesses. The goal of the survey is to identify and document the primary reasons underlying customer satisfaction

and/or dissatisfaction to inform meaningful action for continuous improvement of our products and solutions.

In the most recent customer satisfaction survey for the Primary business, CBA showed industry-leading performance when benchmarked against 12 other companies in the steel and nonferrous metals industry in North America.

In December we organized a conference with customers in the Primary segment, under the theme *Valuable Partnerships*. During the conference our leadership team spoke about trends in the global aluminum industry, our ESG 2030 Strategy, and our CBA 4.0 projects. Following the presentations by the leadership team, sessions were opened for questions and to share insights.

In our ESG Strategy, we have set a goal to derive 15% of revenues from sustainable solutions for downstream customers by 2030 (at our Alumínio and Itapissuma Plants).



Strategically, in 2021 we achieved significant growth in Brazil as we catered to growing demand and expanded market share to maintain our leadership position in the country. This, of course, has helped to improve customer loyalty. We have also focused on strategic customers in other markets, and on developing new solutions and services.”

**Fernando Varella, Downstream Products VP**



### Key Account Managers and regional service

CBA provides key customers with tailored service that caters to the needs of each customer and market, and integrates our own and customers’ business functions together, including Supply Chain & Procurement, Financial, Services, Operations, Marketing and Sales. A continuous interface allows us to segment customers into key accounts—which are global in scope—and regional accounts, which allow for increased proximity to local customers, ensuring that what we deliver to each customer segment is suited to their unique needs. Excellence in customer relationships supports our goal of gaining market share in the key segments where we operate, both in Brazil and internationally.

## SUPPLIER RELATIONS

The continued impact of the COVID-19 pandemic in 2021 created a challenge in logistics and materials sourcing. Stronger demand for products than for services since the second half of 2020, coupled with the agribusiness and e-commerce boom in Brazil, led to higher demand for products in general and pushed up inflation. This hampered the sourcing of certain domestic and foreign commodities and logistic services, especially maritime shipping and, in particular, container shipping.

To mitigate inflation pressures and the shortage of materials and logistics services, CBA implemented several management measures including surplus inventories for some items, advance and long-term contracting, and diversification of geographies and suppliers. We also sourced items jointly with the Votorantim Group to leverage gains of scale and bargaining power, electronic auctions, contract renegotiations and procurement scope optimization.

In Supply Chain and Procurement, the biggest challenges were ensuring a continued supply of raw materials and strategic services, while optimizing financial results either by mitigating cost increases—especially amid the current inflationary pressures—or by improving working capital via robust control of inventory levels.



Bauxite  
beneficiation at  
the Zona da Mata  
(MG) mines

## SUSTAINABLE PROCUREMENT

### PROGRAM

As a leader in our industry, we acknowledge the responsibility we have to engage our value chain around sustainability, and expect an increasing number of our more than 3,000 suppliers to join us in continuously developing in this direction. Our Supply Chain and Procurement department processes a significant R\$ 4 billion in purchasing spend each year, with around half of this amount spent on inputs such as natural gas, coke, coal-tar pitch, caustic soda and logistics services.

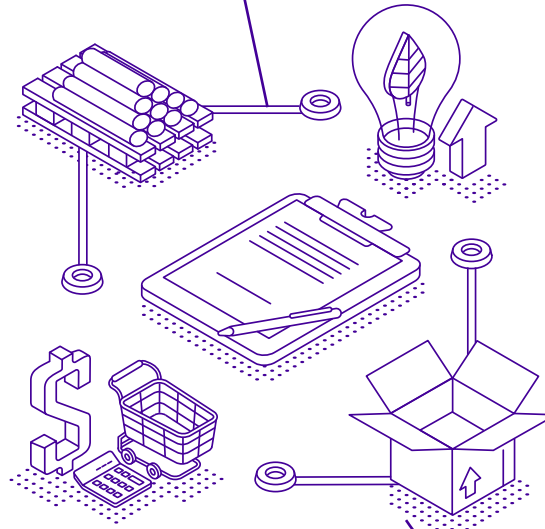
The way we have found to take sustainability beyond our company walls is by establishing fair, ethical and transparent relationships with all players in our value chain, including suppliers of all sizes—small, medium or large. Our Sustainable Procurement Program, launched in 2020, aims to embed social, environmental and governance aspects in supplier selection, contracting and management workflows. The initiative supports the goals we have set under our ESG 2030 Strategy to increase purchases from local suppliers in remote locations by 10%, and to ensure 100% of suppliers are compliant with CBA's Sustainable Procurement Policy. With a five-year implementation horizon, the initiative saw its first year of challenges in 2021.

## THE SUSTAINABLE PROCUREMENT PROGRAM

GRI 103-1, 103-2, 103-3: 204  
PROCUREMENT PRACTICES

Being among the best-performing companies for sustainable procurement makes CBA more competitive and helps to drive positive impact from the business. Guided by this goal, our Sustainable Procurement Program has seven components.

- 1** Sustainable Procurement Policy and Strategy
- 2** Supplier screening and monitoring against ESG criteria
- 3** Supplier selection and requisitions based on ESG considerations, such as inclusive criteria and criteria for selecting and onboarding local suppliers
- 4** Contract management in line with CBA's ESG commitments
- 5** Partnerships with strategic suppliers to co-develop sustainable solutions
- 6** Supplier development
- 7** Sustainable procurement engagement and communications



### The primary goals of our Sustainable Procurement Program are to:

- \* Disseminate our new sustainable procurement policy and strategy;
- \* Select, screen and monitor suppliers against ESG criteria;
- \* Manage contracts in line with CBA's ESG commitments;
- \* Establish partnerships with strategic suppliers to co-develop sustainable solutions;
- \* Engage and develop our suppliers and ensure the inclusion of small, medium and local suppliers.



Employees at  
Corporate Office (SP)

All program components are slated to be completed by 2025, and are being implemented in line with ISO 20400, a standard on implementing sustainable procurement practices in an organization. The Sustainable Procurement Policy was launched and guidelines on Supply Chain and Procurement processes were issued in 2021.

Throughout the year we organized engagement activities such as in-house training on the new policy and on creating sustainable requirements, with the first class completing training in December. We also delivered motivational kits to procurement and supplier communications employees. Internally, employees received messages via Workplace and WhatsApp, and our leadership team was given access to articles and other direct communications providing details about the Sustainable Procurement Program and its challenges.

As a first step in the supplier sustainability screening stage, we prioritized 118 critical suppliers that were deemed to have a significant ESG impact. These suppliers collectively account for more than 75% of CBA's procurement spend. Next, 70% of the suppliers were screened against the criteria newly established based on our new Sustainable Procurement Policy, more than the 50% target for 2021. As part of the process,

all suppliers—whatever their size or order volume—are required to accept our Policy and the CBA Code of Conduct using the Linkana onboarding tool.

Progress on the Program is monitored by the Sustainable Procurement Committee. The Supply Chain Department provides technical and organizational support to project leaders. In 2022 we plan to develop and launch a Supplier Code of Conduct aligned with internationally recognized best practices.



“CBA recognizes there is increasing pressure from the market, customers and society at large to adopt more sustainable models. Our Sustainable Procurement Program is leading us in this direction.”

**Roseli Milagres, Supply Chain and Procurement VP**

## Sustainable Procurement Policy

GRI 103-1, 103-2, 103-3: 204 Procurement practices

A program to enhance our relationships with suppliers can be further strengthened by a policy addressing key social, environmental and governance considerations.

To this end, in September 2021 we launched a Sustainable Procurement Policy outlining the commitments that we have undertaken and share with our suppliers. Under the policy, assessments, due diligence and audits are carried out to monitor compliance with these guidelines.

Commitments are structured into environmental, social and governance dimensions, and address aspects such as energy and water efficiency,

collaboration in tackling climate change, providing decent working conditions and respecting human rights, protecting workers' and communities' health and safety, promoting diversity and inclusion, cultivating fair and transparent relationships, and acting with ethics and integrity.

Under our ESG Strategy, we have set a goal to have 100% of suppliers compliant with CBA's Sustainable Procurement Policy by 2030.

[Click here](#)  
The complete policy is available on the CBA website

## Digital Supply

As part of CBA 4.0, our *Digital Supply* journey aims to free up employees to create genuine value by engaging in strategic initiatives rather than operational activities that can be automated. Within this initiative, we will establish partnerships with startups offering proven solutions, and then perform implementation sprints and pilots with customers and suppliers. These initiatives typically involve lower costs and risks and are more quickly implemented using practical and intuitive tools.

In 2021, this automation effort progressed on several fronts. To improve information flow, security and accuracy, we implemented data mining processes that support a faster response to internal and external clients. In bauxite transportation by rail, previous ore movement and time assessments covered the process from ore loading to arrival at the Aluminio Plant, and have now incorporated train tracking at the unloading yard to avoid process bottlenecks and improve operational efficiency and productivity. In the Downstream Business, an effort is underway to improve production planning and translate sales forecasts into a more accurate production plan, reducing production lead times and positively affecting the level of service we deliver to customers. We also made important improvements to our loss prevention tool, which helps to mitigate the risk of fraud and losses in procurement processes.

Larissa de Souza Alves, administrative technician, and Gisele da Silva Carneiro, DHO analyst, Corporate Office (SP)

[Learn more](#)

[about our suppliers in the Additional Disclosures Supplement](#)



## Certifications, ratings, indices and other recognition

### CERTIFICATIONS

- Aluminium Stewardship Initiative (ASI)
- ISO 14001:2015
- ISO 9001: 2015
- ISO/IEC 17025-2017
- Resources & Reserves Certification
- IATF 16949:2016 (formerly ISO/TS 16949) – International Automotive Task Force

### RATINGS AND INDICES

- CDP Climate Change
- MSCI ESG Ratings
- Reprtrak

### RECOGNITION

- Mining Company of the Year (Empresas do Ano do Setor Mineral) – Brasil Mineral Magazine
- Valor Innovation Awards (Prêmio Valor – Inovação Brasil)
- Mining & Metals Industry Excellence Awards (Prêmio de Excelência da Indústria Minerometalúrgica)
- Brazil Leaders Awards 2021 (Prêmio Líderes do Brasil 2021) – Lide Magazine
- Supplier of the Year (Prêmio de Fornecedor Destaque) – Marcopolo
- Gold reporting status in the Brazilian GHG Protocol Program
- Ministry of the Environment – COP 26 Case Study
- SEMAD Recomenda seal of approval
- Great Place to Work Certificate

Mirela Maria da Silva Lino,  
production operator,  
Alumínio Plant (SP)





A farmer in Zona Mata (MG) benefited by our mine reclamation program

- > Our people
- > Community support

**Social**  
**value**

**Material topics related to this chapter:**

- Local development and impacts on surrounding communities
- Employee health, safety and wellness
- Diversity and inclusion of minorities

**SDGs related to this chapter:**



**Global Compact Principles addressed in this chapter:**

3. Businesses should uphold the freedom of association and the effective recognition of the right to collective bargaining.
6. Businesses should uphold the elimination of discrimination in respect of employment and occupation.

**ESG 2030 Strategy Levers**

5. Valuing people
6. Social legacy
9. ESG ownership

## Our people

At CBA we care about our employees and want to build an environment that values unity, respect, ethics and diversity. We work to develop an inclusive culture as a way to create a fair, democratic, equal-opportunity and diverse workplace environment. All people are welcome, regardless of attributes such as gender, gender identity, color/race, ethnicity, sexual orientation, age, disability, ancestry, citizenship status, family or marital status, nationality, political affiliation, religion, or any other aspects of diversity.



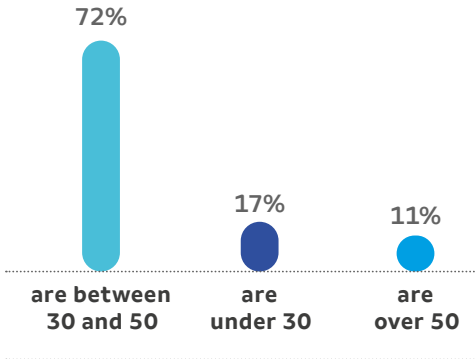
Luiz Eduardo de Andrade, electromechanical technician, Metalex (SP)

Willian Costa Correia  
Leite, production  
operator, Metalex (SP)



## Our workforce

GRI 102-7, 102-8



[Learn more](#)

*about our workforce at  
the Additional Disclosures  
Supplement*

**5,811**  
direct  
employees

**2,374**  
third-party  
employees  
(fixed and mobile)

Most of our **direct employees** are in the southeast of Brazil

## DIVERSE AND PLURAL

**GRI 103-1, 103-2, 103-3: 405**  
**Diversity and equal opportunity**

Valuing diversity has become increasingly high on our agenda at CBA. Since 2020, diversity has been addressed as a crosscutting topic organization-wide. In 2021 we set up a general program of initiatives to achieve progress on diversity and help build an environment that welcomes different ideas, personalities, cultures and choices. In the second half of the year, we ran a diversity training program for the Leadership Team, and a course for employees in leadership positions at the Itapissuma Plant.

Representatives from affinity groups—including Gender Equity, Racial Equity, LGBTQIA+ and People with Disabilities—meet on a monthly basis to discuss how to achieve progress on these issues, and agree on tactical initiatives with the Diversity Committee. All employees are welcome to join. These four working groups, created in 2021, have been tasked with identifying opportunities for and promoting equality among minority groups, fostering respect and inclusion within the Company.

In May, the affinity groups carried out an Inclusion Census to identify people with disabilities and/or functional limitations, and opportunities to improve workplace accessibility and suitability, with an emphasis on health and safety. Approximately 85% of employees responded to the census.

CBA has also joined the “Equity is a Priority” movement of the UN Global Compact, an initiative focused on gender equity, and in 2021 we made a number of adjustments to our recruiting platform, such as a reformulation of the demographic information we collect to increase visibility around diversity attributes. This will be implemented in 2022, helping to target our hiring efforts to minority groups.

Damara Prado da Conceição, logistics analyst, Corporate Office (SP)



The initiatives described in this chapter support SDG:





## Diversity, equity and inclusion targets

CBA works toward specific targets to increase diversity in our workforce, both at our offices and at our production sites.

Within the social dimension of our ESG 2030 Strategy, we have set a goal to achieve 50% gender diversity in leadership positions within the Company. In 2021 the figure was 17%, compared to 14% in 2020.

Our workforce is 14.3% women, an improvement of 3% from 2020.

## Diversity and Inclusion

Significant increase in women's participation in the workforce:



● Women at CBA (%)

*Excludes interns, apprentices and employees on leave*

Alice Hatadani, heavy vehicle operator, Aluminio Plant (SP)

## Focused management

Learn below about how CBA is addressing this issue.

### Diversity Committee

Established in 2020, our Diversity Committee brings together employees from different positions and organizational levels and representatives from minority groups. It is tasked with fostering diverse thinking within the organization, and respect and empathy toward others.

### Diversity and Inclusion Policy

This policy contains guidance on and reiterates CBA's commitment to ensuring an equitable and respectful work environment and eliminating any form of discrimination within the Company. The Policy has been developed in accordance with the Brazilian Constitution and the Universal Declaration of Human Rights. Abiding by the rules in the Policy is a condition of continued employment with CBA, and this extends to outsourced workers and suppliers.

### Diversity and Inclusion Guide

This guide emphasizes the importance of CBA's Diversity and Inclusion Policy, and uses a light and inspirational approach to address related topics. It explains the difference between diversity, equity and inclusion, and discusses topics related to gender, people with disabilities, LGBTQIA+ and race, all a focus of our diversity and inclusion efforts. On the e-cba training platform, all employees have access to educational content about this policy.



## Our initiatives in 2021

### March

Activities to mark Women's Day and International Day for the Elimination of Racial Discrimination

### May

Carried out an Inclusion Census

### June

Marked International LGBT+ Pride Day

### November

Marked Black Awareness Day and International Day for the Elimination of Violence against Women

### December

A campaign on International Day of Persons with Disabilities, providing training and information on this issue



Heitor Santos, tax analyst, Corporate Office (SP)

## More women in industry

CBA participated in the second edition of the Young SDG Innovators Program, an acceleration initiative launched by the Global Compact Network Brazil for young professionals who want to solve business challenges and contribute to achieving the Sustainable Development Goals (SDGs).

The Women in Mining and Metals project, for instance, is focused on SDG 5 (gender equity) and also supports SDGs ODS 1, 4, 8 and 10. The project is designed to showcase CBA's gender equity practices externally, and demystify the mining and metals industry to show the many possibilities for women to work at CBA. It also provides informational and inspirational content for members of the communities surrounding our operations.

In 2020, to support our goal of increasing diversity and the percentage of women at CBA, we launched another project to train women as metallurgical process operators, in partnership with the National Industrial Training Service (SENAI). That year the course was available in Alumínio (SP), and provided a total of 200 class hours. In 2021 the program was extended to other sites in Itapissuma (PE) and Zona da Mata Mineira.

**253** 

**women trained in 2021**, more than our target of 146. All participants have been qualified to apply for vacancies at CBA, and 24 have been hired at the Alumínio Plant.

Ines Maria Do Nascimento, packager, Itapissuma (PE)



### Training figures at a glance:

#### ALUMÍNIO

**210**

women certified:

**104**

as Metallurgical Process Assistants

**30**

as Maintenance Mechanic Assistants

**4**

as Diesel Mechanics

**72**

on NR 11 – Forklift Operation

#### ZONA DA MATA

**15**

women trained on automation

#### ITAPISSUMA

**28**

women trained as metallurgical process operators, with an emphasis on the Downstream segment



I've been working at CBA for five months now and I'm happy to say I've made the right choice. What makes a leader is not a person's gender, whether they're a man or a woman, but determination and perseverance. I'm here to do my part, and the feedback I exchange with my team, to continuously improve, is what makes a great team."

**Geise Daiana Xavier Pena Alcântara,**  
Production Planning & Control Coordinator,  
Sheet Products



The day I was promoted, I was delivering a presentation when I heard my parents' and siblings' voices. I was surprised and delighted. I felt like I was approaching the finish line in a marathon. It's good to know that we, as women, have equal opportunity in this diversity journey at CBA. Our career growth depends on us alone."

**Emanueli Constantino Silveira Moraes,**  
Maintenance Planner



I started as an intern at the Smelters. I then applied for a position as a management system assistant at the Casthouse, and I've recently been promoted to analyst. I know I need to constantly develop my skill set, and surround myself with people who inspire and mentor me to achieve my dreams."

**Beatriz Camargo Salles,**  
Management System Analyst,  
Casthouse



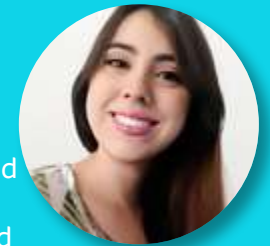
I've always done giftwork for other people, but I never thought that I'd be on the receiving end. But I was here. I received the news of my promotion from my grandmother. It was incredible. The people who organized this deserve praise. I'm very proud to be a part of CBA."

**Ana Flávia Fernandes de Moraes,**  
Systems and Management Analyst, Alumina



I started as an apprentice on the DHO team at the Sorocaba site. When I enrolled in a business administration degree program, I transferred from apprentice to intern. I was soon hired in a safety management and improvement role. I met new people, learned new processes, and had new experiences. Then a vacancy opened on the DHO team as an assistant. I applied successfully and I'm now working in a role where I feel professionally fulfilled. I want to continue to develop and grow each day."

**Isabela Galvão Nascimento Lacerda,**  
DHO Assistant, Sorocaba



I became pregnant during the pandemic. When I got the news I was expecting, we celebrated both at home and at the Company. My manager was overjoyed for me, and we worked together to find a substitute ahead of maternity leave. "Now that I'm back on the job, I have a breastfeeding room available to separate breast milk for my daughter. CBA is a company that supports motherhood."

**Raquel Martins Montagnoli,**  
Sustainability Coordinator



## PURSUING A CAREER AT CBA

GRI 103-1, 103-2, 103-3: 401 Employment

At CBA we attach great importance to career management, an aspect that is embedded across all human resources processes: recruiting, onboarding, and performance management and retention. These processes are managed through a set of policies and practices, covering: hiring, advertising vacancies at Votorantim portfolio companies, internship and apprentice programs, onboarding, performance management, and individual development plans.

Recruiting and selection processes are carried out via the Gupy platform. Due to the lingering COVID-19 pandemic in 2021, all stages of recruiting and selection were conducted remotely via online interviews and specially designed system features. CBA is an advocate of local hiring. Our employee onboarding process has also gone digital, and can be accessed on a mobile device or computer.

People looking to start a career at CBA can choose between two gateways:

- **Our Apprentice Program** is run in partnership with SENAI, offering young students aged 18 to 23 the opportunity to receive vocational guidance and technical training. To enroll in the program, applicants must have completed secondary education and live near the CBA site where the vacancies are available. At the end of the program, participants are selected to fill any available vacancies. CBA had 90 apprentices in 2021; of these, 32 were hired in the year as only one class was able to complete the program due to the pandemic.
- **CBA's Internship Program** annually offers internship opportunities for university students in a range of disciplines. Interns attend a series of development workshops throughout the program, in which they learn and share their impressions about our values, strategies and collective goals. The internship program has a duration of one year and can be extended. CBA had 121 interns in the year, of which 54 were hired.

**Online performance management** PCBA employees were introduced to a number of new tools in 2021. In the performance management process, the results of career discussions and feedback are now entered in the system. Managers and employees both have access to the platform, where they can conduct performance reviews (self-assessments and manager assessments) and build "Flight Plans" to develop their careers. The new process, named "SELF", is designed to foster constant communication and build trust to support continuous feedback, target tracking and career discussions

With SELF, each employee has greater ownership and takes a more comprehensive, sustained and collaborative approach to career building. The biggest change from the previous model is a clear separation between performance (with a focus on development) and potential as it relates to CBA's strategy. Performance assessments are conducted using the 360° model for leadership positions and the 180° model for other positions, and include future-ready digital skills (CBA 4.0). In addition, a dedicated process has been established for professional and leadership roles and another process for operational roles. CBA also offers a self-service-platform with a range of courses for all employee roles.



Employees  
at Corporate  
Office (SP)

The initiatives described in this chapter support SDG:



## ALWAYS LEARNING

Employees are continuously learning from their first day at CBA, whether it's a new process or reskilling for their current roles, or whether it's learning a new way to perform a task or solve a problem. The development journey begins at onboarding, when employees are introduced to our policies. Then, throughout their career with CBA, each employee has access to a wide range of training on hard and soft skills for their continuous development.

In 2021 the COVID-19 pandemic meant that online training on the e-cba platform became the method of choice. The platform includes interactive training, and each employee can choose the best time to log on. Courses requiring hands-on activities continued with appropriate health protection measures in place.

The main highlight in the year was the launch of an ESG training pathway with materials explaining our strategy on sustainability. We also developed a course on the Brazilian General Data Protection Regulation (BR GDPR), another course on CBA's Privacy Program and a game about our purpose and values.

The ESG Pathway training was attended by:

**1,653**

**workers**

in operational areas, on a voluntary basis (35% of the total headcount)

**962**

**employees**

(100% of our professional workforce)

We provide continuous employee training through four initiatives: We provide continuous employee training through four initiatives:

- \* **Votorantim Academy**
- \* **Potenciar**
- \* **Leadership Development**
- \* **Partnerships**



**Click here**

and learn more in the Additional Disclosures Supplement

## PRECAUTIONS DURING THE PANDEMIC

With the COVID-19 pandemic continuing into 2021 and worsening in its second wave, virtually all the prevention measures that were put into place in 2020 were maintained in 2021 to prevent virus spread at our plants, mine facilities and offices.

Gradually, as vaccination rates increased and the spread began to be contained in Brazil, a number of restrictions were lifted—such as on the use of chartered shuttle buses, conference rooms and cafeterias—while maintaining at all times the precautions recommended by health authorities. Since the onset of the pandemic, approximately 600 employees, mostly in office positions, had been working from home. Although telecommuting proved to be efficient, person-to-person interaction remains essential to any organization’s success, as it helps to build culture and create a sense of belonging.

Recognizing this, in the second half of 2021 we decided to implement a hybrid model for office teams. Depending on their role, employees were allocated to work a number of days on-site and the remainder of the week from home. This gives eligible employees

greater autonomy and flexibility. The new model is also more sustainable as it reduces commuting and, consequently, the emissions generated by transportation vehicles.

As in 2020, CBA distributed a telecommuting “Comfort Kit” including a headset, a laptop computer and support stand, a mouse, a keypad and a mouse pad. Employees up to the coordinator or consultant level also received R\$ 500 to help them adapt their home offices. Meal vouchers were replaced with grocery vouchers that employees working from home can use at supermarkets.

Employees migrating to a hybrid model received a manual with suggestions on how to better organize their home environment for working. Managers received a separate manual with tips on how to organize their agendas, communicate with their teams, and manage employee performance remotely. Employees’ return to work is conditional on their being fully vaccinated.



One of the key lessons learned from the pandemic was that we can effectively work from home. Yet we know that on-site working has the advantage that it helps to build culture and a sense of belonging. We believe that a hybrid model reconciles the effectiveness of in-person interaction with the quality of life of remote working, especially in terms of mobility, family time and self-care.”

**Andressa Rissato Brolacci Lamana, Human & Organizational Development, Occupational Health & Safety, Environment and Sustainability VP**



Lucia Helena Quelhas Garcia, DHO manager, and Anna Leticia Amaral da Silveira, HR business partner, Corporate Office (SP)



Espaço Saúde ("Health Space"), at Alumínio Plant (SP)

## HEALTH AND WELL-BEING FOR ALL

At a time when employee health and safety has required special attention, CBA has implemented a variety of initiatives to improve health conditions for the workforce. Among these initiatives is *Por Você* Program ("For You"), a quality-of-life program that provides advice on nutrition, prevention and well-being, and encourages employees to engage in exercise, such as by organizing road running circuits. In the second year of the pandemic, as part of our efforts to preserve employees' emotional

and social health, we expanded the reach of our Plenamente Program, a 24/7 psychological, legal and financial counseling service.

In 2021 we created Espaço Saúde ("Health Space"), an exclusive health clinic for employees at the Alumínio Plant and our Corporate Office, run in partnership with the Hospital Sirio Libanês. Employees can schedule appointments with a family physician, request and collect samples for laboratory tests, and perform other procedures. In-person services are available Monday to Friday, and telemedicine services are available 24/7.



Throughout 2021 CBA encouraged employees to get vaccinated and created a vaccination dashboard.

As of December 31:

**98.6%**  
of employees

were fully vaccinated against COVID-19 (two doses)

The initiatives described in this chapter support SDG:



Espaço Saúde ("Health Space"), at Alumínio Plant (SP)

## SAFETY FIRST

GRI 103-1: 403 Occupational health and safety

Health and safety are nonnegotiable at CBA. We invest continuously in technology, equipment, engineering and process improvements, and work to cultivate an organizational culture that supports employee health and safety at the workplace as a competitive advantage.

The initiatives described in this chapter support SDG:



Wellington Luiz Matiusso Trindade and Adilson Jeronimo Soares Pinto, fire responders, Alumínio Plant (SP)

## Health and safety management at CBA

GRI 103-2, 103-3: 403 OCCUPATIONAL HEALTH AND SAFETY, 403-1, 403-2, 403-4

CBA has an integrated management system policy that addresses health and safety matters affecting CBA employees and contractors, based on applicable safety regulations, ISO 45001 and OHSAS18001. CBA takes safety beyond minimum legal requirements to achieve industry best practices.

On a daily basis, for every activity, CBA provides a Preliminary Risk Analyses that helps employees to identify risks and implement personal or collective protection measures in the work environment.

The Company employees also have a Duty of Refusal, meaning they have the right to stop any task if they identify a hazard or unsafe condition that has not been sufficiently mitigated and can jeopardize their own or other workers' health/safety. Planned audits, inspections and training are conducted regularly to ensure progress on safety is sustained.

A Multidisciplinary Working Group meets on a monthly basis with site leaders, the management team and safety team representatives to discuss and act upon key safety performance indicators.

CBA leverages technology to improve health and safety. Examples of this include virtual reality training, digital safety equipment checkout systems, and smart camera systems to prevent accidents.

In 2021 we conducted an assessment at all Aluminum Business sites to identify (cognitive, physiological, psychological and social) behavioral triggers as an opportunity to better understand people's actions and reactions while on the job to avoid accidents.

## A focus on safety

The Social pillar of our ESG Strategy contains Employee Health & Safety goals that we have pledged to achieve by 2030:

- Zero fatalities or severe injuries\* in our operations. In 2021 there were no fatalities in our operations. But despite our safety precautions, we recorded one serious injury at the Alumínio Plant\*\*
- Achieve an injury frequency rate lower than 1\*\*\*. The injury frequency rate in 2021 was 1.68, a reduction of 32% compared to 2020

\* Fatal injuries or injuries resulting in permanent disability – levels 5 and 6

\*\*A finger pinch injury. Action taken to mitigate pinch-point risks included: installation of workstation equipment to facilitate task execution; reorganization of task procedures; training on the use of safety tools; and an increased focus on identifying risks and appropriate control measures

\*\*\*On the basis of 1 million man-hours worked

## Learn more about some of our safety initiatives below

GRI 403-2, 403-4

### Fale Fácil

An easy-to-use channel for reporting and addressing unsafe conditions and behavior.

### Duty of Refusal

A policy that encourages and empowers employees to refuse to perform a task if risk mitigation measures have not been adequately implemented or if they feel unfit to perform the task.

### CIPAs and CIPAMIN\*

Each of our operations has an Internal Accident Prevention Committee (CIPA). Members are elected by employees and represent 100% of our workforce. Reported injuries and incidents are investigated by a multidisciplinary group of representatives from the Safety department, the CIPA committees, and the heads of the departments involved.

### Safety training

Our Safe Behavior Program and other safety tools provide training to raise employee awareness about the importance of identifying unsafe situations, and how to avoid them. Toolbox Talks are the primary method of safety communication in operations facilities. We also organize campaigns to communicate relevant safety-related information. CBA plans and administers all required statutory, safety and onboarding training, including for outsourced workers.

GRI 403-5, 403-7

[Click here](#)

and learn more about our employee health and safety training initiatives in the Additional Disclosures Supplement

\*CIPAMIN is the Internal Accident Prevention Committee for the mining industry, with management specifics.

Daily security dialogue on Casting, Alumínio Plant (SP)

## Health and safety highlights



**Tool**  
(Workplace Risk Assessment)

**ORT**

**66,635**

behavioral observations submitted



**1,738**  
employees

registered with our Quality of Life Program



**2,427**  
employees

participated in street runs



**4,330**  
COVID-19

tests administered

**R\$ 26.5**  
million



invested in health and safety



**3,666**

cases monitored via our Alô Corona channel

**21**



contractor firms participated in our Safety Marathon

**98.6%**  
of employees

fully vaccinated against COVID-19

**Weekly**  
managerial inspections



at all operations departments, carried out by members of the CIPA, SSMA and leadership teams



**Weekly**  
audits

of safety tools at all operations departments

**4,503**

influenza vaccines administered



Covid-19 test at Itamarati de Minas (MG)

The initiatives described in this chapter support:



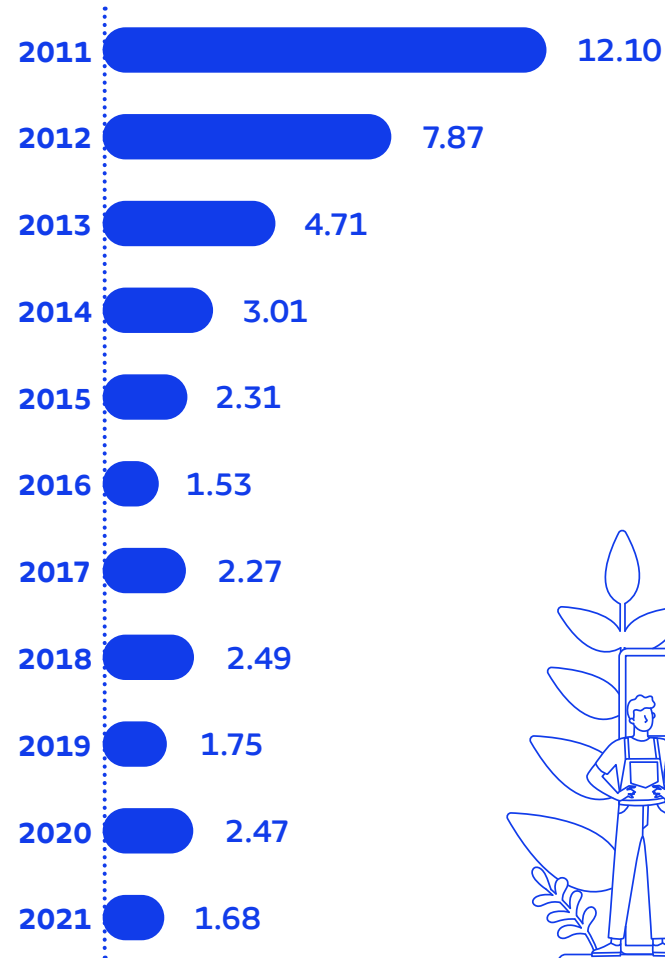
## INJURY FREQUENCY RATE

CBA's injury frequency performance in recent years illustrates our efforts and investments to improve safety. In 2021 alone, our injury frequency rate decreased by 32% compared to 2020. CBA outperformed both the national (4.23) and the international\* (3.20) average injury frequency rates, as published by respectively the Brazilian Aluminum Association (ABAL) and the International Aluminum Institute (IAI).

But our strong performance has not made us complacent, and CBA's efforts to reduce injuries and improve workplace safety are ongoing.

*\*Most recent data for 2020.*

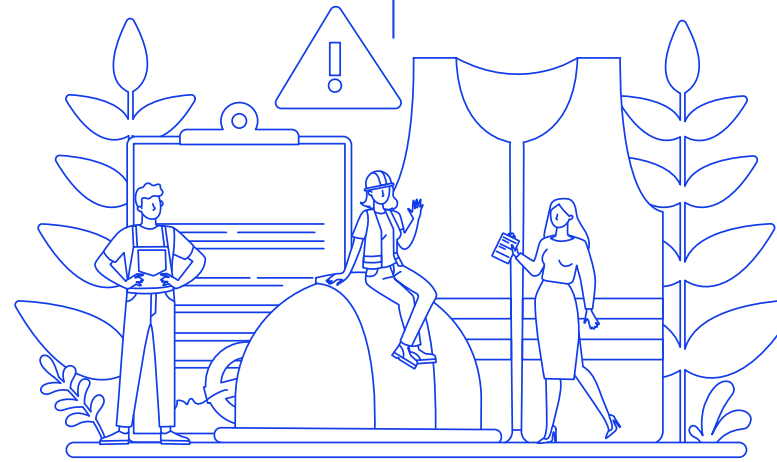
## RATE OF LOST-TIME AND NO-LOST-TIME INJURIES PER 1,000 MAN-HOURS WORKED.



*Note: consider direct employees.*



Juliana Cristina Santos Silva Cavalcante, casting production operator, Alumínio Plant (SP)



**Learn more**  
 about our employee health and safety training initiatives in the Additional Disclosures Supplement

## HEALTH AND SAFETY MANAGEMENT SYSTEM TOOLS



Employees during 2021 SIPAT at Alumínio Plant (SP)

## Community support

**GRI 103-1, 103-2, 103-3: 413 Local communities**

**GRI 103-1, 103-2, 103-3: 202 Market presence**

**GRI 103-1, 103-2, 103-3: 203 Indirect Economic Impacts**

**SASB EM-MM-210b.1 Discussion of process to manage risks and opportunities associated with community rights and interests**

At CBA we not only believe we can, but have a commitment to, support the development of the communities where we operate. Since our social action strategy was reformulated in 2016, we have conducted social and economic assessments in the regions where we operate to understand each region's needs and identify strengths and weaknesses. In 2021 these assessments were conducted in Araçari (SP), Barro Alto (GO), Itapissuma (PE) and Rondon (PA). Now that CBA has gone public, this dimension has become even more important.

Our commitment to communities extends to the mining business: each of our mines is supported by an Environmental Impact Assessment (EIA) describing the potential impacts from our operations on both the environment and our communities. This information is used as an input into the annual planning of our social investment, based on joint analyses by social managers at CBA and the Votorantim Institute. The Votorantim Institute's Social Investment Standard and Social Investment Guide provide guidance on managing social programs.

### **CBA's social action strategy is grounded in three pillars:**

- **Education development**
- **Public management support**
- **Economic development**

Social initiatives are aligned with the Sustainable Development Goals (SDGs) and are carried out jointly with the Votorantim Institute, which provides solutions and methodological support for social planning

and creating shared value for communities. In addition to the three priority pillars, CBA supports the protection of children's rights by providing capacity building to the Municipal Council for the Rights of Children and Adolescents (CMDCA) so it is better equipped to fulfill its mandate.

In our efforts to support the local development of our communities, we regularly collaborate with NGOs, community associations, cooperatives, community leaders, and executive and legislative officials. [GRI 102-43](#)



Votorantim's Partnership for Education (PVE). Picture taken before COVID-19 pandemic

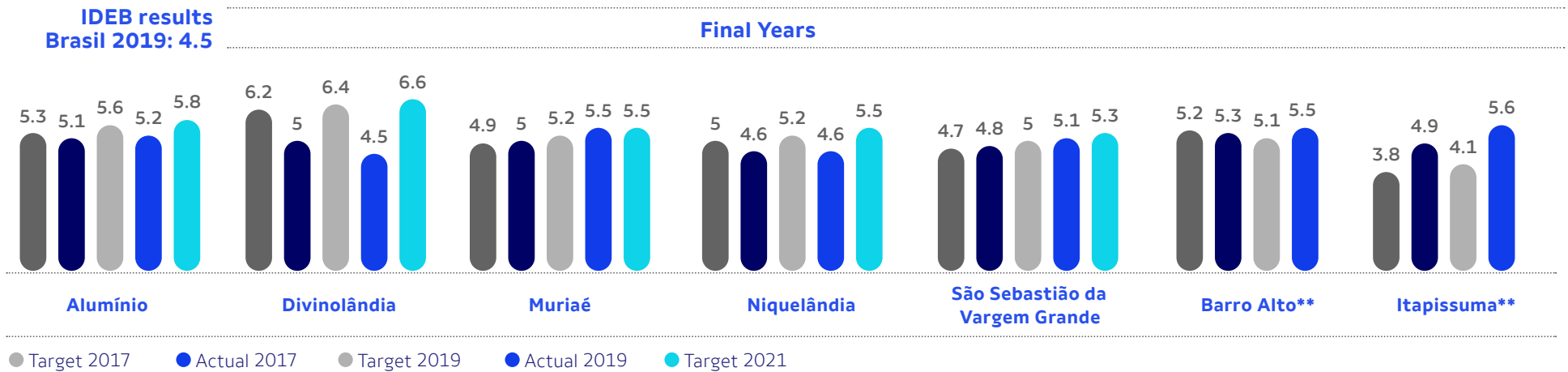
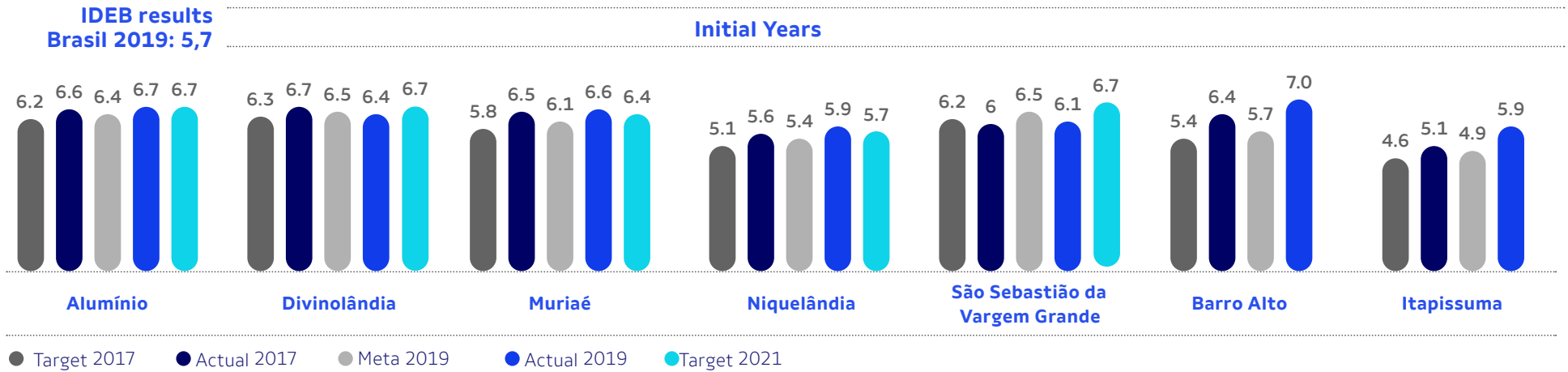
**CBA's ESG 2030 Strategy contains goals that will contribute to building our social legacy:**

- Improve the Basic Education Development Index (IDEB)\* in the municipalities where we operate, helping to reduce public education inequalities
- Secure 1-to-1 match funding from co-investors for corporate social investment
- Contribute to strengthening recycling cooperatives in Brazil

Our ongoing initiatives, combined with the partnerships that we have established, have supported progress toward these goals.

*\*To be defined for each municipality in which we operate*

**The Basic Education Development Index (IDEB) in municipalities CBA supports**



\*\*Partnership for Education (PVE) program was implemented in 2021 in Barro Alto e Itapissuma, for this reason, IDEB results does not currently reflect CBA's work. These information will be provided in the coming years.

Source: [www.qedu.org.br](http://www.qedu.org.br)

## Social initiatives in 2021

Due to the COVID-19 pandemic, we were unable to hold our Social Agenda event with community leaders to present the strengths and weaknesses of each municipality. The previous planning guidance and the investment pillars prioritized by CBA were therefore maintained.

The most significant indirect economic impacts from CBA's social initiatives are related to programs to generate income and livelihoods (ReDes and Empreende Alumínio). These programs provide valuable support for local development in the municipalities where CBA has operations, benefiting society at large. Social investments are tracked using an internal indicator referred to as Service Level Agreement (SLA) conformity, which is included as a goal in our ESG 2030 Strategy: achieve 100% SLA conformity in social programs. Average SLA conformity in 2021 was 104.3%.

GRI 203-2

**32**  
**solutions**  
ongoing throughout  
the year

**R\$ 5.8**  
**million**  
invested,

**including**  
**R\$ 4.0**  
**million**  
funded by CBA and the  
remainder either funded  
by Fundo Votorantim  
SA or raised by the  
Votorantim Institute.  
CBA-10

**8**  
**CBA sites**  
have ongoing  
community  
development  
programs.

GRI 413-1



## FUNDING SOCIAL INITIATIVES

In October 2021 the Votorantim Institute launched three thematic funds using a venture philanthropy model. This is an innovative approach of investing with the expectation that the investment will generate social returns. All financial returns are reinvested into the fund. Three target segments have been selected: low-carbon economy, water and sanitation, and social-interest housing. For Votorantim Group portfolio companies, the most significant benefit is the opportunity to connect to startups in the relevant ecosystems.

CBA is the lead social investor in the low-carbon economy and social-interest housing funds, and a special investor in the water and sanitation fund. The goal of the funds is to generate social-impact business, drive development, and accelerate startups creating solutions in these areas. Votorantim portfolio companies provide funding, support and inputs into decision-making. If the business progresses to scaleup, they become development partners. The first initiatives will be launched in early 2022.

## VOLUNTEERING CHALLENGE

In 2021 we organized another edition of our Volunteering Challenge from June to November, in which employees engaged in initiatives to help their communities.

**Around 1,125 people participated in this year's challenge, which was structured into three missions:**

- \* **More Resilient Communities:** emergency initiatives such as hunger relief campaigns for communities affected by the COVID-19 pandemic;
- \* **Development Agents:** initiatives in which employees used their subject matter skills and knowledge in support of NGOs, people and communities, such as by providing extra-school classes;
- \* **CBA's Cause:** the cause we chose to advance this year was diversity. CBA's actions were accordingly geared to minority groups, such as providing capacity building for women in vulnerable situations to develop new livelihood skills.

This edition also included a Volunteer Acceleration initiative aiming to develop

good ideas into projects with high social impact. Two classes were opened, and selected participants received mentoring from volunteering experts to help them develop their initiatives. Volunteers meeting the specified criteria received up to R\$ 1,000 to develop their ideas into actions. A total of 30 mentoring spots were available, and CBA had 3 of its initiatives featured in a report on volunteering results.

CBA, through our Alumínio and Niquelândia sites, ranked first place for outstanding performance in Engagement among large Votorantim portfolio companies participating in the Volunteering Challenge in 2021. Our Miraf site ranked third place in the Medium-Scale Strategic Initiatives category.

**This initiative supports SDG:**



## CBA performance in the Volunteering Challenge:



**339**

volunteer employees organized and participated in volunteering activities



**3,638**

hours of volunteering



**13,650**

people benefited



**786**

employees donated toward the initiative



**24,000**

people benefited



## Pandemic response

In 2021 CBA again worked with the Votorantim Institute to support the COVID-19 response in our communities. We donated medical equipment, personal protective equipment (PPE) and grocery packages. We also implemented a tele-ICU project at hospitals in São Roque (SP) and Cataguases (MG), in which medical staff at Beneficência Portuguesa Hospital provided decision-making support to local hospital staff. CBA invested R\$ 657,000 in the pandemic response. [GRI 203-1](#)

Production expansion project, Intermunicipal Seamstress Association of Santo Antônio do Rio Preto

## Community initiatives

### Partnership for Education (PVE)

This initiative engages the entire school community, Municipal Education Departments and local residents in actions to drive improvement in public education in the municipalities of Alumínio (SP), Barro Alto (GO), Niquelândia (GO), São Sebastião da Vargem Alegre (MG), Divinolândia (SP) and Muriaé (MG). Around 22,000 students are directly or indirectly benefited by the program each year. The initiative, which has been certified as a Social Technology by the Banco do Brasil Foundation, works toward a goal of improving each municipality's Basic Education Development Index (IDEB). In 2021 the PVE teams supported local education officials in delivering distance education, and played an important role in planning the return to school.

This initiative supports SDG:



This initiative supports SDG:



### Environmental Education Program (PEA)

In our Mining operations in Alumínio, the Environmental Education Program (PEA) is geared to communities and employees. Initiatives within the program use game-based educational activities to raise awareness among individuals and communities about the importance of maintaining a harmonious relationship between humans and nature. In 2021 the program was adapted to an online format, with some events, such as Environment Week, organized concurrently across all CBA sites. This year the program completed two decades of activities in the southeastern regions of Zona da Mata and Poços de Caldas, reaching approximately 145,000 people in 12 municipalities.



### Public Management Support

This program works to strengthen the role of municipal governments as agents of local development. Since 2020, the program has been focused on healthcare. In 2021 the eight municipalities served by the program—Alumínio (SP), Araçariçuama (SP), Mirai (MG), Muriaé (MG), Barro Alto (GO), Niquelândia (GO), Itapissuma (PE) and Igarassu (PE)—had a total population of approximately 340,000 people. This program is also run in partnership with BNDES and is focused on locations where CBA operates. In 2021 CBA partnered with the Votorantim Institute to implement a Public Health Support Program (AGP Saúde) in the above municipalities. All host municipalities received free mentoring and support in responding to the pandemic and improving their healthcare offering, as well as other management tools. On joining the AGP Saúde program, municipal governments and their healthcare officials receive an assessment of their healthcare capabilities, with a focus on primary care and epidemiological surveillance. They can then assess their strategies, improve their processes, practices and management approach, and set priorities. On the COVID-19 response and healthcare fronts, the program worked across six levers:

- **Epidemiological data:** COVID-19 surveillance and reporting to municipal governments to inform effective preventive measures.
- **Contact tracing:** strategies for testing and tracking virus spread to prevent community transmission.
- **Vaccination:** supporting municipal vaccination programs, and monitoring input inventories and vaccination coverage.
- **Risk communication:** strategies to provide citizens with access to continuous, accurate and up-to-date information.
- **Primary healthcare coverage:** mapping coverage and developing strategies to expand primary education into areas with healthcare gaps and vulnerabilities.
- **Previne Brasil (an initiative to secure funding from the Ministry of Health):** support for tracking and reporting the indicators required for eligibility to Ministry of Health funding.

Since 2020 the Votorantim Institute has conducted impact assessments to evaluate the extent to which program initiatives have helped to save lives in host municipalities, using the propensity score matching (PSM) method. Locations not receiving support from the AGP Saúde program are deemed the control group, while those served by the initiatives are the treatment group. The study isolates variables to assess impact on similar populations. The primary metric used is the cumulative rate of COVID-19 deaths per 100,000 people as of December 1, 2021. In all assessments, death rates

were lower in the treatment municipalities than in the control group. In those cities where the program ran for only one year (either 2020 or 2021), death rates were 25.8 fewer per 100,000 people. In those cities where the program ran for two consecutive years, death rates were 96.9 fewer per 100,000 people. An estimated 2,400 lives may have been saved in the 194 municipalities covered by the program.

This initiative supports  
SDG:



**This initiative supports SDG:**



**ReDes Program**

The ReDes Program is a partnership between CBA, the Votorantim Institute and the Brazilian Development Bank (BNDES) to Support economic development and livelihoods in the municipalities of Mirai (MG) and Niquelândia (GO). The program’s flagship initiative helps to structure and develop production cooperatives and associations. Instructors provide training on management, financial sustainability, communications, and capital for infrastructure and business development. In 2021, three projects—Associação José Martí, Doces Vidas Acorda and CONFIRSARP—generated income of more than R\$ 684,000 for 82 direct beneficiaries.



**Votorantim Program for Childhood and Adolescence (VIA)**

This program, led by the Votorantim Institute, aims to improve security and quality of life for children and adolescents, and to strengthen prevention and support programs within Brazil’s Social Protection Network (RPS). In 2021 the VIA program benefited the municipalities of Alumínio (SP) and Niquelândia (GO). This was the last year of the program in Niquelândia, where it had reached a high level of maturity. The Municipal Council for the Rights of Children and Adolescents and the Social Protection Network have evolved to a point where they can now independently navigate the challenges involved in rights advocacy. In minor cities in São Paulo, the Council conducted an assessment to inform a ten-year plan for protecting the rights of and implementing public programs for children and adolescents.



**Engaja – Stakeholder Engagement and Relations**

In Mirai (MG), CBA and the Votorantim Institute work together to capture opportunities identified through dialog with local actors. Social technology has helped to improve processes and interaction with the communities where CBA and Votorantim operate. In 2021 we made the decision to continue our engagement with farmers despite the pandemic. Around 34 farmers participated in the program during the year.

**This initiative supports SDG:**



Organization	Revenue generated in 2021	Average income
CONFIRSARP – Intermunicipal Seamstress Association of Santo Antônio do Rio Preto	R\$ 138,477.50	R\$ 5,655.22
Associação José Martí	R\$ 407,862.00	R\$ 9,574.59
Doce Vidas Acorda	R\$ 138,235.08	R\$ 4,623.25

Around

**34**  
**farmers**

participated in the Engaja program



Votorantim’s Partnership for Education (PVE). Picture taken before COVID-19 pandemic

This initiative supports SDG:



### Empreende Alumínio

In 2021, 106 small business owners attended training provided by CBA and Instituto Meio. Short video courses addressed topics related to entrepreneurship and management, selected by small business owners in Alumínio (SP). The course was delivered via WhatsApp. Ten of the business owners received individual mentoring, and their business plans were assessed by a panel that then awarded four seed capital grants. These four business owners will receive funding and mentoring in 2022.



### Civic Agents

Working with the Votorantim Institute and partner organizations Instituto Governo Aberto and Instituto Cidade Democrática, CBA organized civics workshops attended by 64 young adults in eight cities—in Minas Gerais (Rosário, São Sebastião da Vargem Alegre, Miraf and Muriaé) and São Paulo (São Roque, Mairinque, Alumínio and Araçariguama). The workshops discussed politics and civic engagement, in an initiative that raised awareness and provided opportunities for reflection, discussion and action. As a result of the workshops, eight projects were implemented that directly reached a population of more than 10,000 people, and indirectly engaged a network of nearly 80,000 people.



### Urban Farming

In a partnership with the research center CSEM Brasil, CBA's innovation team developed a prototype greenhouse for an Urban Farming pilot led by online food ordering platform iFood and tech startup Begreen. The prototype greenhouse will produce vegetables in urban locations for donation to families experiencing food insecurity.



### Technical Support for Fruit Growing:

Since 2013, CBA and the Votorantim Institute have supported the NGO Atitude across all stages of a project to strengthen banana and grape farmers and businesses in Zona da Mata Mineira. The project provides farmers with technical advice and mentoring, and trains participants on farming methods, as well as developing local cooperatives. In 2021, 17 farmers participated in the initiative.

This initiative supports SDG:



This initiative supports SDG:



Engaja project, Miraf (MG)

The Legado das  
Águas Reserve (SP),  
Reservas Votorantim

# Environmental preservation

- › Climate change management
- › Expanding recycling
- › Waste management
- › Dam management
- › Energy management
- › Efficient water stewardship
- › Biodiversity stewardship

**Material topics related to this chapter:**

- Waste management
- Materials efficiency and aluminum recycling
- Dam safety management
- Protection of biodiversity
- Climate change
- Efficient and renewable energy
- Water stewardship

**SDGs related to this chapter:**



**Global Compact Principles addressed in this chapter:**

7. Businesses should support a precautionary approach to environmental challenges.
8. Businesses should undertake initiatives to promote greater environmental responsibility.
9. Businesses should encourage the development and diffusion of environmentally friendly technologies.

**ESG 2030 Strategy Levels**

1. Climate change management
2. Circular aluminum
3. Natural resources
4. Dam management



Smelters at Alumínio Plant (SP)

## Climate change management

GRI 103-1, 103-2, 103-3: 305 Emissions

SASB EM-MM-110a.2 Discussion of long-term and short-term strategy or plan to manage Scope 1 emissions

CBA recognizes that climate change is among humanity’s most concerning issues, and is committed to supporting decarbonization efforts. Because it is highly durable, 75% of the primary aluminum produced globally since 1888 is still in use today, according to the International Aluminium Institute (IAI). Its unique properties make aluminum one of the materials of choice for a sustainable future. However, the aluminum industry is generally seen as carbon-intensive due to its consumption of fossil fuels and electricity in production. Because CBA produces low-carbon aluminum—with most of our

electricity requirement sourced from clean hydropower plants owned by the Company or by joint ventures—this provides a competitive advantage.

To monitor performance, we compile greenhouse gas emissions inventories that are audited by a third-party firm. Since 2018, our inventories have been awarded Gold level reporting status within the GHG Protocol Program. And since 2020, we have received a leadership-level score of A- from the CDP’s Climate Change Program.

CBA has not only reached the maturity to tackle climate issues, but is now proactively developing solutions to mitigate climate-change impacts. In our ESG Strategy, we have set a goal to, by 2030: reduce CO<sub>2</sub>e emissions by 40% (on average for cast products, cradle-to-gate) from 2019; offer customers a carbon-neutral product line; develop a climate change adaptation plan; and produce 100% of billets at Metalex with greenhouse gas emissions lower than 1.4 tCO<sub>2</sub>e/t of product.



All new projects at CBA take sustainability concerns into account, helping to maintain our position as one of the lowest greenhouse gas emitters in the global aluminum industry.”

Alexandre Vianna da Silva,  
Primary Products VP

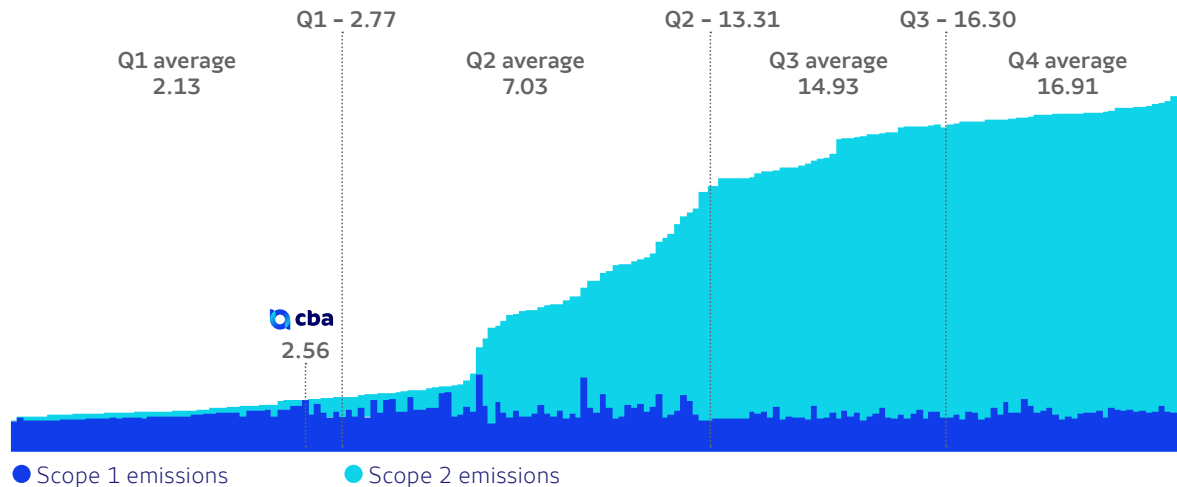
The three primary pathways through which we will achieve emissions reductions are by: upgrading the technology of our pot rooms, increasing recycling rates, and retrofitting our boilers to use biofuels. Read more later in this chapter.

Progress so far on these initiatives, coupled with process improvements and Management for Competitiveness initiatives, have helped to reduce our emissions by 25.4% from a 2019 baseline, and by 8.4% in 2021 alone.

And CBA is currently working to create a roadmap to becoming emissions neutral by 2050. To this end, we have assessed new technologies that are not yet feasible in the short term, such as carbon capture and storage. Once we have reduced our emissions to the extent practicable, we will consider options to offset any residual emissions using carbon credits. CBA is already exploring several related projects, such as Re flora, in the Legado das Águas and Legado Verdes do Cerrado reserves ([read more on page 104](#)).



### Primary aluminum – Smelting process (tCO<sub>2</sub>e/ t Al) – Average



Source: CRU – Smelter Cost Model CRU (2021).

The initiatives described in this chapter support SDG:



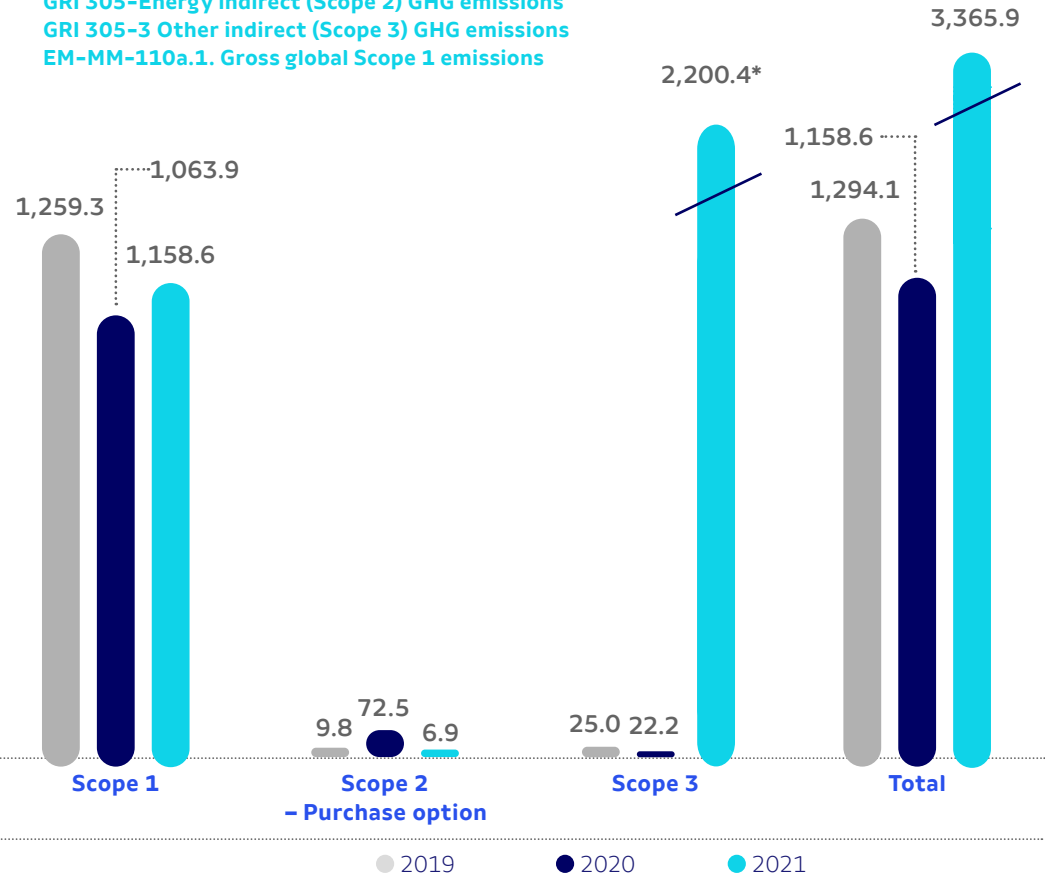
ESG Strategy Goal: reduce CO<sub>2</sub>e emissions by 40% (on average for cast products, cradle-to-gate)



Progress until 2021 toward our target for 2030 - From a 2019 baseline

### Direct and indirect emissions *(in thousands of metric tons of CO<sub>2</sub>eq)*

GRI 305-1 Direct (Scope 1) GHG emissions  
 GRI 305-2 Energy indirect (Scope 2) GHG emissions  
 GRI 305-3 Other indirect (Scope 3) GHG emissions  
 EM-MM-110a.1. Gross global Scope 1 emissions



\*The emissions data for 2021 include Scope 3, category 1, 3, 4 and 9 emissions calculated in accordance with the GHG Protocol methodology. For previous years, emissions were calculated only for bauxite haulage, in category 4.

All greenhouse gases are included in the calculation (CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O, HFCs, PFCs, SF<sub>6</sub>, NF<sub>3</sub>).

The consolidation approach for emissions was operational control.

Our Sorocaba facility, São Paulo office and Duque de Caxias distribution center have not been included in the scope of this disclosure.

**Learn more**  
 about emissions in the  
 Additional Disclosures  
 Supplement

Scope 1 emissions increased primarily as a result of higher production output. In addition, Smelting emissions levels were higher due to the quality of the raw material used to produce anode paste. On the upside, we further reduced emissions from stationary combustion at the Alumina refinery as a result of the use of biomass in the boiler throughout the year. Scope 2 emissions fell slightly as the ratio of renewable electricity increased from 81.4% to 82.3%. CBA also began to purchase renewable energy certificates during the year to ensure that the plant's entire electricity supply is fully renewable and Scope 2 emissions are reduced to near zero (leaving only the emissions from purchasing steam from Combio Energia for the Refinery).

### GHG emissions intensity *(in t CO<sub>2</sub>e/t Al)*

GRI 305-4

	2019	2020	2021
Production of cast aluminum products (cradle to gate)	3.47	3.08	2.63
Production of downstream aluminum products (cradle to gate)	5.14	4.67	3.81
Smelters – molten aluminum (single stage)	2.55	2.66	2.56

All greenhouse gases are included in the calculation (CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O, HFC<sub>s</sub>, PFC<sub>s</sub>, SF<sub>6</sub>, NF<sub>3</sub>).

The emissions intensity calculation is based on Scope 1 and Scope 2 GHG emissions across the value chain (Mines, Alumina, Smelters, Casthouse and Downstream) and production at the Alumínio Plant (SP).



Smelters at  
Alumínio Plant (SP)



The pot upgrades so far have generated emissions reductions of

**17,994**  
**tCO<sub>2</sub>e**

## POT ROOM TECHNOLOGY UPDATE

CBA has two major ongoing projects at our Smelter facilities. One of these projects is upgrading all 1,040 smelting pots at an estimated cost of R\$ 620 million. The upgrade will switch the smelter pot feeding process to an intermittent feed system that will reduce greenhouse gas emissions from this process by an estimated 20%, as well as minimizing consumption of aluminum oxide and improving energy efficiency.

The upgrade is scheduled to be completed by 2025. In addition to lower greenhouse gas emissions, the project will avoid 27 million cubic meters of water withdrawals, and reduce power

consumption by 17 MW, enough to supply power to 30,000 homes. This is among the projects receiving funds raised through CBA's IPO.

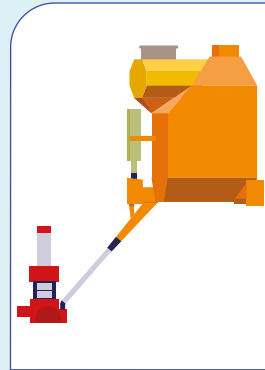
The second initiative is restarting smelters that have been curtailed since 2014. The first, smelter 3, has 78 pots that will be restarted in 2022. Smelter 1, with 158 pots, is expected to restart operation in 2025. The initiative will increase our primary aluminum output by 80,000 metric tons, in an investment of approximately R\$ 1 billion. Importantly, the restarted smelters will already have been upgraded to the new pot feed technology.

# A cleaner production process

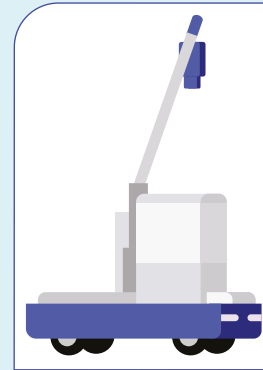
After bauxite ore is mined and refined into aluminum oxide (alumina), the Smelters are the next step in the process. In these huge buildings, over 1,000 smelter pots operate continuously. Heated to more than 900 °C, the pots are regularly fed with alumina and aluminum fluoride. Through a chemical reaction catalyzed by electric energy, these inputs are converted into molten aluminum, which is siphoned off on a daily basis from the pots and carried in large transport containers to the Casthouse for casting.

Feeding the smelter pots is a critical step in this process. It begins with a hole being broken through the crust on the side of the pot, to feed in the alumina and aluminum fluoride. This allows fugitive emissions to escape, and requires to the use of powerful gas scrubbers in order to protect the health and safety of workers and surrounding air quality. To make the feeding operation cleaner and more sustainable, CBA is currently making significant investments in a technology upgrade. With the new feed system, the crustbreak operation is not required to be performed several times throughout the day. The pots are fed automatically and less frequently. Special equipment controls internal conditions, and a cylinder coupled to the system breaks the crust and injects the inputs with much greater precision and at much longer intervals, avoiding greenhouse gas emissions.

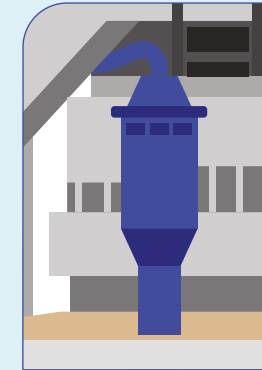
In addition to improving safety and reducing emissions, this also avoids the water consumption required for scrubbing the gases, and improves energy efficiency and productivity. Because the entire process is automated, it involves fewer manual tasks, freeing up employees for other activities. The new system is an example of how technology can support sustainability.



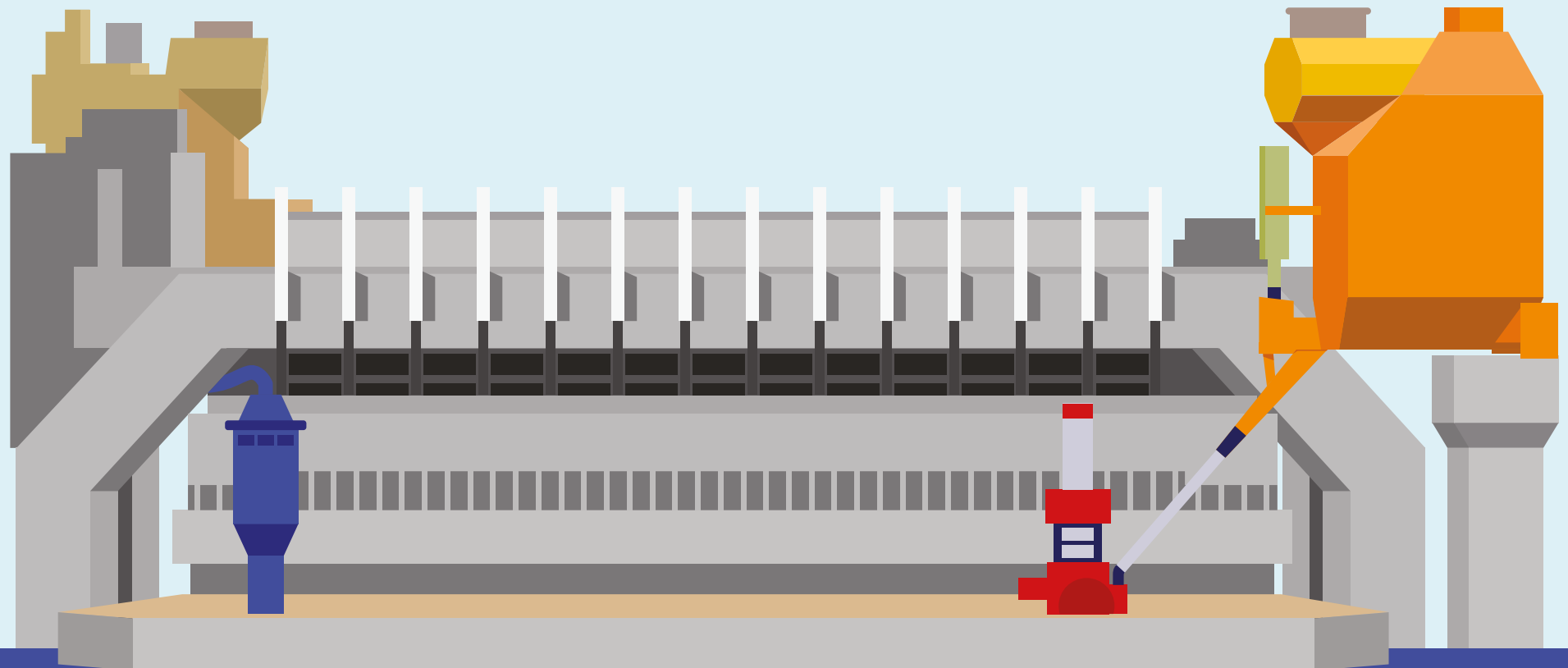
The new system is fully automated. Two small bins store the alumina and fluoride. The equipment feeds the smelter pot without the need for human intervention. Rather than breaking the crust every four hours, the point feeder injects inputs at a much lesser frequency.



A vehicle specially developed for the new system feeds the bins with the alumina used to produce molten aluminum.



As a result, the new system helps to avoid fugitive emissions. Gases produced within the pot are sent to a treatment facility, where they are treated and partly returned into the process as inputs. The Smelter roof can be partially opened to improve ventilation and natural lighting.



## BIOMASS BOILER

Our Alumina Refinery has implemented a retrofit project in partnership with Combio Energia to replace the natural gas or oil used to fuel the boilers with woodchip biomass from eucalyptus plantations. The Refinery is one of the first in the world to produce steam using woodchip biofuel. In addition to minimizing emissions, biomass is cheaper to buy than fossil fuels. The boiler started operation in 2020, but only operated a full year in 2021.

The Brazilian Ministry of the Environment selected CBA's boiler retrofit project for an energy-transition case study presented during COP26—the United Nations climate conference hosted in Scotland in November 2021—as an example of efforts in the aluminum industry to tackle climate change. During a side event the São Paulo State environmental agency, CETESB, launched a book of case studies on the climate agenda in Brazil, with our pot upgrade among the featured projects.



A biomass boiler in the Refinery at Alumínio Plant (SP)



**63.1%**  
**reduction in greenhouse**  
gas emissions at this production stage since project inception



**CO<sub>2</sub>e emissions intensity fell from**

0.55 tCO<sub>2</sub>e/t of aluminum oxide in 2019 to 0.31 tCO<sub>2</sub>e/t in 2020 and 0.20 tCO<sub>2</sub>e/t in 2021 (compared to a global industry average of 1.21 tCO<sub>2</sub>e/t)

## MANAGING CLIMATE RISKS AND OPPORTUNITIES

CBA made significant progress in 2021 toward developing a climate change adaptation plan as part of our ESG Strategy. We built further on an assessment that we began in 2020 in collaboration with the Fundação Getulio Vargas Center for Sustainability Studies (GVces). Last year's assessment focused on the use of climate analytics tools to explore potential future scenarios, such as lower rainfall, extreme weather events, reduced seasonal variability, and warmer temperatures. In 2021, we converged these models together to estimate the likelihood of occurrence of these events at each of our aluminum business facilities. We also mapped out other climate-related risks, including transition risks such as carbon pricing and market pressures.

All risk mapping was done in accordance with the recommendations issued by the Task Force on Climate-related Financial Disclosures (TCFD). To build climate-change resilience at CBA, the findings from the assessment have been integrated into our risk management practices. Now, all risk assessments consider whether any climate change-related factors could intensify or otherwise affect identified risk events. We also held a workshop with representatives from different departments to validate proposed mitigation and adaptation measures and assess whether any other risks had been neglected. The findings were then validated by the Executive Sustainability Committee.

## Using science to build a better future

In addition to the GHG reduction target under our ESG 2030 Strategy, in 2021 CBA worked to develop a science-based target through the Science Based Targets initiative, a joint effort of the CDP, the Global Compact, the World Resources Institute (WRI) and the World Wide Fund for Nature (WWF) to help companies set robust, ambitious decarbonization targets that are in line with what climate science deems necessary to maintain a habitable planet for humankind. This methodology relies on the latest climate science to ensure targets are robust and address real-world challenges so that companies' efforts are consistent with the Paris Agreement goals. Due to its complexity, few companies in the aluminum industry have joined the initiative.

CBA carried out a comprehensive assessment in which we reviewed the methodology, defined mitigation measures consistent with identified scenarios, and secured internal approval from different levels of the organization. Two proposed targets were submitted to the Science Based Targets initiative (SBTi), one for Scope 1 and 2 emissions and another for Scope 3 emissions. The targets are now pending review before they are approved and then publicly disclosed.

Following approval by the SBTi, we will deep dive into the Scope 3 emissions categories and implement the measures identified to support the approved targets.

The Legado das Águas Reserve (SP), Reservas Votorantim



**Learn more**

*about the risk assessment results in the Additional Disclosures Supplement*

The initiatives described in this chapter support SDG:



## Expanding recycling

GRI 103-1, 103-2, 103-3: 301 Materials

Reusing materials is an important way to mitigate stresses on available natural resources and minimize consumption of raw materials. And aluminum, which is infinitely recyclable, is widely recognized as a solution for developing less resource-intensive and more circular value chains.

Among our priorities at CBA is increasing the rates at which we recycle aluminum scrap from our own and third-party production processes, as well as post-consumer scrap. Recycling provides an added source of metal that allows our facilities to increase their production output and profitability, while generating savings on raw materials, inputs and electricity. Recycled aluminum also has a smaller carbon footprint, as it eliminates the most carbon-intensive production steps.

Under our ESG Strategy, we have set several goals related to achieving a circular aluminum value chain by 2030:

- **Increase the ratio of aluminum recycled** from industrial and end-of-life scrap at Metalex to 80%
- **Increase the ratio of aluminum recycled** from industrial and end-of-life scrap in billet production at the Alumínio (SP) plant to 50%
- **Increase the ratio** of scrap collected from external sources for recycling
- **Recycle 40,000 metric tons** of cartons and flexible packaging per year

Several different initiatives have been implemented to support these goals, including the following.

**Overall recycling rate CBA-8**  
 (Raw materials or recycled materials used, including internal scrap materials consumed)

Recycled input materials used	2019		2020			2021		
	Alumínio Plant	Metalex	Alumínio Plant	Metalex	Itapissuma	Alumínio Plant	Metalex	Itapissuma
Customer scrap recycled (t)	19,389	42,599	15,048	42,752	2,459	10,785	45,164	948
Third party-purchased scrap (t)	4,372	913	3,283	88	0	2,529	0	0
Internal scrap consumed (t)	63,259	0	62,525	7,234	29,774	77,432	8,198	34,232
Total raw materials consumed – including molten aluminum, ingots and scrap (t)	337,947	69,288	386,087	76,837	70,770	444,470	85,068	77,899
Percentages recycled (%)	25.7%	62.8%	20.9%	65.2%	45.5%	20.4%	62.7%	45.2%
	32.1%		30.6%			29.5%		

able to process scrap materials with a higher level of contaminants for the production of billets containing recycled material. Currently only contaminant-free industrial scrap can be used. The new station will have a processing capacity of 100,000 metric tons per year, and will be built at a cost of R\$ 100 million.

With the start of operation slated for 2023, the new line will not only allow more customers to deliver their scrap for processing, but will also boost the scrap content in the billets produced at Metalex from 60% to 80%. This will reduce the facility’s consumption of primary aluminum, which requires approximately 95% more electricity to produce than aluminum made from recycled scrap.

**EXPANSION AT METALEX**

GRI 103-1, 103-2, 103-3: 301 Materials

Metalex is a dedicated recycling facility that produces billets from aluminum scrap and ingots. Located in Araçariguama (SP), the facility was expanded in the year from a production capacity of 75,000 metric tons per year to 90,000 metric tons, and is currently installing a complete scrap separation and processing line.

Metalex achieved certification against the ASI (Aluminium Stewardship Initiative) Performance Standard in 2021, attesting to its commitment to upholding the highest standards of governance and sustainability.

**New side-well furnace**

In November, Metalex started operation of a new Casthouse melting furnace dedicated to scrap recycling. Known as a side-well furnace (because it is charged from the side), the new unit will expand the facility’s billet production capacity from 75,000 metric tons to 90,000 metric tons per year, in a total investment of R\$ 17 million.

**Scrap treatment line**

Construction of a new scrap separation line has also been approved at the facility. The new line will be



Employee at Metalex (SP)

## RECYCLING MORE PACKAGING

CBA's ReAl project, an initiative that has developed groundbreaking technology for recycling the aluminum content in multilayered cartons and flexible packaging, made important progress in 2021. A patent application was successfully filed for the new technology, and the pilot plant was optimized to demonstrate that aluminum-plastic separation is 100% efficient, allowing the two materials to be fully recycled.

In addition to recycling the aluminum and other packaging components, the project will also help to increase recycling rates, supporting a circular economy as well as new sources of livelihood for waste pickers. Aluminum is the most value-added product found in waste, and the most sought-after waste item for waste pickers.

The new process will create added value for the entire packaging supply chain and its different actors, while generating lower operating costs and environmental impacts. Construction of the new plant, in an estimated investment of R\$ 65 million, has now been approved, and the first module—with a processing capacity of 24,000 metric tons (wet basis) per year of multilayered packaging—is planned

to start operation in 2023. Meanwhile, partnerships are being established with flexible packaging suppliers or customers interested in purchasing the separated plastic, such as recycling cooperatives.

To inform and better structure our strategy for strengthening these cooperatives, CBA and the Votorantim Institute conducted a survey of the carton and flexible packaging recycling chain. The survey had three objectives: identify sources of raw materials for the ReAl project (creating positive social impact and shared value in the recycling chain); quantitatively assess the recycling strategies of large packaging producers; and leverage existing initiatives to develop new projects adjacent to CBA's businesses.



Stock image. This photo of a model not wearing a mask was taken before the COVID-19 pandemic

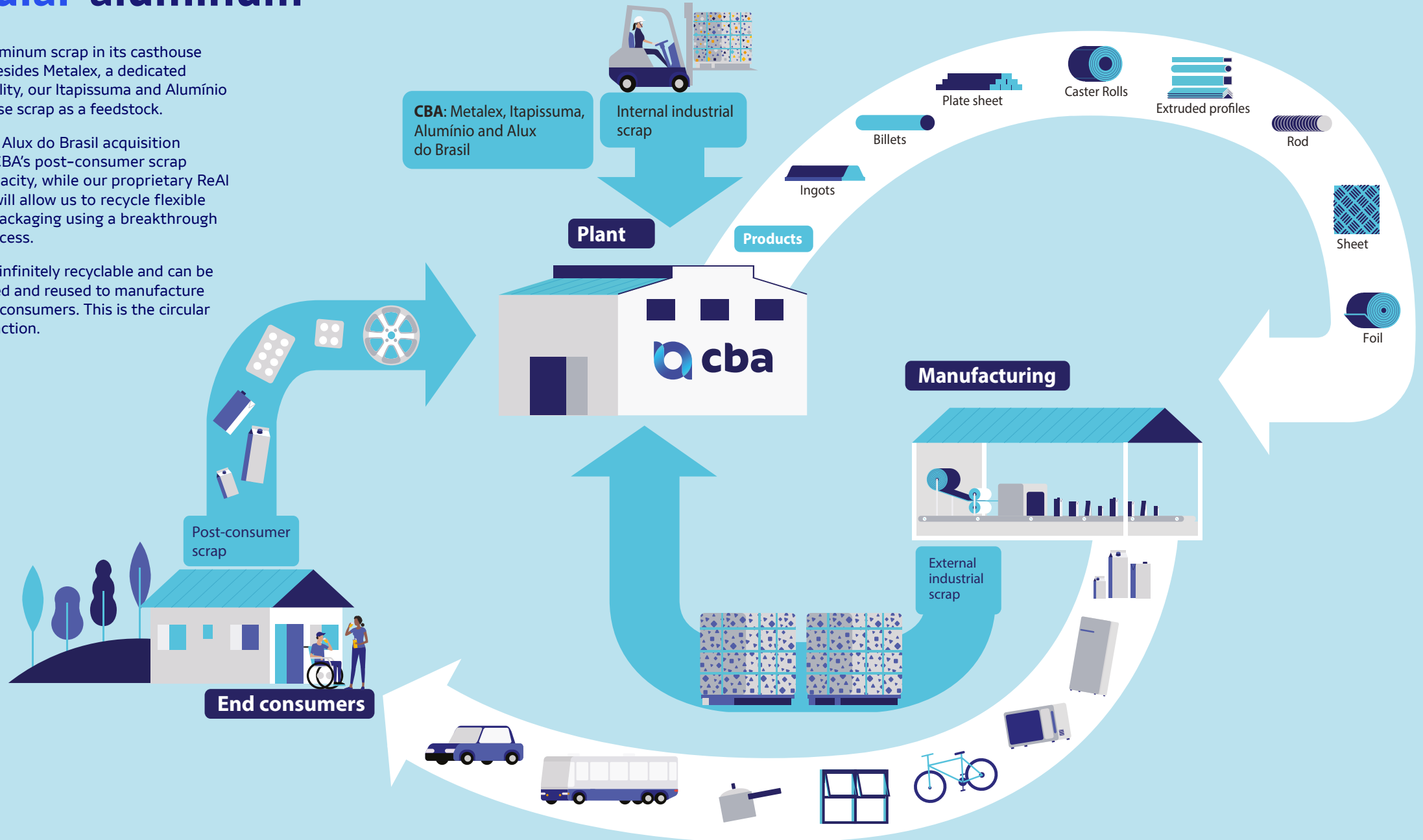


# Circular aluminum

CBA uses aluminum scrap in its casthouse processes. Besides Metalex, a dedicated recycling facility, our Itapissuma and Alumínio Plants also use scrap as a feedstock.

In 2022, our Alux do Brasil acquisition will expand CBA's post-consumer scrap recycling capacity, while our proprietary ReAl technology will allow us to recycle flexible and carton packaging using a breakthrough chemical process.

Aluminum is infinitely recyclable and can be endlessly used and reused to manufacture products for consumers. This is the circular economy in action.



A casthouse at Alux do Brasil, Nova Odessa (SP)



## OTHER RECYCLING INITIATIVES

GRI 103-1, 103-2, 103-3: 301 Materials

- **GOLF (Gestão On Line dos Fornos, or Online Smelter Management)**

This project was developed in 2021 to optimize Casthouse metal streams at the Alumínio Plant. GOLF uses artificial intelligence for decision support to improve value chain management and maximize scrap consumption by blending slow-moving scrap inventories with metal from the Smelters, as well as optimizing scrap consumption in the process. The initiative has increased remelting capacity and availability of metal at the plant.

- **BLEND**

This project has helped to boost consumption of different types of scrap by increasing plant flexibility, thus maximizing overall scrap use. In 2021 CBA recycled 3,250 metric tons of scrap of different alloys. The BLEND project enabled us to use our entire scrap inventory—which previously was only partly recoverable—generating a R\$ 13.9 million impact on working capital.

- **Alux do Brasil**

In November 2021 CBA announced its acquisition of 80% of Alux do Brasil, one of Brazil's top producers of secondary aluminum, with a production capacity of 46,000 metric tons per year. Learn more on [page 18](#).

## Waste management

GRI 103-1, 103-2, 103-3: 306 Waste,  
306-2, SASB EM-MM-150a.9

Compliant waste management is central to sustainability and our business strategy, in addition to supporting a circular economy. In our efforts to avoid waste and optimize disposal, CBA invests in improving process efficiency, seeks new alternatives to disposal, and develops partnerships to reuse the waste streams from aluminum production as raw materials in other processes, both on- and off-site.

CBA may audit waste partners depending on the criticality of the process. Waste disposal is managed using the state government's Waste Transportation Manifest (MTR) system to track the waste material through to final disposal.

Several initiatives involving co-products are also planned for the following year.



**Learn more**

about waste management at CBA, see the *Additional Disclosures Supplement*

### Waste generated by composition (in metric tons)

GRI 306-3 EM-MM-150a.7 Total weight of hazardous waste generated

	2020			2021		
	Aluminum Business	Nickel Business	Total	Aluminum Business	Nickel Business	Total
Hazardous waste (Class I)	6,821	2,858	9,679	8,909	589	9,498
Nonhazardous waste (Class II)	1,256,206	393	1,256,599	1,443,053	165	1,443,218
<b>Total</b>	<b>1,263,027</b>	<b>3,250</b>	<b>1,266,277</b>	<b>1,451,962</b>	<b>754</b>	<b>1,452,716</b>

Note: the increase in waste generated in 2021 is due to the increase in production volume in the same year.

### Waste diverted from disposal (in metric tons)

GRI 306-4

	2020			2021		
	Aluminum Business	Nickel Business	Total	Aluminum Business	Nickel Business	Total
Preparation for reuse	20,064	948	21,011	19,990	561	20,551
Recycling	36,215	181	36,396	43,248	153	43,400
Other recovery operations	2,594	1,800	4,395	4,783	0	4,784
<b>Total</b>	<b>58,873</b>	<b>2,929</b>	<b>61,802</b>	<b>68,021</b>	<b>714</b>	<b>68,735</b>

### Waste directed to disposal, by disposal operation (in metric tons)

GRI 306-5

	2020			2021		
	Aluminum Business	Nickel Business	Total	Aluminum Business	Nickel Business	Total
Incineration (with energy recovery)	6,328	10	6,339	8,287	569	8,856
Incineration (without energy recovery)	2	0	2	1	0	1
Landfilling	337	220	557	403	40	443
Other disposal operations <sup>1</sup>	1,193,571	0	1,193,571	1,390,939	0	1,390,939
<b>Total</b>	<b>1,200,237</b>	<b>230</b>	<b>1,200,468</b>	<b>1,399,631</b>	<b>609</b>	<b>1,400,239</b>

<sup>1</sup> Includes volumes stored in dams

## WASTE AS A CO-PRODUCT

CBA has a dedicated team to manage and capture environmental and financial value from waste materials. The team brings together representatives from the Environment, Procurement and Technology functions and works to create value from the waste streams generated by our production processes, by either selling or reusing them.

Below are three examples of how we have successfully created value from waste:

- **Waste from tank fouling in the alumina production process** – these materials are now being reused in the grinding stage instead of being disposed of in the dam.
- **Refractory materials from Casthouse furnaces** – these materials were previously disposed of at an on-site landfill for inert materials, and are now being sold for reuse in other industrial processes.
- **Spent potlining** – a method was developed for segregating this material into a fraction that can be used internally and another that can be sold.

### A new use for red mud

One of the goals we have set in our ESG Strategy is to send 100% of dry red mud residue for use in cement production and other applications by 2030. CBA is already considering options such as transforming this mud—which is typically stored in dams—into a co-product for use in road surfacing and to produce bricks and aggregates. To assess the feasibility of these applications, in 2021 we tested the production of cement using red mud as a raw material. The results from the first tests were promising, and additional tests at larger scale are planned for 2022. The initial tests were carried out with a ratio of 3% red mud in the production of clinker.

### Reusing oil

Aluminum rolling mills use large amounts of oil to produce aluminum sheet and foil. A proprietary technology developed as part of the CBA 4.0 Journey allows this oil to be recovered and fully restored to its original chemical properties. In 2021, the first year of operation of the new distillation plant,

more than 2 million liters of oil were recovered. Reusing this important input helps to preserve natural resources, reduce waste volumes, and improve CBA's carbon footprint. The distillation line is currently operating at full capacity, and customers can attest to the quality of our foil and sheet products.

Red mud from the Dry Refinery process with the pilot project of Dry Disposal, Alumínio Plant (SP)

The initiatives described in this chapter support SDG:



## Dam management

**GRI 103-1, 103-2, 103-3: CBA topic Dam Safety Management**  
**SASB EM-MM-540a.2, EM-MM-540a.3, EM-MM150a.10**

CBA uses dams to store residue from our mining and metals operations. Keeping these facilities safe is critical, as any dam failure can have significant impacts both on nature and on surrounding communities.

To minimize the risk from dams, we actively seek valuable uses for residues as raw materials in industrial processes, and are expanding the use of dry disposal methods. New applications for residue not only contribute to safety, but also support a circular economy in the value chain. Dams are addressed by one of the goals in our ESG Strategy—eliminate waste disposal in dams by 2030—and CBA is working to develop solutions in this direction.

CBA currently has six active mine dams and bauxite residue dams, distributed as follows: two bauxite residue dams in Alumínio (SP) and Niquelândia (GO), two mine dams in Itamarati de Minas (MG) and Miraí (MG), and two water dams in Itamarati (MG) and Niquelândia (GO). We work to align the company with best dam safety practices, and to ensure we are transparent in our dealings with regulatory

agencies and our communities. Dam safety performance is also included in our strategic variable compensation targets.

CBA uses an Integrated Dam Safety Management System (SIGBAR) to ensure compliance with the legal requirements applicable in each state. The purpose of the system is to maintain the physical integrity of our dams; coordinate routine dam monitoring (daily, weekly, fortnightly and monthly); and ensure regulatory agencies are kept informed about safety performance. Monitoring is also done via instrument readings and field inspections. An independent geotechnical firm performs monthly dam assessments vis-à-vis the data from monitoring, controls and routine inspections. Six-monthly

dam assessment reports are issued as required by Brazilian regulations. In 2019 we set up a Dam Safety Committee that meets on a weekly basis.

In 2021, preparations began to decommission the Jacuba Dam in Niquelândia. At the Palmital Dam in Alumínio, instruments have been automated and inclinometers have been installed to enhance geotechnical monitoring. At the mine dams in Itamarati de Minas and Miraí, in the Zona da Mata area of Minas Gerais, geotechnical testing is being conducted to improve the safety database. At all facilities, measures are in place to ensure the water level continues to lower within the dam.

The Palmital auxiliary dam, Alumínio Plant (SP)



## SAFER COMMUNITIES

### CBA-3

As required by Brazilian regulations, all of CBA's dams have a dedicated Dam Safety Plan (DSP) and Emergency Response Plan (ERP). Our dam safety procedures include maintaining alarm and video monitoring systems operational at all times at Alumínio Plant and Zona da Mata, registering and training residents and employees in self-rescue zones, and conducting emergency evacuation drills.

Despite the continuing pandemic, in 2021 CBA found solutions to continue to carry out emergency drills at all dam sites, with the participation of municipal, regional and state agencies. To prevent large gatherings, the drills were conducted with one representative per muster point at Zona da Mata and Niquelândia, but all other instruction and communications processes proceeded as normal.

At the Palmital dam, we again conducted a virtual drill using our Dam Warning app. We recorded 340 virtual app check-ins. Drill activities were organized in cooperation with the municipal and state civil defense departments, the state environmental agency (CETESB), the public prosecution service and, most importantly, residents in the region. In total, 75.2% of people who had downloaded the app responded to the warning and followed the drill.

In Zona da Mata, community participation in area evacuation drills was: 75% in Itamarati de Minas and 70% in Mirai.

Drill performance is measured based on the percentage of participants and ratings given in drill questionnaires. Suggestions provided in the questionnaires help identify potential areas for improvement.

### Participants in emergency drills per unit

	2019	2020	2021
Alumínio Plant	1,200	588	364
Mines	200	29	25
Niquelândia	-	29	28
<b>Total</b>	<b>1,400</b>	<b>646</b>	<b>417</b>

Note 1: For the Palmital dam drill, participation was measured based on the number of app check-ins, in addition to the 24 employees who work in the direct area of influence of the dam and were working at the Alumínio Plant at the time of the drill.

Note 2: No drills were carried out at Niquelândia in 2019.



### Learn more

about the environmental management practices in place at our mines and dams in the Additional Disclosures Supplement



A dam safety drill in Mirai (MG)

## DRYER DAM STORAGE

A dryer dam is a safer dam. CBA is investing R\$ 306 million in a filter-press project that will introduce a new residue disposal method at the Palmital bauxite residue dam in Alumínio (SP), switching from wet disposal (45% solids) to dry disposal (75% solids). Migrating to dry disposal will require the installation of a filter press to remove the liquid fraction before the bauxite residue arrives at the storage facility. The project will extend the useful life of the dam by at least 20 years, and is on track to start operation in 2024.

Meanwhile, using a pilot filter press, CBA has set up an experimental embankment within the facility to simulate dry stacking, and is conducting a range of geotechnical tests.

To support our 2024 dry disposal deadline, a technology has been deployed that allows the water within the impoundment to be reused at the Refinery, reducing the facility's water requirement. This has helped to diminish the volume of water within the dam by approximately 85.9%. Special equipment is used to separate impurities out of the water, producing clean water, calcium carbonate (which is used externally as a soil amendment) and caustic soda (which is reused at the Alumina Refinery).



The Palmital dam, in Alumínio (SP)

## Mobile bauxite beneficiation

Another project is developing a mobile beneficiation plant at a mine in Zona da Mata. In a collaboration with the Federal University of Viçosa (UFV), CBA has conducted pioneering research to eliminate the need for mine dams, significantly reducing environmental impacts from bauxite mining. A small-scale, mobile beneficiation plant is transported directly to the mine front.

Centrifuges separate the bauxite from waste rock, with the residues returning to the pit along with organic material and other soil amendments that help to rehabilitate the soil for use in agriculture. The beneficiated clay has been dubbed "Tecnosolo".

Throughout 2021, tests were carried out in a non-commercial mine area to optimize production, evaluate the soil, and firm up the conceptual design of the plant. UFV planted an experimental cornfield that produced higher yields than areas not treated with Tecnosolo, largely thanks to higher water infiltration into the soil, which supports plant growth.

Further tests are planned in 2022, this time in a production area. The first full-scale plant is expected to start operation in 2023. The total cost of the project, for which CBA has secured a patent, has been estimated at R\$ 100 million.



## Energy management

GRI 103-1, 103-2, 103-3: 302 Energy

Electricity is an essential input for the aluminum industry, and the smelting process, in particular, is especially energy intensive. Data from the São Paulo State Department of Infrastructure and the Environment show that the municipality of Alumínio is the state's second largest electricity consumer. Fortunately, Brazil's electricity mix is dominated by hydropower, which means greenhouse gas emissions from Brazilian-made aluminum are 60% lower than the global average. CBA's emissions are even lower, thanks to our 21 wholly owned and joint-venture hydropower plants, with a generation capacity for 100% of our electricity requirement.

During the year, we worked with consulting firm Accenture to develop the first stage of an Energy roadmap for all of our plants, in line with our energy efficiency culture and our ESG Strategy. The goal of the roadmap is to reduce energy intensity (electric power and fuels) and source 100% of our plants' power requirement from renewable sources by 2030. In 2022 CBA approved purchases of International

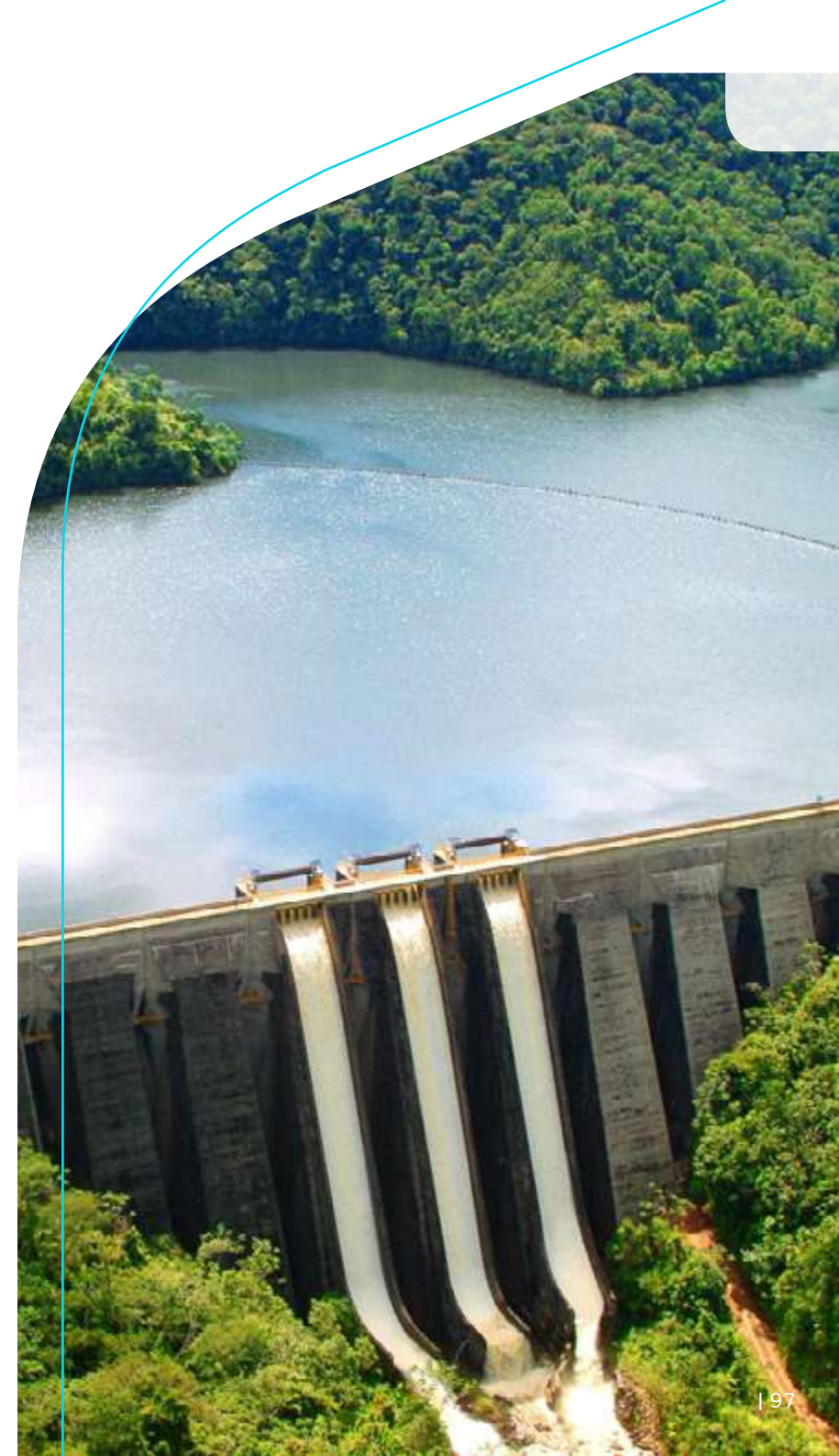
Renewable Energy Certificates (I-RECs) to ensure that 100% of the electricity we consumed in 2021 was traceable to renewable sources.

In 2022, three energy efficiency projects will reduce electricity consumption by an average of 5 MW:

- \* **Compressed air (Alumina Refinery):** a project to replace old air compressors with new ones
- \* **Lighting (Alumina Refinery, Casthouse and Extrusion):** replacing conventional light bulbs with energy-efficient models
- \* **Motors/variable frequency drives (Refinery, Smelters, Casthouse):** a project to replace old and inefficient motors with high-efficiency models coupled with variable frequency drives.

In 2021, electricity consumption rose by 10% due to higher production volumes in the year, while natural gas consumption decreased by 0.2% as a result of fueling steam boilers with biomass.

Barra HPP, Juquiá  
Complex (SP)



## ENERGY CONSUMPTION

Total energy consumption within the organization (in thousands of GJ)  
GRI 302-1 SASB EM-MM-130a.1

	2019			2020			2021		
	Aluminum Business	Nickel Business	Total	Aluminum Business	Nickel Business	Total	Aluminum Business	Nickel Business	Total
Total energy from renewable sources	60	2	62	2,709	1	2,710	3,193	1	3,194
Total energy from nonrenewable sources	7,850	18	7,868	5,035	7	5,042	5,146	11	5,157
Electricity	19,877	38	19,915	19,409	34	19,443	22,026	30	22,056
Total energy consumption within the organization (1)	27,787	58	27,845	27,153	42	27,195	30,365	42	30,407
Percentage of electricity (2)	72%	66%	72%	71%	81%	71%	73%	71%	73%
Percentage of renewable fuels (3)	0.2%	3.4%	0.2%	10%	2.2%	10%	10.5%	3.2%	10.5%

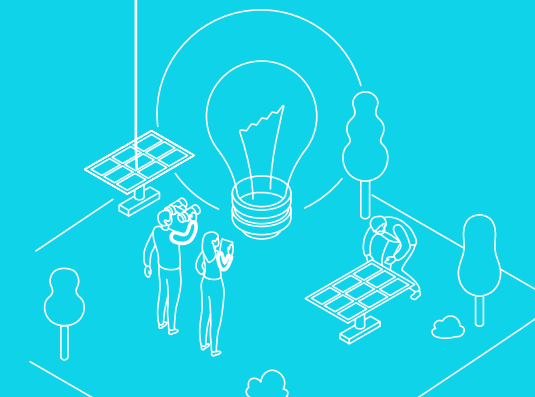
Note 1: Petroleum coke was excluded from this disclosure in 2021, because it is not used as a fuel.  
 Note 2: Total electricity consumption includes self-generated electricity and purchased electricity consumed by CBA.  
 Note 3: The input data is the same used in the CO<sub>2</sub>e emission calculations of the Brazilian GHG Protocol.  
 Note 4: The conversion factors published in the Brazilian Energy Balance (Balanço Energético Nacional) 2019 were used.

### Energy intensity by product (in GJ/t) GRI 302-3

	2020**			2021		
	Electric power	Fuels	Total	Electric power	Fuels	Total
Mines (beneficiated bauxite)	0.02	0.12	0.14	0.02	0.12	0.14
Smelters (liquid aluminum)	56.68	0.23	56.91	55.76	0.21	55.97
Alumínio Plant (finished products*)	63.68	21.99	85.67	58.51	19.49	78.00
Metalex (billets)	0.23	4.67	4.90	0.24	4.56	4.80
Itapissuma (rolled products)	5.56	14.50	20.06	6.35	16.77	23.12

\* Energy intensity data are for primary aluminum and downstream aluminum products, excluding cast product transfers to the Downstream production stage.  
 \*\* The 2020 data were restated due to a change in the indicator calculation methodology.  
 Note: The Smelting stage is included in the data for the Alumínio integrated aluminum plant; however, it is also reported separately as the most GHG-intensive stage in the process.

Initiatives in this section support SDG :



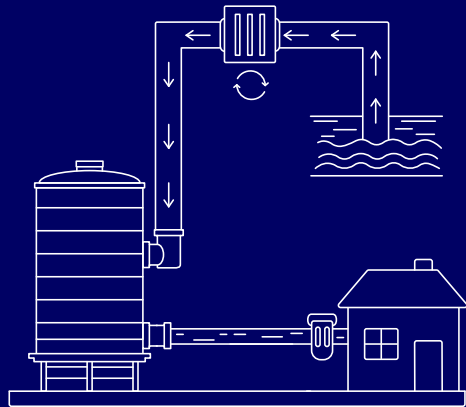
[Learn more](#)

in the Additional Disclosures Supplement

## Efficient water stewardship

GRI 103-1, 103-2, 103-3: 303 Water and effluents

The initiatives described in this chapter support SDG:



CBA is strongly committed to preserving natural resources and biodiversity, and helping to limit climate change. Water is a material issue for the aluminum industry as a critical resource in the production of aluminum. That is why CBA is committed to reducing water usage at all stages of the production process. Our ESG Strategy sets a goal to reduce water withdrawal intensity per metric ton of molten aluminum produced at the Alumínio Plant by 20% by 2030—this plant accounts for 87% of CBA’s total water requirement. Our water intensity has decreased by 10.9% since 2019, and by 1.8% last year alone.

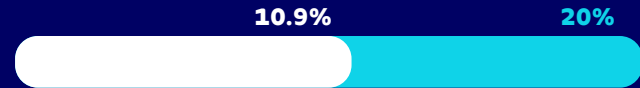
In addition, 100% of the water we use in our production processes is now treated and reused on-site, and no water is discharged off-site. In 2002 we created a closed-circuit project to treat effluents, harvest rainwater and recycle water back into the process. Our goal now is to extend water recycling to other processes still requiring water withdrawals. In 2021 we initiated a conceptual assessment of the water circuit to identify areas for improvement and increase water recycling rates.

Water withdrawals at the Alumínio Plant were 2,350,000 cubic meters in the year. Concurrently, several initiatives have

helped to enhance water efficiency in our processes. The pot room upgrade alone (learn more on [page 83](#)) is expected to reduce annual water consumption by more than 120,000 cubic meters. [GRI 303-3](#)

In our mine operations, effluents are treated at a water treatment plant and recipient water bodies are regularly monitored. In our other operations, effluents are discharged into municipal sewage systems in accordance with water quality requirements contained in applicable legislation.

**Goal of the ESG Strategy: reduce by 2030, by 20% new water consumption per ton of aluminum liquid produced in the Integrated Aluminum Plant**



**Progress until 2021 toward our target for 2030 - From a 2019 baseline**

[Learn more](#)  
about water stewardship at CBA in the Additional Disclosures Supplement

## Biodiversity stewardship

GRI 103-1, 103-2, 103-3: 304 Biodiversity

CBA also produces forests and biodiversity. As part of our sustainability governance, we work to minimize environmental impacts from our operations, restore native vegetation, and increase environmental awareness among our employees and the communities where we operate.

CBA has established a Managerial Biodiversity Management Plan and has set related goals in our ESG 2030 Strategy:

- Create/expand 1 hectare of ecological corridors for every 10 hectares of mined and reclaimed land
- 10% of key suppliers and customers co-investing in forest and biodiversity programs

Our Itapissuma facility in northeastern Brazil is nested within a protected area (Santa Cruz), and our mine operations each have their own Private Natural Heritage Reserve (PNHR).

### Habitats protected or restored (in km<sup>2</sup>) GRI 304-3

	2020	2021
Total areas protected	360.51	364.27
Total areas restored	0.54	0.01

*Note: Historical data has been restated, as the 2020 Annual Report did not consider the protected areas of the Legado das Águas and Legado Verdes do Cerrado private reserves in which CBA is a founder and maintainer.*

CBA also owns the Legado Verdes do Cerrado nature reserve and is a co-founder of the Legado das Águas reserve. Both reserves are managed by Reservas Votorantim. Initiatives in these reserves support biome conservation, new-economy business models that contribute to local development and livelihoods for communities, climate change mitigation, food security, research and innovation in biodiversity conservation, and dissemination of best practices in land use and more sustainable technologies. Learn more about activities on each of these reserves on [page 102](#).



**Learn more**

about biodiversity stewardship at CBA, see the [Additional Disclosures Supplement](#)

### The initiatives described in this chapter support SDG:



Legado Verdes do Cerrado (GO)

## Partnership with UFV

Since 2008, CBA has collaborated with the Federal University of Viçosa on three lines of research that have helped to establish a new relationship between mining, farming and the environment: Environmental Rehabilitation, Reforestation and Water Conservation.

The Environmental Rehabilitation research front develops and evaluates best-practice methods of soil management and of planting crops and native vegetation as part of the mine reclamation process. This line of research also includes mechanization and family farming.

On the Reforestation front, led by the university's Forest Restoration Laboratory, the focus is on monitoring areas that have been rehabilitated with native species, using bioindicators such as natural regeneration, canopy closure, seedling diversity, and leaf litter. Several different nucleation techniques are used, including artificial perches, topsoil, green manure and direct seeding, and new techniques are being developed to monitor Atlantic Forest restoration efforts.

The Water Conservation front, led by the university's Forest Hydrology Laboratory, assesses hydrologic processes in bauxite mining areas before, during and after mining. Research has been conducted into methods of soil aeration, improving water infiltration and reducing surface runoff.

These innovative practices have primarily benefited farmers by helping to ensure that mined land is returned to landowners in equal or better than its original condition.

### Amount of disturbed land rehabilitated (hectares)

GRI Sector supplement:  
Mining and Metals - MM1

	2019	2020	2021
<sup>1</sup> Total land disturbed and not yet rehabilitated at the start of the reporting period	88.1	84.4	69.8
Amount of land newly disturbed within the reporting period	27.4	24.7	41.7
Total amount of land newly rehabilitated within the reporting period	39.7	41.7	80.2
<sup>1</sup> Total land disturbed and not yet rehabilitated at the end of the reporting period	84.4	69.8	33.6

Note 1: Offsets are not included in the calculation.

Note 2: The historical data has been corrected and restated.

### The initiatives described in this chapter support SDG:





## A LEGACY OF PRESERVATION

The *Legado das Águas* (“Water Legacy”) and *Legado Verdes do Cerrado* (“Cerrado Green Legacy”) reserves provide nature-based solutions for both traditional and new economy activities based on sustainable land use, while supporting biodiversity protection and increasing carbon sequestration and carbon stocks in the forests they contain. CBA is one of the founders and maintainers of *Legado da Águas* and wholly owns *Legado Verdes do Cerrado*, both of which are managed by Reservas Votorantim.

*Legado das Águas* is the largest private Atlantic Forest reserve in Brazil, spreading across an area of approximately 31,000 hectares in Vale do Ribeira, São Paulo State, where seven of CBA’s hydropower plants are located. Initiatives to protect the area’s forests and rich

biodiversity began in the 1950s in an effort to preserve the Jiquiá river basin. Today, in addition to protecting water resources, the reserve now reconciles forest protection with scientific research and new economy activities such as native plant production and ecotourism.

*Legado Verdes do Cerrado* is a approximately 32,000-hectare reserve in the municipality of Niquelândia (GO) that CBA has maintained for more than 40 years. Approximately 20% of the reserve is set aside for traditional economy activities (livestock, soybean and corn crops, and commercial forestry), with the remaining 80% covered by intact native cerrado vegetation.

Both reserves have operational procedures and guidelines in place on reserve management. The following pages describe CBA’s most significant initiatives on the two reserves in 2021.

**Legado das Águas**

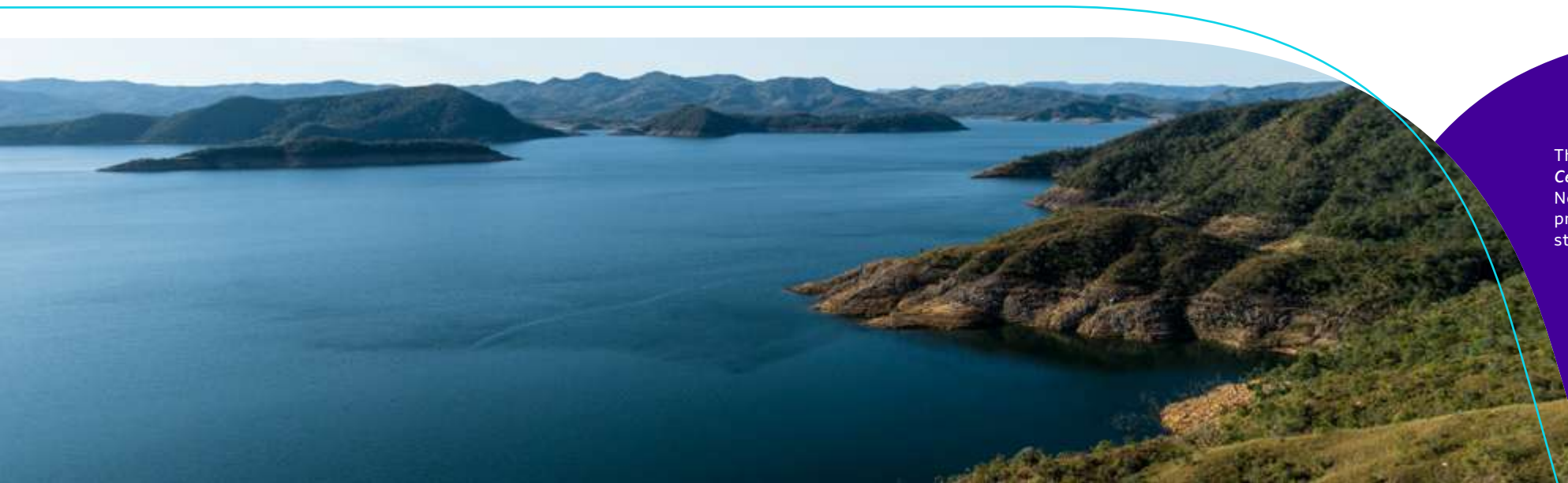
**31,000  
hectares**

in Vale do Ribeira (SP)

**Legado Verdes do Cerrado**

**32,000  
hectares**

in Niquelândia (GO)



The *Legado Verdes do Cerrado* reserve, Serra Negra, a CBA-sponsored protected area in the state of Goiás

## Legado Verdes do Cerrado (Cerrado Green Legacy)

In 2021 the *Legado Verdes do Cerrado* reserve completed the first cycle of its partnership with the Goiás Research Funding Foundation (FAPEG). The three-year collaboration involved four lines of research and more than 100 researchers. A wealth of data has been collected about the *Cerrado* biome so far.

- \* 16 new flora species have been identified, 3 of which have been reported in international journals
- \* 2 fauna species have been recorded for the first time in the state of Goiás
- \* 5 caves have been identified and cataloged, one with stalactites and stalagmites that make it a potential attraction for visitors.

Other significant research in the area has included water quality monitoring in the Traíras River and a soil analysis study in karst areas. The latter study compiled data on the large variety of soil components in the reserve, providing valuable inputs for land-use planning in areas with potential as farmland. Given the excellent outcomes from the partnership, including a draft guide on the fauna and flora of northern Goiás, the *Legado Verdes do Cerrado* reserve has agreed to expand the partnership with FAPEG to new research fronts over the coming two or three years.

Several other projects have been carried out by our own teams. One example is *Conecta Cerrado*, a project launched in April 2021 to create wildlife corridors from the reserves to our sites, harmoniously integrating the landscape and biodiversity with our production facilities.

In cropland areas, the project is creating tree buffers to mitigate edge effects and act as sanitary barriers. Another project is implementing Integrated Crop-Livestock-Forest

Systems (ICLFS). In pastureland areas, native tree species are being planted, especially baru trees, which provide not only shade for the cattle but also baru nuts as a new addition to the Reserve's product portfolio. We expect to plant approximately 250,000 native *Cerrado* seedlings by 2031.

In 2022 we plan to open the Reserve to visitors as we have done with the *Legado das Águas*.

## Fire hazards

Every year, the *Legado Verdes do Cerrado* team organizes initiatives to raise awareness about preventing forest fires during the dry season. Examples of these initiatives include community workshops on making fire flappers, fire awareness booklets distributed to schools, and periodic meetings with farmers. As another fire protection measure, we regularly clear and maintain firebreaks—strips of bare soil that prevent fires from spreading and also serve as roads for fire responders to access difficult-to-reach locations with their gear. Also as part of our fire preparedness efforts, our fire responders annually undergo retraining and reskilling

on the use of new equipment and firefighting methods.

Despite these different measures, several fire outbreaks occurred on the Reserve in 2021. Some of these fires took several days to contain and required the use of tanker airplanes to reach areas with rugged terrain. Unfortunately, approximately 5,000 hectares were affected by forest fires in the year. Despite these adverse events, the beauty of the *Cerrado* lies in its incredible resilience, as demonstrated by the returning vegetation after the wet season. In less than a year, the entire region should be restored to its original glory.

## Reflora CBA

In 2021 CBA preselected 15 smallholders in Zona da Mata Mineira and 2 in Niquelândia to participate in Reflora CBA, a program to rehabilitate disturbed land on legal reserves (LR) and in protected areas (APP). The goal of the initiative is to rehabilitate ecosystems and protect biodiversity by helping smallholders to bring their properties into compliance with the Brazilian Forest Code.

The selected properties are within a 100-kilometer radius of our operations, in an area containing *Cerrado* and Atlantic Forest formations. The *Reflora* CBA initiative will supply and plant seedlings of native species, and provide technical support to the selected smallholders.

Approximately 24 hectares will be rehabilitated in the first phase of the initiative, in the municipalities of Recreio, Argirita, Guidoal, Santos Dumont, São João Nepomuceno, Senhora dos Remédios, Itaúna, Itamarati de Minas, Miraí, Muriaé and Ewbank da Câmara, in the state of Minas Gerais, and in Niquelândia, in the state of Goiás.

The *Reflora* CBA initiative is a partnership between CBA, Instituto Votorantim and Reservas Votorantim. In the future the program will be extended to Vale do Ribeira, in the state of São Paulo, and potentially other areas where CBA operates. In the medium to long term, the reforested areas will provide ecosystem services such as climate regulation, higher spring flow, local biodiversity and carbon sequestration.

## Carbon stocks in the *cerrado*

The *Legado Verdes do Cerrado* reserve has hosted several initiatives to help neutralize carbon emissions and quantify carbon stocks in its forests. These initiatives not only support preservation but also provide a source of revenue from selling carbon credits.

As part of the Reducing Emissions from Deforestation and Forest Degradation (REDD+) *Cerrado* Program, the carbon stocks contained in defined areas of native *cerrado* vegetation are being quantified to generate carbon credits. Initiatives like these are now widespread in the Amazon as a mechanism under the United Nations Framework Convention on Climate Change (UNFCCC) to financially reward developing countries for their efforts to halt deforestation. This will be the first REDD+ project in the *Cerrado* biome, illustrating CBA's leadership on the climate agenda. The project is expected to generate 350,000 to 400,000 metric tons of carbon credits in its first year, including a retroactive period extending to 2017, when the reserve was established.

Approximately 1.3 million metric tons of carbon credits are expected over the project's full lifecycle, from 2017 to 2046.

Another project, dubbed *Neutraliza Cerrado*, aims to neutralize or mitigate greenhouse gas emissions from cattle farming through ecosystem services generated by planting native *Cerrado* tree species. In the first four months since its launch in September 2021, the project invested funds in structuring a Crop-Livestock-Forest System (ICLFS) model and planting its first seedlings, grown at the Reserve's Biodiversity Center.

This facility has a capacity to produce up to 200,000 seedlings of native *Cerrado* species per year. Currently most seedlings are used for environmental offsets in rehabilitation projects under the oversight of the State Environment Department in Goiás. In 2022 the Reserve will begin selling seedlings to other companies for reforestation programs.



The first Reducing Emissions from Deforestation and Forest Degradation (REDD+) project outside the Amazon began its certification process in December. In this initial phase, which is due to be completed in the first quarter of 2022, we expect to generate 400,000 metric tons of carbon credits from the Legado Verdes do Cerrado reserve, and another 30,000 metric tons per year thereafter."

David Canassa, Reservas Votorantim Director



The *Legado das Águas* Reserve (SP), Reservas Votorantim



### **Legado das Águas (Waters Legacy)**

The main activities carried out on the Legado das Águas reserve are ecotourism, seedling production for reforestation and landscaping, and research in different areas of biodiversity. Due to the pandemic, the Reserve was closed to visitors during the first six months of 2021. During this period, employees helped to provide social relief in neighboring cities, mostly in connection with the COVID-19 response.

Meanwhile, work began on the development of a new program, called Saúde Única. This program will use the findings from research conducted on the Reserve to inform educational initiatives for healthcare professionals in municipalities within Vale do Ribeira.

Research and environmental education activities resumed in July. As health restrictions were lifted, tourism made a strong comeback. During the year a partnership was established with Onçafari to monitor large mammals—especially jaguars—and to conduct

a study on the potential introduction of wildlife tourism as an additional attraction on the Reserve. In December, rafting was added to the Reserve's offering of family-oriented recreational activities.

In 2021, the research department started a Wildlife Monitoring Program to better document wildlife sightings on the Reserve, better leverage research findings, and optimize the use of funding for future research. The program is supported by Instituto Manacá, Onçafari and the Reserve's Public Use department, and is open to new partnerships for collaboration in research on Atlantic Forest preservation.

One of the program's first initiatives was a Wildlife Sighting Contest for Reserve employees to engage them in an effort to increase and report wildlife sightings on the Reserve. In the four first editions of the contest there have been a total of 235 wildlife sightings, a 10-fold increase from the number of sightings before the contest.

### **Seedlings for cities**

The Legado das Águas Biodiversity Center grows a wide range of seedlings for reforestation (10%) and landscaping (90%). Seedling demand has grown significantly in São Paulo on the back of a recent trend of rehabilitating native forest patches in major cities to improve thermal comfort, public health and biodiversity.

A growing number of real estate developments are also purchasing native seedlings from the Reserve as a requirement to secure sustainability certification. Reforestation projects in the region are an added source of demand. Partner companies and municipal governments plant the seedlings, for example, in public parks.

In 2021, around 79% of the Reserve's seedlings were sold for landscaping and 21% for reforestation.

- > 2021 Headlines
- > The global aluminum market
- > The Brazilian market
- > Our performance

The Rolling área  
at the Alumínio  
Plant (SP)

# Financial management

A large roll of aluminum is being moved by a yellow crane in a factory setting. The background shows a large industrial building with a glass facade and a blue-tinted sky. The text "Financial management" is overlaid on the image, with a circular arrow graphic around the word "management".

# 2021 Headlines

GRI 102-7

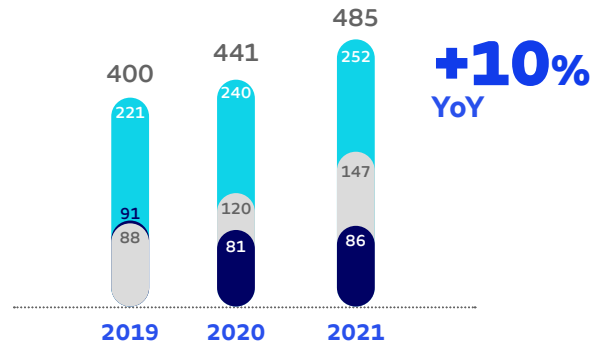
Average London Metal Exchange (LME) aluminum price

**US\$ 2,480**  
/metric ton  
(+46% YoY)

Sheet and coils,  
Alumínio Plant (SP)

**Aluminum sales volume**  
**485,000 metric tons** 10%

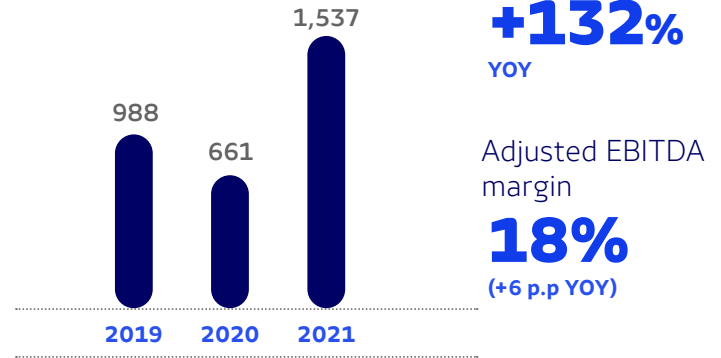
(Thousands of metric tons)



● Recycling ● Downstream ● Primary

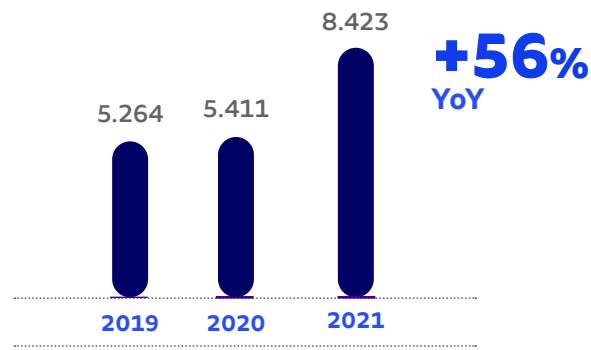
**Adjusted EBITDA**  
**R\$ 1.5 billion**

(R\$ million)



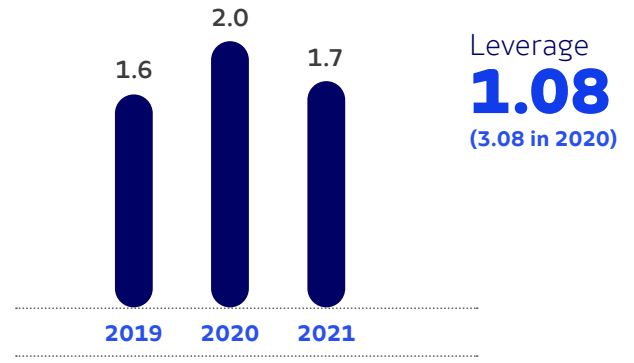
**Net revenue**  
**R\$ 8.4 billion**

(R\$ million)



**Net debt**  
**R\$ 1.7 billion**

(R\$ billion)



## The global aluminum market

**GRI 103-1, 103-2, 103-3: 201 Economic Performance, 103-3: 202 Market presence**

2021 was a highly volatile year with a rapidly changing landscape in the aluminum industry. As economies reopened on the back of growing COVID-19 vaccination rates, major global markets—including Brazil—saw a rebound in business activity, leading to higher demand for aluminum mainly in the transportation, building and construction, and consumer goods segments.

In China, which accounts for approximately 60% of global aluminum production and consumption, severe droughts coupled with a shortage of coal for the country's thermal power plants led to an energy crisis and widespread curtailment of primary aluminum production. Europe was also faced with a severe energy crisis that led to the curtailment of several smelters in the region. Consulting firm CRU estimates that approximately 4.5 Mtpa of capacity were affected across the two regions.

Global primary aluminum demand rose by 9.2% year on year, reflecting the recovery in major economies. This, coupled with reduced supply, created a deficit of more than 1 Mt in the global market, down from a surplus of 1.9 Mt in the previous year. Stocks continued on a downward trend throughout the year, reaching as low as 52 days of consumption, one of the lowest levels on record.

A tightening physical market, combined with higher logistics costs, led to a sustained increase in regional premiums: in the US, Midwest duty unpaid premium rose from US\$ 96/t in 2020 to US\$ 342/t in 2021, a gain of 256%; Rotterdam duty unpaid premium increased by 122% from US\$ 97/t to US\$ 216/t in the same period.

Global industry costs rose sharply in 2021, primarily driven by higher energy and alumina prices. CRU Liquid Metal Cost increased by 34% year on year, from US\$ 1,540/t to US\$ 2,061/t,

with Chinese smelters experiencing an even greater cost increase of 42%. CBA recorded a lower than industry average cost increase of 11%, helped by vertical integration with alumina production and power generation\*.

Against this backdrop, London Metal Exchange (LME) aluminum prices surged during the year, averaging US\$ 2,480/t, an increase of 46% from an average of US\$ 1,704/t in 2020, reflecting positive fundamentals in the global aluminum market.

*\*Source: CRU Smelter Cost Model Q12021*

### Foreign-Exchange & LME Price

R\$/US\$	1Q19	2Q19	3Q19	4Q19	1Q20	2Q20	3Q20	4Q20	1Q21	2Q21	3Q21	4Q21
Average FX rate	3.77	3.92	3.97	4.12	4.47	5.39	5.38	5.39	5.48	5.29	5.23	5.59
Average LME Price	1,859	1,793	1,762	1,752	1,690	1,497	1,704	1,916	2,096	2,400	2,648	2,762
R\$ /US\$	2019				2020				2021			
Average FX rate	3.95				5.16				5.40			
Average LME Price	1,791				1,704				2,480			

## The Brazilian market

The Brazilian market performed strongly in 2021, driven by growing demand across most segments. According to the Brazilian Aluminum Association (ABAL), aluminum demand rose by 21.6% in the first half and is expected to end the year at an average growth rate of 12.2%, with aluminum consumption setting a record of 1,598 kt in the year, higher than the previous peak of 1,513 kt in 2013. This represented a significant recovery from a -4.2% slump in consumption due to the pandemic in 2020.

The consumer goods segment showed particularly strong demand, largely driven by government income transfer programs and changing consumer patterns. The transportation segment continued its recovery, with the truck body sub-segment experiencing a surge in demand fueled by e-commerce growth and the economic recovery. The packaging segment (excluding beverage cans) was flat in the year, but with the share of imported products decreasing substantially; the beverage can market grew strongly in the year, driven by new consumer behavior. An upswing in the building and construction segment, and especially home renovations, was another important driver of aluminum consumption in the year.

Despite the weakening of the Brazilian real and rising logistics costs and lead times, aluminum imports grew in the year to meet the strong domestic demand. CBA continued to focus on the domestic market and capturing further market share from imported products, leveraging our location in the Southeast—Brazil's top aluminum-consuming region—and the ability to promptly fulfill customer orders.

Premiums in Brazil grew in tandem with international premiums, albeit at a milder rate as aluminum stocks in the country were at less critical levels. DDP SE (Platts), for example, rose from US\$ 273/t in 2020 to US\$ 353/t in 2021, an increase of 29%.

### LME Passport

CBA is listed on LME Passport, the London Metal Exchange's (LME) digital platform for sustainability disclosures. Our presence on this platform reinforces our commitment to transparency and to building a more sustainable world, by disseminating good practices across the value chain and promoting aluminum as the metal of choice for a greener future.

Extruded profile

### NEW OPPORTUNITIES AS A PUBLICLY TRADED COMPANY

July 15, 2021 was a watershed moment for CBA as we listed on the São Paulo Stock Exchange. After completing our IPO, our shares began trading under the ticker symbol CBAV3 on Novo Mercado, an enhanced governance listing segment on B3. CBAV3 stock was priced at R\$ 11.20 on July 14, 2021 and ended the year, on December 30, priced at R\$ 13.67,

### XP and BTG Pactual ESG portfolios

CBA stock has been included in the recommended ESG portfolios of investment banks XP and BTG Pactual. Analysts at these institutions noted that CBA is one of the most cost-competitive assets in the industry and has the advantage of using 100% renewable power in its production process. In its portfolio report, BTG assessed that CBA has high ESG standards and is well poised to capitalize on future decarbonization trends globally.

appreciating by 22.1% as Brazil’s benchmark stock index, IBOVESPA, dropped 18.4% over the same period in 2021.

CBA’s successful listing reflects the strength of the Votorantim Group’s values of integrity, collaboration and courage. The IPO crowns the efforts of a sustainable and competitive company that takes care of its employees and is committed to ethics and to delivering the best for customers, while also supporting Brazil’s development. It is also a validation of our long-term strategy to retain global leadership in the production of low-carbon aluminum.

As a publicly traded company, CBA’s visibility in the market will increase, as more information is required to be publicly disclosed. Demand for information will also

be met through events with banks and investors and guided visits to our facilities to offer a better understanding of the aluminum industry. Thanks to our strong ESG performance, CBA has been included in the investment portfolio recommendations of several Brazilian and international financial institutions.

### SHARE OWNERSHIP

**GRI 102-5, 102-10**

Our controlling shareholder, Votorantim S.A., owns 75.9% of CBA’s common stock, with the remaining 24.1% of common shares held as free float. CBA does not have a dual-class share structure, meaning shareholders are entitled to one vote per common share. Having “one share, one vote” helps to align economic ownership with voting power and ensures that no shareholder class has more voting power than its economic ownership.

Share ownership	Common shares	%
Controlling shareholders	452,083,333	75.9
Free float	143,750,000	24.1
Total	595,833,333	100.0



## Our performance

GRI 102-7

### ALUMINUM SALES

Aluminum sales grew by 10% year on year, from 441,000 metric tons in 2020 to 485,000 metric tons in 2021. The sales growth reflects the positive momentum in the Brazilian market, driven by strong demand across most segments, and especially in transportation, consumer goods, building & construction, and packaging.

Primary aluminum sales grew by 5% in the year, with especially significant growth of 45% in sales of higher value-added products. Expanding automotive production and strong demand from the aluminum beverage can market were important drivers of Primary sales performance.

In the Downstream Business, sales increased by 22% in the year to 147,000 metric tons, with 35% growth in sheet sales, 65% in extruded product sales, and 4% in foil sales. Notably, sales volume has now returned to pre-pandemic levels.

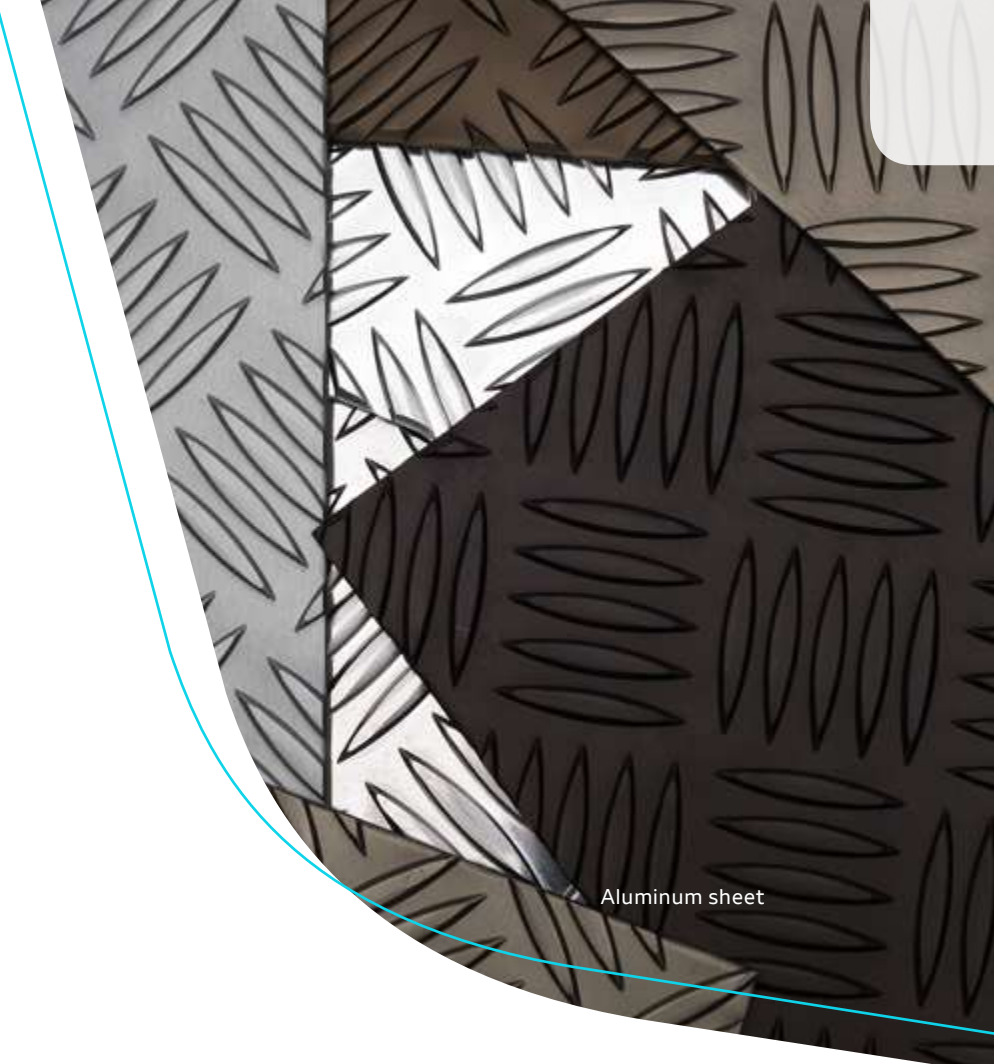
Recycling volumes rose by 7% in 2021 to 86,000 metric tons, largely driven by an increase in billet volumes sold to the building and construction industry.

### POWER CONSUMPTION AND PRODUCTION

From September 2020 to August 2021 Brazil's National Grid saw the lowest rainfall in several years. The less-than-usual rainfall during the wet season was unable to fully replenish the country's hydroelectric reservoirs, resulting in limited hydroelectric generation capacity during the year. As a result, thermal power stations were dispatched at a higher cost to meet demand, lifting electricity prices to the regulatory cap during most of the year. Electricity prices in 2021 peaked at R\$ 375/MWh (in August). By December, electricity prices had fallen to R\$ 280/MWh.

To preserve reservoir levels and minimize the risk of blackouts and rationing, the government and regulators created a Voluntary Demand Reduction Program designed to mitigate the risk of peak-period blackouts through peak shaving. CBA joined the program without this affecting aluminum production, by shifting demand from the National Grid, making an important contribution to the peak-load reduction seen during the first weeks of the program.

Historically, CBA's generation assets and power purchase agreements have supplied more electricity than we consume. Prices under bilateral agreements rose by 40% year on year due to the lower rainfall. Because generation output was reduced while operating costs were maintained, our average self-generation costs increased.



Aluminum sheet

### NET REVENUE GRI 102-7

Consolidated net revenue was R\$ 8.4 billion, a 56% year-on-year increase reflecting a significant 63% net-revenue gain in the aluminum business. The increase was largely driven by higher LME aluminum prices, which averaged US\$ 2,480/t in 2021.

CBA reported a loss of R\$ 845 million on hedging transactions in the year, due primarily to the higher LME prices in the period. Hedges are used to make operating cash flows more predictable by tagging the price of a commodity to a foreign-exchange rate using derivatives contracts. After completing our IPO, CBA made no further hedging transactions after June 2021, but a number of contracts remained outstanding up to May 2022.

Net revenue from the Energy business, derived from the sale of surplus electricity sold to the market before the eliminations corresponding to energy generated and consumed between the Company's segments, fell by 9%.

### COST OF GOODS SOLD

Consolidated cost of goods sold increased by 41% in 2021, reflecting cost inflation in the global industry as a result of a rapid rebound in demand, the energy crisis, supply-chain disruptions and higher logistics costs.

Molten aluminum production costs rose by 18% on the back of higher prices for alumina (+7%), coal-tar pitch (+19%) and coke (+64%), the latter two affecting the cost of producing anode paste (+36%). Electricity prices also increased (+52%) as a result of spot-market purchases under volatile market conditions, especially during the water crisis.

### EBITDA

Consolidated adjusted EBITDA result by R\$ 1.5 billion in 2021, largely reflecting improved performance in the aluminum business, driven mainly by rising LME aluminum prices coupled with higher sales volumes. Downstream and value-added products showed especially strong performance, delivering on our strategy of marketing products with a higher value added content.

### NET INCOME

Net income was a record R\$ 838 million in 2021 compared with a net loss of R\$ 880 million in the previous year, primarily as a result of favorable market conditions, including higher aluminum volumes and pricing, coupled with the reversal of the negative balance of other operating income (expense).

In addition, CBA recognized R\$ 225 million in deferred IR/CSLL on tax losses and negative tax base, over an estimated minimum recovery horizon of two years, taking account of the improving macro economic conditions and their impacts on projected profits.

Aluminum frames

A decorative graphic in the bottom right corner of the page, featuring a series of parallel, slightly curved lines in shades of green, teal, and brown, resembling aluminum frames or a modern architectural design. The lines are arranged in a way that creates a sense of depth and movement, with some lines appearing to recede into the distance.

## FREE CASH FLOW

CBA posted strong cash flow in 2021, boosted by improved aluminum business margins on the back of higher LME prices per ton coupled with the strengthening of the US dollar against the real. These factors more than offset the negative effect on costs from the water crisis in Brazil. Not including the R\$ 657 million raised via the IPO, cash flows would still have been positive despite the higher working capital investment in trade accounts receivable and inventory. Conversely, CBA disinvested in working capital primarily through the use of tax credits related to the exclusion of ICMS from the PIS/COFINS tax base.

Trade accounts receivable (including factored receivables) increased mainly as a result of higher LME prices as well as higher purchase and sales volumes. The inventory balance increased as a result of cost inflation and a larger ingot inventory held for trading and of increase of strategic inputs..


Strategic hedges negatively affected cash flows by R\$ 46 million in the year. These hedges are being discontinued in 2022, indicating the potential for higher operating cash flows once these derivatives instruments have matured.

## INDEBTEDNESS AND LIQUIDITY

CBA's debt is largely denominated in US dollars, including swaps from floating rates in reais to fixed rates in US dollars for loans from the Brazilian Development Bank (BNDES). Not including the swaps, 85% of CBA's debt was denominated in US dollars and 6% in reais.

Gross debt was R\$ 3.1 billion as of December 2021, increasing by 5% year on year primarily due to the weakening of the Brazilian real against the US dollar by 7% in the period. Cash and cash equivalents were R\$ 1.8 billion, with 81% denominated in reais.

Net debt was R\$ 1.7 billion, including derivative financial instruments. Financial leverage, measured as the ratio of net debt to last-twelve-month adjusted EBITDA, decreased from 3.08x as of December 2020 to 1.08x as of December 2021, largely reflecting inflows from the IPO (a total of R\$ 657 million) and a R\$ 875 million increase in operating income for the twelve-month period ended December 2021.



Billets produced  
at Alumínio  
Plant (SP)

### Green bonds and debentures issues

In September 2021 CBA obtained a revolving credit facility of US\$ 100 million in replacement of a US\$ 200 million credit facility held by Votorantim S.A., to which CBA was party. Securing this facility underlines our commitment to reducing greenhouse gas (GHG) emissions from our operations—the contract contains sustainability-linked pricing terms requiring annual emissions reductions up to 2025.

The facility received a second-party opinion from Sustainalytics, which considered the GHG reduction target to be highly ambitious and particularly material, given that it measures performance on relevant and material issues for the aluminum industry, it follows a clear, consistent and externally verifiable methodology, and it directly measures CBA's GHG emissions performance. The new facility, with a maturity of five years, was obtained from a syndicate of eight financial

institutions and can be drawn on at any time during the contract.

In December CBA also carried out its first issue of debentures, for a total of R\$ 230 million. The debentures were issued as green bonds under a framework which consulting firm Sitawi reviewed and confirmed as being aligned with green bond principles, as the net proceeds will be used toward projects aiming to improve the environmental performance of CBA's production facilities. The debentures mature on June 15, 2029 and will be amortized in equal installments on June 15, 2028 and December 15, 2028.

In addition, the Brazilian Development Bank (BNDES) disbursed R\$ 79 million under a loan primarily used toward maintaining production capacity at and modernizing the Alumínio Plant. This was the last disbursement under a loan contract entered into in 2019 and maturing in 2034.



A casthouse at Alumínio Plant (SP)

  
**Learn more**  
on the CBA  
investor relations  
website



Roberto Seno Júnior, technology manager at the pilot ReAl plant

## NICKEL BUSINESS

CBA's nickel business consists of two plants in Niquelândia (GO) and São Miguel Paulista (SP). The two facilities were placed under temporary suspension in February 2016 due to market factors. In a bid to dispose of the business, in 2020 CBA entered into a purchase option agreement with Australian miner Jervois to sell the nickel cobalt refinery in São Miguel Paulista, subject to certain conditions present. The acquisition is expected to be closed in 2022.

In 2008 CBA began to develop a ferronickel project that was halted that same year due to the financial crisis. In 2020, CBA signed a contract to sell the equipment that had been purchased for the project, which is currently pending fulfillment of precedent conditions. CBA is also exploring options for the remaining nickel operation in Niquelândia. One option being considered is the construction of a solar farm at the site to produce renewable electricity, taking advantage of the facility's connection to the National Grid. This operation includes a residue dam that has been approved for decommissioning.

## NEW INVESTMENT

In the IPO process, CBA pledged to invest in expansion projects and upgrades that reconcile business gains with social and environmental benefits:

- **Pot Room Technology Upgrade:** an ongoing project currently in the procurement phase, with a staged startup schedule running from 2023 to 2025.
- **Dry disposal:** civil works have commenced, with dry waste disposal expected to begin in 2024.
- **ReAl:** approved for implementation and now in procurement.
- **Production expansion through recycling:** the startup of the Sidewell melting furnace in 2021 completed the first stage of the project. In the second stage, a scrap treatment line will be installed, with startup planned for 2023.
- **Rondon Bauxite Project:** work in progress to secure the environmental license, develop logistics solutions and update the economic feasibility study. Startup: 2026.
- **Renewable energy:** phase 1—replacing hydropower with wind power (acquisition of the Ventos de Santo Anselmo and Santo Isidoro wind farms)—was completed in August 2021, with startup scheduled for 2023. Phase 2, involving new projects, is currently in a prospecting stage, with startup planned in 2024.

The pot room technology upgrade, dry disposal and recycling projects are described in further detail in the chapter Environmental preservation.

As a publicly traded company, CBA is prepared to carry through with these projects to create value for our shareholders, communities and other stakeholders.

## Rondon Bauxite Project

The Rondon Bauxite Project, named after its host municipality of Rondon (PA), in northern Brazil, is currently one of CBA’s largest investments, estimated at R\$ 2 billion. The project is currently working to secure the required environmental licenses, especially for rail logistics.

Ore reserves are estimated at 1.8 billion metric tons\*, and one of the project’s differentiators is that it will operate with no dams—dewatered clay will be returned directly to the mine pit. It will therefore be a fully circular operation, with no residues disposal or storage. The Port of Itaquí (MA), which has a deep enough draft for large ore carriers, has been proposed to be used to export the mined bauxite ore.

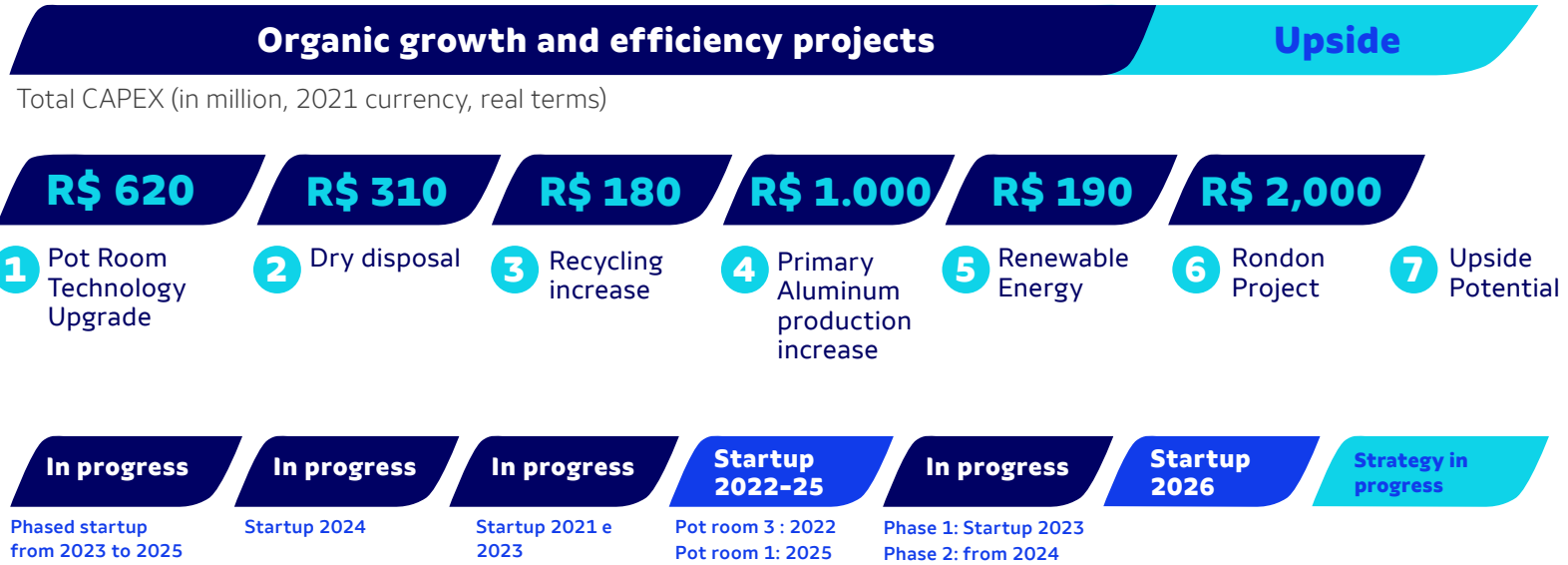
The Rondon Bauxite Project is being structured as a scalable operation. Its initial mining capacity of 4.5 million metric tons of bauxite per year will be scalable to 18 million metric tons per year. In 2021 the mine’s social impact assessments were updated to gain an understanding of the project’s host municipalities and assess the potential for social development and job creation. Current plans are to complete the feasibility studies and information gathering by the end of 2022, and then intensify talks with potential partners with a view to implementation by 2026.

\*Potential resource at Rondon has been estimated at 1.8 billion metric tons of wet-basis bauxite (10% moisture).

Meanwhile, our acquisition of an 80% stake in Alux do Brasil in November marks our strategic entry into a new market segment: that of secondary alloys for the automotive industry.

In total, CBA invested R\$ 63 million in new growth and upgrade projects in 2021. All new investments have clear growth levers and apply discipline in capital allocation. And all are sustainable initiatives that meet stringent ESG requirements.

## Significant planned or ongoing projects



[Click here](#)  
To view our earnings releases and financial statements, please visit the CBA investor relations website



# Future readiness

> Message from the Executive  
Sustainability Committee

Stock image. This photo of a  
model not wearing a mask was  
taken before the COVID-19  
pandemic



The Legado das Águas Reserve (SP), Reservas Votorantim

At CBA we believe the future is now. And that aluminum has an important part to play in building that future. Light, durable, flexible and infinitely recyclable, aluminum epitomizes humanity’s desire to make an energy transition and move from a fossil-fuel economy to one of renewable energy.

CBA recognizes that our actions can positively impact this transformation and can reach far beyond our own industry.

Future readiness, as we see it, means having suppliers that share our sustainable practices. It means investing in co-creation with our customers, in our relationships with the communities where we operate, and in protecting biodiversity.

Within our own operations, future readiness is about investing in new recycling fronts, accelerating the circular economy, catalyzing innovation to drive down emissions, waste and costs, and daring to go public and venture into new and promising business opportunities, such as wind and solar power.

At CBA we believe this new approach to doing business is here to stay: an

approach that reconciles financial results with sustainability. ESG is integral to our business—both grow hand-in-hand. It is no longer enough to focus only on productivity, product quality and sales performance. There is an urgent need to combine these aspects with a positive agenda across the environmental, social and governance dimensions—being ethical in everything we do, taking care of society, and doing our utmost to minimize impacts from climate change. After all, our planet belongs to all of us and is a shared responsibility of people, governments and companies alike.

Only this way, by doing what we believe is right, will CBA—already a recognized leader in low-carbon aluminum—be able to effectively respond to global demand for increasingly sustainable products, and continue to produce aluminum solutions that transform people’s lives.

Only this way will we be able to inspire and engage our industry around more responsible business practices. So that tomorrow meets our expectations today, and the future becomes a grander present.

**Message from the Executive Sustainability Committee**

# GRI and SASB Content Index



Billets at  
Metalex (SP)

## GRI CONTENT INDEX GRI 102-55



For the Materiality Disclosures Service, GRI Services reviewed that the GRI content index is clearly presented and the references for Disclosures 102-40 to 102-49 align with appropriate sections in the body of the report. The service was performed on the Brazilian Portuguese version of the report.

GRI 101: Foundation 2016					
GRI Standards	Disclosure		Page and/or link	Comments or reason for omission	Assurance
<b>Organizational profile</b>					
GRI 102: General disclosures 2016	102-1	Name of the organization	Annual Report, p. <a href="#">4</a>		
	102-2	Activities, brands, products, and services	Annual Report, p. <a href="#">12</a> , <a href="#">15</a> , <a href="#">16</a> , <a href="#">24</a> , <a href="#">26</a>		
	102-3	Location of headquarters	Annual Report, p. <a href="#">16</a>		
	102-4	Location of operations	Annual Report, p. <a href="#">16</a>		
	102-5	Ownership and legal form	Annual Report, p. <a href="#">110</a>		
	102-6	Markets served	Annual Report, p. <a href="#">12</a> , <a href="#">15</a> , <a href="#">16</a> , <a href="#">18</a> , <a href="#">24</a> , <a href="#">26</a>		
	102-7	Scale of the organization	Annual Report, p. <a href="#">9</a> , <a href="#">16</a> , <a href="#">17</a> , <a href="#">56</a> , <a href="#">107</a> , <a href="#">111</a> , <a href="#">112</a>		
	102-8	Information on employees and other workers	<a href="#">Additional Disclosures Supplement, p. 20</a>		Disclosure assured
	102-9	Supply chain	<a href="#">Additional Disclosures Supplement, p. 16</a>		Disclosure assured
	102-10	Significant changes to the organization and its supply chain	Annual Report, p. <a href="#">16</a> , <a href="#">18</a> , <a href="#">110</a> <a href="#">Additional Disclosures Supplement, p. 48</a>		Disclosure assured
	102-11	Precautionary principle or approach	Annual Report, p. <a href="#">45</a>		Disclosure assured
	102-12	External initiatives	Annual Report, p. <a href="#">37</a>		
	102-13	Membership of associations	<a href="#">Additional Disclosures Supplement, p. 9</a>		
<b>Strategy</b>					
GRI 102: General disclosures 2016	102-14	Statement from senior decision-maker	Annual Report, p. <a href="#">7</a> , <a href="#">8</a>		

## GRI CONTENT INDEX GRI 102-55

GRI Standards	Disclosure		Page and/or link	Comments or reason for omission	Assurance
<b>Ethics and integrity</b>					
GRI 102: General disclosures 2016	102-16	Values, principles, standards, and norms of behavior	Annual Report, p. <a href="#">41</a>		
<b>Governance</b>					
GRI 102: General disclosures 2016	102-18	Governance structure	Annual Report, p. <a href="#">39</a> <a href="#">Additional Disclosures Supplement, p. 10</a>		
	102-22	Composition of the highest governance body and its committees	Annual Report, p. <a href="#">39</a> <a href="#">Additional Disclosures Supplement, p. 10</a>		
	102-23	Chair of the highest governance body	<a href="#">Additional Disclosures Supplement, p. 10</a>		
	102-24	Nominating and selecting the highest governance body	<a href="#">Additional Disclosures Supplement, p. 13</a>		
	102-35	Remuneration policies	<a href="#">Additional Disclosures Supplement, p. 8</a>		Disclosure assured
	102-36	Process for determining remuneration	<a href="#">Additional Disclosures Supplement, p. 8</a>		Disclosure assured
<b>Stakeholder engagement</b>					
GRI 102: General disclosures 2016	102-40	List of stakeholder groups	<a href="#">Additional Disclosures Supplement, p. 3</a>		Disclosure assured
	102-41	Collective bargaining agreements	<a href="#">Additional Disclosures Supplement, p. 24</a>		Disclosure assured
	102-42	Identifying and selecting stakeholders	<a href="#">Additional Disclosures Supplement, p. 3</a>		Disclosure assured
GRI 102: General disclosures 2016	102-43	Approach to stakeholder engagement	Annual Report, p. <a href="#">3</a> <a href="#">Additional Disclosures Supplement, p. 48</a>		Disclosure assured
	102-44	Key topics and concerns raised	<a href="#">Additional Disclosures Supplement, p. 4</a>		Disclosure assured

## GRI CONTENT INDEX GRI 102-55

GRI Standards	Disclosure		Page and/or link	Comments or reason for omission	Assurance
<b>Reporting practices</b>					
GRI 102: General disclosures 2016	102-45	Entities included in the consolidated financial statements	<a href="#">Additional Disclosures Supplement, p. 48</a>		Disclosure assured
	102-46	Defining report content and topic Boundaries	Annual Report, p. <a href="#">5</a> Additional Disclosures Supplement, p. <a href="#">5</a> , <a href="#">6</a>		Disclosure assured
	102-47	List of material topics	Additional Disclosures Supplement, p. <a href="#">4</a>		Disclosure assured
	102-48	Restatements of information	Additional Disclosures Supplement, p. <a href="#">8</a>		
	102-49	Changes in reporting	Additional Disclosures Supplement, p. <a href="#">4</a>	Disclosures CBA-2 and 303-5 have been removed as they are irrelevant to an assessment of CBA's water consumption.	
	102-50	Reporting period	Additional Disclosures Supplement, p. <a href="#">4</a>		
	102-51	Date of most recent report		Annual Report 2020	
	102-52	Reporting cycle	Additional Disclosures Supplement, p. <a href="#">4</a>		
	102-53	Contact point for questions regarding the report	Additional Disclosures Supplement, p. <a href="#">5</a>		
	102-54	Claims of reporting in accordance with the GRI Standards	Additional disclosures supplement, p. <a href="#">4</a>		
	102-55	GRI Content Index	Annual Report, p. <a href="#">120</a>		Disclosure assured
102-56	External assurance	Annual Report, p. <a href="#">138</a>		Disclosure assured	

## GRI CONTENT INDEX GRI 102-55

GRI Standards	Disclosure		Page and/or link	Comments or reason for omission	Assurance
<b>Material topic: Local development and impacts on surrounding communities</b>					
<b>Indirect economic impacts</b>					
GRI 103: Management approach 2016	103-1	Explanation of the material topic and its Boundary	Annual Report, p. <a href="#">71</a>		
	103-2	The management approach and its components	Annual Report, p. <a href="#">71</a>		
	103-3	Evaluation of the management approach	Annual Report, p. <a href="#">71</a>		
GRI 203: Indirect economic impacts 2016	203-1	Infrastructure investments and services supported	Annual Report, p. <a href="#">75</a>		
	203-2	Significant indirect economic impacts	Annual Report, p. <a href="#">73</a>		
<b>Procurement practices</b>					
GRI 103: Management approach 2016	103-1	Explanation of the material topic and its Boundary	Annual Report, p. <a href="#">51</a>		
	103-2	The management approach and its components	Annual Report, p. <a href="#">51</a>		
	103-3	Evaluation of the management approach	Annual Report, p. <a href="#">51</a>		
GRI 204: Procurement practices 2016	204-1	Proportion of spending on local suppliers	Additional Disclosures Supplement, p. <a href="#">16</a>		
<b>Local communities</b>					
GRI 103: Management approach 2016	103-1	Explanation of the material topic and its Boundary	Annual Report, p. <a href="#">71</a>		
	103-2	The management approach and its components	Annual Report, p. <a href="#">71</a>		
	103-3	Evaluation of the management approach	Annual Report, p. <a href="#">71</a>		
GRI 413: Local communities 2016	413-1	Operations with local community engagement, impact assessments, and development programs	Annual Report, p. <a href="#">73</a> Additional Disclosures Supplement, p. <a href="#">29</a>		Disclosure assured
	413-2	Operations with significant actual and potential negative impacts on local communities	Additional Disclosures Supplement, p. <a href="#">29</a>		Disclosure assured
CBA disclosure: Local development and impacts on surrounding communities	CBA-10	Social investment	Annual Report, p. <a href="#">73</a> Additional Disclosures Supplement, p. <a href="#">29</a>		Disclosure assured
Sector supplement: Mining and Metals	MM7	The extent to which grievance mechanisms were used to resolve disputes relating to land use, customary rights of local communities and Indigenous Peoples, and the outcomes	Additional Disclosures Supplement, p. <a href="#">14</a>		Disclosure assured

GRI CONTENT INDEX **GRI 102-55**

GRI Standards	Disclosure		Page and/or link	Comments or reason for omission	Assurance
<b>Material topic: Ethics and compliance</b>					
<b>Anti-corruption</b>					
GRI 103: Management approach 2016	103-1	Explanation of the material topic and its Boundary	Annual Report, p. <a href="#">43</a>		
	103-2	The management approach and its components	Annual Report, p. <a href="#">43</a>		
	103-3	Evaluation of the management approach	Annual Report, p. <a href="#">43</a>		
GRI 205: Anti-corruption 2016	205-2	Communication and training on anti-corruption policies and procedures	Annual Report, p. <a href="#">43</a>		Disclosure assured
	205-3	Confirmed incidents of corruption and actions taken	Additional Disclosures Supplement, p. <a href="#">16</a>		Disclosure assured
<b>Environmental compliance</b>					
GRI 103: Management approach 2016	103-1	Explanation of the material topic and its Boundary	Additional Disclosures Supplement, p. <a href="#">30</a>		
	103-2	The management approach and its components	Additional Disclosures Supplement, p. <a href="#">30</a>		
	103-3	Evaluation of the management approach	Additional Disclosures Supplement, p. <a href="#">30</a>		
GRI 307: Environmental compliance 2016	307-1	Non-compliance with environmental laws and regulations	Additional Disclosures Supplement, p. <a href="#">30</a>		Disclosure assured
<b>Socioeconomic compliance</b>					
GRI 103: Management approach 2016	103-1	Explanation of the material topic and its Boundary	Annual Report, p. <a href="#">43</a>		
	103-2	The management approach and its components	Annual Report, p. <a href="#">43</a>		
	103-3	Evaluation of the management approach	Annual Report, p. <a href="#">43</a>		
GRI 419: Socioeconomic compliance 2016	419-1	Non-compliance with laws and regulations in the social and economic area	Additional Disclosures Supplement, p. <a href="#">49</a>		Disclosure assured

## GRI CONTENT INDEX GRI 102-55

GRI Standards	Disclosure		Page and/or link	Comments or reason for omission	Assurance
<b>Material topic: Materials efficiency and aluminum recycling</b>					
<b>Materials</b>					
GRI 103: Management approach 2016	103-1	Explanation of the material topic and its Boundary	Annual Report, p. <a href="#">87</a> , <a href="#">88</a> , <a href="#">91</a>		
	103-2	The management approach and its components	Annual Report, p. <a href="#">87</a> , <a href="#">88</a> , <a href="#">91</a>		
	103-3	Evaluation of the management approach	Annual Report, p. <a href="#">87</a> , <a href="#">88</a> , <a href="#">91</a>		
GRI 301: Materials 2016	301-2	Recycled input materials used	Additional Disclosures Supplement, p. <a href="#">30</a>		Disclosure assured
CBA disclosure: Materials efficiency and aluminum recycling	CBA-8	Overall recycling rate	Annual Report, p. <a href="#">88</a>		Disclosure assured
<b>Energy</b>					
GRI 103: Management approach 2016	103-1	Explanation of the material topic and its Boundary	Annual Report, p. <a href="#">97</a>		
	103-2	The management approach and its components	Annual Report, p. <a href="#">97</a>		
	103-3	Evaluation of the management approach	Annual Report, p. <a href="#">97</a>		
GRI 302: Energy 2016	302-1	Energy consumption within the organization	Annual Report, p. <a href="#">98</a>		Disclosure assured
	302-3	Energy intensity	Annual Report, p. <a href="#">98</a> Additional Disclosures Supplement, p. <a href="#">42</a>		Disclosure assured

## GRI CONTENT INDEX GRI 102-55

GRI Standards	Disclosure		Page and/or link	Comments or reason for omission	Assurance
<b>Material topic: Water stewardship</b>					
<b>Water and effluents</b>					
GRI 103: Management approach 2016	103-1	Explanation of the material topic and its Boundary	Annual Report, p. <a href="#">99</a>		
	103-2	The management approach and its components	Annual Report, p. <a href="#">99</a>		
	103-3	Evaluation of the management approach	Annual Report, p. <a href="#">99</a>		
GRI 303: Water and effluents 2018	303-1	Interactions with water as a shared resource	Additional Disclosures Supplement, p. <a href="#">42</a>		
	303-2	Management of water discharge-related impacts	Additional Disclosures Supplement, p. <a href="#">42</a>		Disclosure assured
	303-3	Water withdrawal	Additional Disclosures Supplement, p. <a href="#">43</a>		Disclosure assured
	303-4	Water discharge	Additional Disclosures Supplement, p. <a href="#">43</a>		Disclosure assured
CBA disclosure: Water stewardship	CBA-11	Water intensity by product	Additional Disclosures Supplement, p. <a href="#">43</a>		

GRI CONTENT INDEX **GRI 102-55**

GRI Standards	Disclosure		Page and/or link	Comments or reason for omission	Assurance
<b>Material topic: Protection of biodiversity</b>					
<b>Biodiversity</b>					
GRI 103: Management approach 2016	103-1	Explanation of the material topic and its Boundary	Annual Report, p. <a href="#">100</a> Additional Disclosures Supplement, p. <a href="#">45</a>		
	103-2	The management approach and its components	Annual Report, p. <a href="#">100</a> Additional Disclosures Supplement, p. <a href="#">45</a>		
	103-3	Evaluation of the management approach	Annual Report, p. <a href="#">100</a> Additional Disclosures Supplement, p. <a href="#">45</a>		
GRI 304: Biodiversity 2016	304-2	Significant impacts of activities, products, and services on biodiversity	Additional Disclosures Supplement, p. <a href="#">46</a>		
	304-3	Habitats protected or restored	Annual Report, p. <a href="#">100</a> Additional Disclosures Supplement, p. <a href="#">47</a>		Disclosure assured
Sector supplement: Mining and Metals	MM1	Amount of land (owned or leased, and managed for production activities or extractive use) disturbed or rehabilitated	Annual Report, p. <a href="#">101</a>		Disclosure assured
	MM2	The number and percentage of total sites identified as requiring biodiversity management plans according to stated criteria, and the number (percentage) of those sites with plans in place	Additional Disclosures Supplement, p. <a href="#">46</a>		Disclosure assured
CBA disclosure: Materials efficiency and aluminum recycling	CBA-6	Payment of mining taxes	Additional Disclosures Supplement, p. <a href="#">39</a>		

## GRI CONTENT INDEX GRI 102-55

GRI Standards	Disclosure		Page and/or link	Comments or reason for omission	Assurance
<b>Material topic: Climate change</b>					
<b>Emissions</b>					
GRI 103: Management approach 2016	103-1	Explanation of the material topic and its Boundary	Annual Report, p. <a href="#">80</a> Additional Disclosures Supplement, p. <a href="#">34</a>		
	103-2	The management approach and its components	Annual Report, p. <a href="#">80</a> Additional Disclosures Supplement, p. <a href="#">34</a>		
	103-3	Evaluation of the management approach	Annual Report, p. <a href="#">80</a> Additional Disclosures Supplement, p. <a href="#">34</a>		
GRI 305: Emissions 2016	305-1	Direct (Scope 1) GHG emissions	Annual Report, p. <a href="#">82</a> Additional Disclosures Supplement, p. <a href="#">30</a>		Disclosure assured
	305-2	Energy indirect (Scope 2) GHG emissions	Annual Report, p. <a href="#">82</a> Additional Disclosures Supplement, p. <a href="#">30</a>		Disclosure assured
	305-3	Other indirect (Scope 3) GHG emissions	Annual Report, p. <a href="#">82</a> Additional Disclosures Supplement, p. <a href="#">30</a>		Disclosure assured
	305-4	GHG emissions intensity	Annual Report, p. <a href="#">82</a> Additional Disclosures Supplement, p. <a href="#">31</a>		Disclosure assured
	305-7	Nitrogen oxides (NOX), sulfur oxides (SOX), and other significant air emissions	Additional Disclosures Supplement, p. <a href="#">34</a>		Disclosure assured

GRI CONTENT INDEX **GRI 102-55**

GRI Standards	Disclosure		Page and/or link	Comments or reason for omission	Assurance
<b>Material topic: Waste management</b>					
<b>Waste</b>					
GRI 103: Management approach 2016	103-1	Explanation of the material topic and its Boundary	Annual Report, p. <a href="#">92</a> Additional Disclosures Supplement, p. <a href="#">35</a>		
	103-2	The management approach and its components	Annual Report, p. <a href="#">92</a> Additional Disclosures Supplement, p. <a href="#">35</a>		
	103-3	Evaluation of the management approach	Annual Report, p. <a href="#">92</a> Additional Disclosures Supplement, p. <a href="#">35</a>		
GRI 306: Waste 2020	306-1	Waste generation and significant waste-related impacts	Additional Disclosures Supplement, p. <a href="#">35</a>		
	306-2	Management of significant waste-related impacts	Annual Report, p. <a href="#">92</a> Additional Disclosures Supplement, p. <a href="#">35</a>		
	306-3	Waste generated	Annual Report, p. <a href="#">92</a> Additional Disclosures Supplement, p. <a href="#">35</a>		Disclosure assured
	306-4	Waste diverted from disposal	Annual Report, p. <a href="#">92</a> Additional Disclosures Supplement, p. <a href="#">36</a>		Disclosure assured
	306-5	Waste directed to disposal	Annual Report, p. <a href="#">92</a> Additional Disclosures Supplement, p. <a href="#">37</a>		Disclosure assured
Sector supplement: Mining and Metals	MM3	Total amounts of overburden, rock, tailings, and sludges and their associated risks	Additional Disclosures Supplement, p. <a href="#">41</a>		Disclosure assured
CBA disclosure: Waste management	CBA-7	Significant spills	Additional Disclosures Supplement, p. <a href="#">38</a>		Disclosure assured

## GRI CONTENT INDEX GRI 102-55

GRI Standards	Disclosure		Page and/or link	Comments or reason for omission	Assurance
<b>Material topic: Employee safety, health and well-being</b>					
<b>Occupational health and safety</b>					
GRI 103: Management approach 2016	103-1	Explanation of the material topic and its Boundary	Annual Report, p. <a href="#">66</a>		
	103-2	The management approach and its components	Annual Report, p. <a href="#">66</a>		
	103-3	Evaluation of the management approach	Annual Report, p. <a href="#">66</a>		
GRI 403: Occupational health and safety 2018	403-1	Occupational health and safety management system	Annual Report, p. <a href="#">66</a>		
	403-2	Hazard identification, risk assessment, and incident investigation	Annual Report, p. <a href="#">66</a> , <a href="#">67</a>		
	403-3	Occupational health services	Additional Disclosures Supplement, p. <a href="#">26</a>		
	403-4	Worker participation, consultation, and communication on occupational health and safety	Annual Report, p. <a href="#">66</a> , <a href="#">67</a>		
	403-5	Worker training on occupational health and safety	Annual Report, p. <a href="#">67</a>		
	403-6	Promotion of worker health	Additional Disclosures Supplement, p. <a href="#">26</a>		
	403-7	Prevention and mitigation of occupational health and safety impacts directly linked by business relationships	Annual Report, p. <a href="#">67</a>		
	403-8	Workers covered by an occupational health and safety management system	Additional Disclosures Supplement, p. <a href="#">28</a>		
	403-9	Work-related injuries	Additional Disclosures Supplement, p. <a href="#">27</a>		Disclosure assured
	403-10	Work-related ill health	Additional Disclosures Supplement, p. <a href="#">28</a>		

## GRI CONTENT INDEX GRI 102-55

GRI Standards	Disclosure		Page and/or link	Comments or reason for omission	Assurance
<b>Material topic: Diversity and inclusion of minorities</b>					
<b>Diversity and equal opportunity</b>					
GRI 103: Management approach 2016	103-1	Explanation of the material topic and its Boundary	Annual Report, p. <a href="#">57</a>		
	103-2	The management approach and its components	Annual Report, p. <a href="#">57</a>		
	103-3	Evaluation of the management approach	Annual Report, p. <a href="#">57</a>		
GRI 405: Diversity and equal opportunity 2016	405-1	Diversity of governance bodies and employees	Additional Disclosures Supplement, p. <a href="#">23</a>		
	405-2	Ratios of basic salary and remuneration of women to men	Additional Disclosures Supplement, p. <a href="#">24</a>		Disclosure assured
<b>Material topic: Innovation and technology</b>					
<b>Innovation and technology</b>					
GRI 103: Management approach 2016	103-1	Explanation of the material topic and its Boundary	Annual Report, p. <a href="#">22</a> , <a href="#">24</a> , <a href="#">26</a>		
	103-2	The management approach and its components	Annual Report, p. <a href="#">22</a> , <a href="#">24</a> , <a href="#">26</a>		
	103-3	Evaluation of the management approach	Annual Report, p. <a href="#">22</a> , <a href="#">24</a> , <a href="#">26</a>		
CBA disclosure: Innovation and technology	CBA-1	Investments in technology and innovation	Annual Report, p. <a href="#">25</a> Additional Disclosures Supplement, p. <a href="#">7</a>		
	CBA-5	Financial and Sustainability Gains from Competitiveness Management	Annual Report, p. <a href="#">46</a> Additional Disclosures Supplement, p. <a href="#">9</a>		Disclosure assured
<b>Material topic: Dam safety management</b>					
<b>Dam safety management</b>					
GRI 103: Management approach 2016	103-1	Explanation of the material topic and its Boundary	Annual Report, p. <a href="#">94</a>		
	103-2	The management approach and its components	Annual Report, p. <a href="#">94</a>		
	103-3	Evaluation of the management approach	Annual Report, p. <a href="#">94</a>		
CBA disclosure: Dam safety management	CBA-3	Number of participants in emergency drills	Annual Report, p. <a href="#">95</a>		Disclosure assured
	CBA-4	Volume of water removed from the dam	Additional Disclosures Supplement, p. <a href="#">41</a>		Disclosure assured

## GRI CONTENT INDEX GRI 102-55

GRI Standards	Disclosure		Page and/or link	Comments or reason for omission	Assurance
<b>Non-material topics</b>					
<b>Economic performance</b>					
GRI 103: Management approach 2016	103-1	Explanation of the material topic and its Boundary	Annual Report, p. <a href="#">108</a>		
	103-2	The management approach and its components	Annual Report, p. <a href="#">108</a>		
	103-3	Evaluation of the management approach	Annual Report, p. <a href="#">108</a>		
<b>Market presence</b>					
GRI 103: Management approach 2016	103-1	Explanation of the material topic and its Boundary	Annual Report, p. <a href="#">71</a>		
	103-2	The management approach and its components	Annual Report, p. <a href="#">71</a>		
	103-3	Evaluation of the management approach	Annual Report, p. <a href="#">108</a>		
GRI 202: Market presence 2016	202-1	Ratios of standard entry level wage by gender compared to local minimum wage	Additional Disclosures Supplement, p. <a href="#">27</a>		
<b>Employment</b>					
GRI 103: Management approach 2016	103-1	Explanation of the material topic and its Boundary	Annual Report, p. <a href="#">62</a> Additional Disclosures Supplement, p. <a href="#">25</a>		
	103-2	The management approach and its components	Annual Report, p. <a href="#">62</a> Additional Disclosures Supplement, p. <a href="#">25</a>		
	103-3	Evaluation of the management approach	Annual Report, p. <a href="#">62</a> Additional Disclosures Supplement, p. <a href="#">25</a>		
GRI 401: Employment 2016	401-1	New employee hires and employee turnover	Additional Disclosures Supplement, p. <a href="#">25</a>		Disclosure assured

GRI CONTENT INDEX **GRI 102-55**

GRI Standards	Disclosure		Page and/or link	Comments or reason for omission	Assurance
<b>Non-material topics (cont.)</b>					
<b>Human rights assessment</b>					
GRI 103: Management approach 2016	103-1	Explanation of the material topic and its Boundary	Additional Disclosures Supplement, p. <a href="#">15</a>		
	103-2	The management approach and its components	Annual Report, p. <a href="#">36</a> Additional Disclosures Supplement, p. <a href="#">15</a>		
	103-3	Evaluation of the management approach	Additional Disclosures Supplement, p. <a href="#">15</a>		
GRI 412: Human rights assessment 2016	412-1	Operations that have been subject to human rights reviews or impact assessments	Additional Disclosures Supplement, p. <a href="#">15</a>		Disclosure assured
	412-2	Employee training on human rights policies or procedures	Additional Disclosures Supplement, p. <a href="#">15</a>		
	412-3	Significant investment agreements and contracts that include human rights clauses or that underwent human rights screening	Additional Disclosures Supplement, p. <a href="#">16</a>		
<b>Contaminated site remediation</b>					
GRI 103: Management approach 2016	103-1	Explanation of the material topic and its Boundary	Additional Disclosures Supplement, p. <a href="#">45</a>		
	103-2	The management approach and its components	Additional Disclosures Supplement, p. <a href="#">45</a>		
	103-3	Evaluation of the management approach	Additional Disclosures Supplement, p. <a href="#">45</a>		
CBA disclosure: Contaminated site remediation	CBA-9	Contaminated sites	Additional Disclosures Supplement, p. <a href="#">45</a>		

## SASB CONTENT INDEX

SASB Disclosure	Accounting metric	Page and/or link	Comments	Assurance
<b>Greenhouse gas emissions</b>				
EM-MM-110a.1	Gross global Scope 1 emissions, percentage covered under emissions-limiting regulations (excluding voluntary regulations)	Annual Report, p. <a href="#">82</a> Additional Disclosures Supplement, p. <a href="#">30</a>		Disclosure assured
EM-MM-110a.2	Description of long-term and short-term strategy or plan to manage Scope 1 emissions, emission-reduction targets, and an analysis of performance against those targets	Annual Report, p. <a href="#">82</a> Additional Disclosures Supplement, p. <a href="#">32</a>		Disclosure assured
<b>Air quality</b>				
EM-MM-120a.1	Air emissions for the following pollutants: (1) CO, (2) NOx (excluding N2O), (3) SOx, (4) particulate matter (PM10), (5) mercury (Hg), (6) lead (Pb), and (7) volatile organic compounds (VOCs)	Additional Disclosures Supplement, p. <a href="#">34</a>		Disclosure assured
<b>Energy management</b>				
EM-MM-130a.1	(1) Total energy consumed, (2) percentage grid electricity, (3) percentage renewable	Annual Report, p. <a href="#">98</a>		Disclosure assured
<b>Water stewardship</b>				
EM-MM-140a.1	EM-MM-140a.1 (1) Total water withdrawn and (2) total water consumed, percentage of each in regions with High or Extremely High Baseline Water Stress	Additional Disclosures Supplement, p. <a href="#">43</a>		Disclosure assured
EM-MM-140a.2	Number of incidents of non-compliance associated with water quality permits, standards, and regulations	Additional Disclosures Supplement, p. <a href="#">45</a>		Disclosure assured
<b>Waste &amp; Hazardous Materials Management</b>				
EM-MM-150a.4	Total weight of non-mineral waste generated	Additional Disclosures Supplement, p. <a href="#">35</a>		Disclosure assured
EM-MM-150a.5	Total weight of tailings produced	Additional Disclosures Supplement, p. <a href="#">41</a>		
EM-MM-150a.6	Total weight of waste rock generated	Additional Disclosures Supplement, p. <a href="#">41</a>		Disclosure assured
EM-MM-150a.7	Total weight of hazardous waste generated	Additional Disclosures Supplement, p. <a href="#">35</a>		Disclosure assured

## SASB CONTENT INDEX

SASB Disclosure	Accounting metric	Page and/or link	Comments	Assurance
<b>Waste &amp; Hazardous Materials Management (cont.)</b>				
EM-MM-150a.8	Total weight of hazardous waste recycled	Additional Disclosures Supplement, p. <a href="#">36</a>		Disclosure assured
EM-MM-150a.9	Number of significant incidents associated with hazardous materials and waste management	Annual Report, p. <a href="#">92</a> Additional Disclosures Supplement, p. <a href="#">35</a>		
EM-MM150a.10	Description of waste and hazardous materials management policies and procedures for active and inactive operations	Annual Report, p. <a href="#">94</a>		
<b>Biodiversity Impacts</b>				
EM-MM-160a.1	Description of environmental management policies and practices for active sites	Additional Disclosures Supplement, p. <a href="#">16</a> , <a href="#">38</a>		Disclosure assured
EM-MM-160a.2	Percentage of mine sites where acid rock drainage is: (1) predicted to occur, (2) actively mitigated, and (3) under treatment or remediation	Additional Disclosures Supplement, p. <a href="#">50</a>	Not applicable	
EM-MM-160a.3	Percentage of (1) proved and (2) probable reserves in or near sites with protected conservation status or endangered species habitat	Additional Disclosures Supplement, p. <a href="#">50</a>		Disclosure assured
<b>Security, Human Rights &amp; Rights of Indigenous Peoples</b>				
EM-MM-210a.1	Percentage of (1) proved and (2) probable reserves in or near areas of conflict	Additional Disclosures Supplement, p. <a href="#">50</a>		Disclosure assured
EM-MM-210a.2	Percentage of (1) proved and (2) probable reserves in or near indigenous land	Additional Disclosures Supplement, p. <a href="#">50</a>		Disclosure assured
EM-MM-210a.3	Discussion of engagement processes and due diligence practices with respect to human rights, indigenous rights, and operation in areas of conflict	Additional Disclosures Supplement, p. <a href="#">15</a>		Disclosure assured
<b>Community relations</b>				
EM-MM-210b.1	Discussion of process to manage risks and opportunities associated with community rights and interests	Annual Report, p. <a href="#">71</a> Additional Disclosures Supplement, p. <a href="#">16</a>		Disclosure assured
EM-MM-210b.2	Number and duration of non-technical delays	Additional Disclosures Supplement, p. <a href="#">50</a>	There were no non-technical delays in the reporting period. Collective negotiations are due to take place within the following 12 months.	Disclosure assured

## SASB CONTENT INDEX

SASB Disclosure	Accounting metric	Page and/or link	Comments	Assurance
<b>Labor/management relations</b>				
EM-MM-310a.1	Percentage of active workforce covered under collective bargaining agreements, broken down by U.S. and foreign employees	Additional Disclosures Supplement, p. <a href="#">24</a>		Disclosure assured
EM-MM-310a.2	Number and duration of strikes and lockouts	Additional Disclosures Supplement, p. <a href="#">50</a>	There have been no strikes and/or lockouts in the previous three years.	Disclosure assured
<b>Workforce Health &amp; Safety</b>				
EM-MM-320a.1	(1) MSHA all-incidence rate, (2) fatality rate, (3) near miss frequency rate (NMFR) and (4) average hours of health, safety, and emergency response training for (a) full-time employees and (b) contract employees	Additional Disclosures Supplement, p. <a href="#">28</a>	The MSHA all-incidence rate is zero for the period, as there were no injuries at our mine sites. There were no fatalities in the period.	Disclosure assured
<b>Business Ethics &amp; Transparency</b>				
EM-MM-510a.1	Description of the management system for prevention of corruption and bribery throughout the value chain	Annual Report, p. <a href="#">43</a>		
EM-MM-510a.2	Production in countries that have the 20 lowest rankings in Transparency International's Corruption Perception Index	Additional Disclosures Supplement, p. <a href="#">50</a>	Not applicable	
<b>Tailings Storage Facilities Management</b>				
EM-MM-540a.1	Tailings storage facility inventory table: (1) facility name, (2) location, (3) ownership status, (4) operational status, (5) construction method, (6) maximum permitted storage capacity, (7) current amount of tailings stored, (8) consequence classification, (9) date of most recent independent technical review, (10) material findings, (11) mitigation measures, (12) site-specific EPRP	Additional Disclosures Supplement, p. <a href="#">39</a>		Disclosure assured
EM-MM-540a.2	Summary of tailings management systems and governance structure used to monitor and maintain the stability of tailings storage facilities	Annual Report, p. <a href="#">94</a>		
EM-MM-540a.3	Approach to development of Emergency Preparedness and Response Plans (EPRPs) for tailings storage facilities	Annual Report, p. <a href="#">94</a>		
EM-MM-000.A	Production of (1) metal ores and (2) finished metal products	Annual Report, p. <a href="#">17</a>		
EM-MM-000.B	Total number of employees, percentage contractors	Additional Disclosures Supplement, p. <a href="#">20</a> , <a href="#">21</a>		Disclosure assured

# Independent auditor's limited assurance report on the non-financial information included in the 2021 Annual Report

To the Board of Directors and Stockholders  
Companhia Brasileira de Alumínio  
Alumínio – SP

## Introduction

We have been engaged by Companhia Brasileira de Alumínio ("Company" or "CBA") to present our limited assurance report on the non-financial information included in the 2021 Annual Report of CBA for the year ended December 31, 2021.

Our limited assurance does not cover prior-period information, or any other information disclosed together with the 2021 Annual Report, including any incorporated images, audio files or videos.

## Responsibilities of the management of Companhia Brasileira de Alumínio

The management of CBA is responsible for:

- selecting or establishing adequate criteria for the preparation and presentation of the information included in the 2021 Annual Report;
- preparing the information in accordance with the criteria and guidelines of the Global Reporting Initiative (GRI-Standards), Sustainability Accounting Standards Board (SASB), and with the basis of preparation developed by the Company;

- designing, implementing and maintaining internal controls over the significant information for the preparation of the information included in the Annual Report, which is free from material misstatement, whether due to fraud or error.

## Independent auditor's responsibility

Our responsibility is to express a conclusion on the non-financial information included in the 2021 Annual Report, based on our limited assurance engagement carried out in accordance with the Technical Communication CTO 01 – Issuance of Assurance Reports related to Sustainability and Social Responsibility, issued by the Federal Accounting Council (CFC), based on the Brazilian standard NBC TO 3000, "Assurance Engagements Other than Audit and Review", also issued by the CFC, which is equivalent to the international standard ISAE 3000, "Assurance engagements other than audits or reviews of historical financial information", issued by the International Auditing and Assurance Standards Board (IAASB). Those standards require that the auditor complies with ethical requirements, independence requirements, and other responsibilities of these standards, including those regarding the application of the Brazilian Quality Control Standard (NBC PA 01) and, therefore, the maintenance of a comprehensive quality control system, including documented

policies and procedures on the compliance with ethical requirements, professional standards and relevant legal and regulatory requirements.

Moreover, the aforementioned standards require that the work be planned and performed to obtain limited assurance that the non-financial information included in the 2021 Annual Report, taken as a whole, is free from material misstatement.

A limited assurance engagement conducted in accordance with the Brazilian standard NBC TO 3000 and ISAE 3000 mainly consists of making inquiries of management and other professionals of CBA involved in the preparation of the information, as well as applying analytical procedures to obtain evidence that allows us to issue a limited assurance conclusion on the information, taken as a whole. A limited assurance engagement also requires the performance of additional procedures when the independent auditor becomes aware of matters that lead him to believe that the information disclosed in the Annual Report taken as a whole might present significant misstatements.

The procedures selected are based on our understanding of the aspects related to the compilation, materiality, and presentation of the information included in the 2021 Annual Report,

other circumstances of the engagement and our analysis of the activities and processes associated with the significant information disclosed in the 2021 Annual Report in which significant misstatements might exist. The procedures comprised, among others:

- (a) planning the work, taking into consideration the materiality and the volume of quantitative and qualitative information and the operating and internal control systems that were used to prepare the information included in the 2021 Annual Report;
- (b) understanding the calculation methodology and the procedures adopted for the compilation of indicators through inquiries of the managers responsible for the preparation of the information;
- (c) applying analytical procedures to quantitative information and making inquiries regarding the qualitative information and its correlation with the indicators disclosed in the 2021 Annual Report;
- (d) and when non-financial data relate to financial indicators, comparing these indicators with the financial statements and/or accounting records.

The limited assurance engagement also included the analysis of the compliance with the guidelines and criteria of the Global Reporting Initiative (GRI-Standards), Sustainability Accounting Standards Board (SASB) and the

provisions established in the basis of preparation developed by the Company.

We believe that the evidence we have obtained is sufficient and appropriate to provide a basis for our limited assurance conclusion.

### Scope and limitations

The procedures applied in a limited assurance engagement vary in nature and timing and are less detailed than those applied in a reasonable assurance. Consequently, the level of assurance obtained in a limited assurance engagement is substantially lower than the level that would be obtained in a reasonable assurance engagement. If we had performed a reasonable assurance engagement, we might have identified other matters and possible misstatements in the information included in the 2021 Annual Report. Therefore, we do not express an opinion on this information.

Non-financial data are subject to more inherent limitations than financial data, due to the nature and diversity of the methods used to determine, calculate and estimate these data. Qualitative interpretations of the relevance, materiality, and accuracy of the data are subject to individual assumptions and judgments. Furthermore, we did not consider in our engagement the data reported for prior periods nor future projections and goals.

The preparation and presentation of non-financial information and indicators followed the definitions of the basis of preparation developed by the Company and the guidelines of the Global

Reporting Initiative (GRI-Standards), Sustainability Accounting Standards Board (SASB) and, therefore, the information included in the 2021 Annual Report does not have the objective of providing assurance with regard to the compliance with social, economic, environmental or engineering laws and regulations. However, the aforementioned standards establish the presentation and disclosure of possible cases of non-compliance with such regulations when sanctions or significant fines are applied. Our assurance report should be read and understood in this context, inherent to the criteria selected and previously mentioned in this paragraph.

### Conclusion

Based on these procedures performed, described herein, and on the evidence obtained, no matter has come to our attention that causes us to believe that the non-financial information included in the 2021 Annual Report of Companhia Brasileira de Alumínio has not been prepared, in all material respects, in accordance with the criteria of the basis of preparation and guidelines of the Global Reporting Initiative (GRI-Standards) and Sustainability Accounting Standards Board (SASB).

São Paulo, April 11, 2022

PricewaterhouseCoopers  
Auditores Independentes Ltda.  
CRC 2SP000160/O-5

Maurício Colombari  
Contador CRC 1SP195838/O-3



CBA's listing ceremony at B3

## CREDITS

### General coordination

Andressa Rissato Brolacci Lamana | Human & Organizational Development, Health & Safety, Environment and Sustainability VP

Luciano Francisco Alves | CFO & Investor Relations Officer

Leandro Campos de Faria | Sustainability General Manager

### Coordination

Sustainability | Lígia de Lima Carvalho

### Team

Sustainability | Raquel Martins Montagnoli, Alan Ferreira da Costa, Vivian Martins de Souza e Mayara Carla Rodrigues Rosa

Communication | Fernanda Diniz Bolzan de Oliveira e Ludyane Chaves Agostini Lara

Environment | Marcus Vinicius Vaz Moreno e Tais Mascia Cecchi

Investor Relations | Amabile Caroline da Silva e Cintia Regina Soares

### ACKNOWLEDGMENTS

This report drew inputs from different people across CBA. Our special thanks are due to all who contributed to the report.

Technical and editorial coordination  
Quintal 22

GRI consulting  
BSD

Design and layout  
Adesign

### Infographics

Felix Reiners

### Photos

Panoptica Multimídia, Lacerda Estúdio, Andrei Pires (*Legado das Águas* photos), Luciano Candisani (*Legado Verdes do Cerrado* photos) and CBA Archive

### Independent assurance

PricewaterhouseCoopers – PwC

### Translation

LATAM – Latin American Translations

CBA site: <https://cba.com.br/en/>

ESG Portal: <https://esg.cba.com.br/en/home-en/>

Investor Relations: <https://ri.cba.com.br/en/>

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