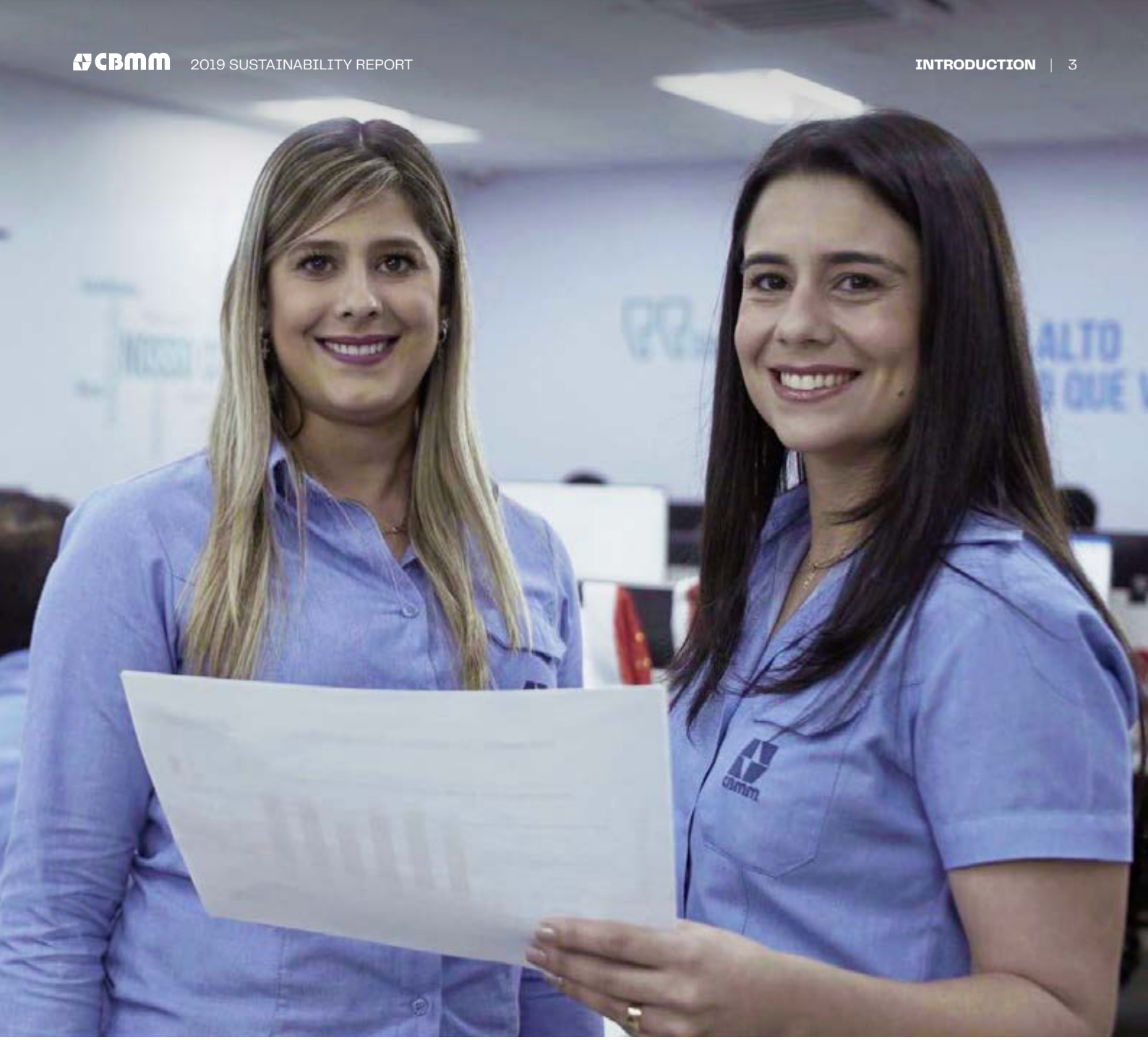
2019 Sustainability Report

CBMM

Table of Contents



OUR WAY OF DOING BUSINESS

We transform and improve materials through niobium technology.

Sustainable solutions for mobility, infrastructure and the generation and distribution of energy start with more efficient and smarter materials.

We believe that people are the driving force for creating and promoting improvements and innovations that can transform everyone's life.

Having qualified, motivated people working in a safe environment with space to pursue ideas is critical, as is building and maintaining genuine, transparent relationships with our partners in over 50 countries.

We maintain an open dialogue with stakeholders to develop activities that are environmentally sound, socially just and economically viable. We strive to constantly reduce negative impacts and continually improve, seeking to build a better, more sustainable world.

INTRODUCTION

Continuing to generate economic and social value through the transformation and co-development of smarter materials is what motivates us every day

Message from our CEO GRI 102-14, 102-15

We've built our history on strong investments in the development of niobium technologies and applications with our customers and partners in over 50 countries.

In 2019, we acquired the option to become a shareholder in 2DM, a Singapore-based company that is a world leader in the development of graphene, an advanced material with special properties. The potential synergy between graphene and niobium may spark the production of a new generation of more efficient and safe electric batteries, which could help to accelerate the transformation to more sustainable mobility, as well as provide smarter energy storage and distribution systems for cities.

Within our sustainable growth strategy, in 2019, we generated net revenue of R$8,6 billion, 16,2% above 2018. Net profit grew by 6,2% over the previous year.

Aiming to expand and guarantee stable supplies for all our customers, in 2019 we made record investments in our industrial complex to increase production capacity to 150.000 tonnes of niobium products annually by 2020, the expected date of completion of the expansion work.

To support our sustainable growth model, governance, risk management and compliance practices have been enhanced to detect business exposures, mitigate them and leverage opportunities to improve practices, policies and strategies.

We continue to develop programs designed to optimize resources, reduce greenhouse gas emissions – we aim to be a zero carbon (net emissions) company by 2050 – and preserve the Cerrado biodiversity, among other activities linked to our material topics and the Sustainable Development Goals, including economic, social and human development.

We are guided by the principle of excellence and our employees generate positive impacts for society by participating in the sustainable development of the company. Good performance is linked, simultaneously, to respect for people and the environment, positive interaction with the communities where we operate and financial results.

CBMM's sustainability is the result of a strong relationship with our stakeholders. We are committed to ensuring that these relationships continue to be based on candor and respect.

Urgent solutions for a sustainable economic model demand the use of smarter materials in applications in mobility, infrastructure and in the generation and distribution of energy. We understand that our expertise in transforming materials and solutions through the vast potential and versatility of niobium is even more vital in the current context and for the future.

Eduardo Ayroza Galvão Ribeiro
CEO

Our report and sustainability agenda

Based on material topics, **we aligned corporate objectives** with select United Nations Sustainable Development Goals

Welcome to CBMM's (Companhia Brasileira de Metalurgia e Mineração) Sustainability Report. This report summarizes the company's main attributes, achievements and challenges for the period from January 1 to December 31, 2019. **GRI 102-1, 102-50**

The report reflects our strategies, activities related to the insertion of niobium in the global market, technology development and presence in the communities where we operate, as well as the commitment of our leadership and employees to the social, environmental and economic aspects of our business. The information covers CBMM activities in Brazil and abroad. Foreign subsidiaries are not included in the Global Reporting Initiative (GRI) indicators since they were determined to be not relevant units for these data. **GRI 102-45**

Our activities are connected to broader commitments to sustainability and the United Nations Sustainable Development Goals (SDGs). During the current materiality cycle, specific audiences identified relevant SDGs to be addressed by the company. Our report was prepared in accordance with GRI Guidelines, Standards version, Core option. External assurance of the GRI indicators was performed by PwC. **GRI 102-54, 102-56**

Stakeholder consultation

GRI 102-21, 102-40, 102-42, 102-43, 102-44, 102-46, 102-47, 102-49

In 2019, we opted to review the material topics identified in previous years through a structured stakeholder engagement process. The review included an evaluation of topics by our leadership team to rank the relevance, progress and challenges of each topic. Sectoral documents were also consulted to indirectly update stakeholder concerns.

In addition to updating the approach to material topics, the materiality process improved correlations between SDGs and CBMM's strategic planning.

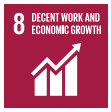
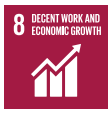
The evaluation of the executive team (CEO, vice president, industrial director, commercial director and financial director) confirmed the validity of the material topics.

Our sustainability efforts are the fruit of a positive relationship with our stakeholders

For an external perspective on the topics, studies related to global sustainability and sectors aligned with CBMM's key direct and indirect activities (technology, steelmaking, mining) were analyzed. The following documents were consulted: SAM 2019 yearbook (international consultancy) for the mining–metals and steel sectors; EY's global study "Top 10 business risks facing mining and metals"; the Commitments Letter of the Brazilian Mining Institute – IBRAM; and the Global Trends and Risks Report of the World Economic Forum (WEF Global Risks 2019). Aspects of the 2017 materiality process that addressed the vision of specific audiences, which included a ranking of topics, were also considered. Through a quantitative analysis and weighting based on rankings, the following were identified as material topics:

Material topic	Why it is a strategic topic	Reported indicators
Contributions to regional economic and social development	By attracting and encouraging new businesses, we are an important driver of the local economy. Our social investments also have a positive impact on the quality of life in Araxá..	GRI 202-2 GRI 204-1 GRI 413-1
Occupational health and safety	The safety of employees, visitors and others who access our industrial complex is non-negotiable. Occupational health and safety are foundational values for us and extend to all our stakeholders. This approach ensures the ongoing operation of the company.	GRI 403-1 to 403-7
Development of innovative technologies and products	Since the earliest days of the company, we have worked to develop industrial process technologies, the niobium market and niobium applications. This long-term approach has been a decisive factor in our success.	KPI total R&D investments
People development	People can promote the key improvements and innovations that are so critical to an enterprise's success. Having employees who are qualified, motivated and given the proper space to develop theirselves is fundamental to business continuity.	GRI 102-8 (Profile) GRI 203-1 GRI 404-1, 404-3
Environmental management	Adequately addressing environmental issues and operational licenses is critical to operational continuity, and assumes even more importance as our customers, investors and communities are increasingly concerned about climate issues.	GRI MM3 (MM1, MM11) GRI 302-1, 302-2, 302-4 GRI 303-1, 303-2, 303-3, 303-4, 303-5 GRI 305-1, 305-2, 305-3 GRI 306-3
Governance and transparency	Transparency with stakeholders and a governance structure that enhances management are fundamental for companies with a long-term vision, like CBMM. Visibility for shareholders and the local community are key to achieving transparency.	GRI 102-18 a 102-32 (Governance) GRI 205-3 GRI 419-1
Relationships and open dialogue with stakeholders	Open, transparent relationships increase the synergy between CBMM and our stakeholders. This enables us to maintain our social license to operate in the community and enhances our resilience and capacity to respond our stakeholders' needs, in both positive and negative scenarios.	GRI 203-1, 203-2, 205-3
Product quality	Product quality is an essential feature in any business, but it is even more relevant in products that have a strong technological component. The relevance and the relationships of the company in the various sectors where we operate depends on the quality of our products and of the value that niobium adds at different levels of customers' needs.	GRI 419-1

The following table lists our key corporate goals related to the SDGs categorized across environmental, social and governance (ESG) dimensions and according to strategic topics identified as material during annual evaluations.

ESG + Material Topics	Sustainable Development Goals	CBMM Commitments
SOCIAL Contributions to regional economic and social development	 (8.3)	• By 2025, together with local entities and funding agencies, encourage the formalization and growth of entrepreneurship in the city of Araxá, including cultural and sports activities.
SOCIAL Occupational health and safety	 (8.8)	• Maintain continuous improvement processes for work conditions and safe practices at CBMM and its suppliers.
SOCIAL Development of innovative technologies and products	 (9.5)	• Promote international awards for young scientists and professionals to stimulate and improve communication skills. • Sponsor international awards for the best published work on niobium science and technology.
SOCIAL People development	 (9.5)	• Maintain through 2024 a national (Brazil) award to enhance the technical and scientific careers of professionals and encourage young researchers to contribute to the country's development.
	 (4.4)	• Support through 2025 the implementation of the National Common Curriculum in Araxá. • Create social investment policy in vocational training and entrepreneurship initiatives by 2025.
ENVIRONMENTAL Environmental management and climate change	 (6.4)	• Ensure water availability with reforestation upstream of freshwater dams and promote intelligent water management. • Evaluate alternative processes for effluent treatment and remediation with lower impacts. • Encourage supplier companies to optimize the use of natural resources and the adoption of clean energy.
	 (7.a)	• In 2020, study the implementation of solar power generation at the industrial complex to increase the use of clean energy and evaluate the mix of purchased energy. • Improve indicators to monitor energy performance, aiming at improving energy efficiency and the use of clean energy.
	 (12.2)	• Regularly monitor and report energy, water and materials consumed and treated in business operations and improve efficiency through reuse/recycling.
	 (13.3)	• Become a zero carbon company (net emissions) by 2050. • In 2020, add topics related to climate change and a culture of prevention to the curriculum of community-based environmental education.
	 (15.5)	• Maintain Cerrado conservation activities, including research projects, management and reproduction of biome plants and animals, as well as educational activities.
GOVERNANCE Relationships and open dialogue with stakeholders	 (16.5)	• In 2020, define indicators to measure participation and responses to observations generated from tools that are already deployed.
GOVERNANCE Governance and transparency	 (16.5)	• Reinforce in 2020 practices related to the Our Commitment program launched internally in 2019.

* Visit https://www.un.org/sustainabledevelopment/development-agenda/ to learn more

CBMM and niobium: Generating value GRI 102-2, 102-7

Urgent solutions for a sustainable economic model demand the use of smarter materials in applications in mobility, infrastructure and in the generation and distribution of energy

We are proud to be a Brazilian company with customers and partners in over 50 countries around the globe. Over our 64-year history, we have become the world's leading supplier of niobium products and technology (supplying 100% of the Brazilian and 79% of global demand), while maintaining historic commitments to stakeholders. **GRI 102-6**

The value proposition of niobium is to transform the properties of materials. It is recognized and applied at scale in sectors like mobility, infrastructure and in the distribution of transitional and renewable energy. We are passionate about and motivated by discovering and developing – together with our customers and partners around the world – new applications and solutions where niobium has a relevant role.

The total research and development budget in 2019 was R$138,4 million, representing 1,64% of consolidated net revenue. During the year, we worked on 208 projects with research institutes, universities, customers and others

Our production is integrated from the mine to final products and ongoing investments in manufacturing and management capabilities have enabled us to expand our mining and metallurgical activities at our industrial complex located in Araxá, Minas Gerais, Brazil, also site of our headquarters. A privately held company, 70% of capital is controlled by the Moreira Salles Group and 30% is divided between two Asian consortia comprised of major Chinese, Japanese and South Korean steelmakers. **GRI 102-3, 102-4, 102-5**

Business model

We focus our inputs, key activities, results and impacts towards value generation.
The International Integrated Reporting Council (IIRC) guidelines were used as a reference to demonstrate which resources we access and how we turn them into deliverables for society.

INPUTS

FINANCIAL
Shareholder capital;
revenues from sales and financing

MANUFACTURED
Industrial complex;
transportation assets (partners)

HUMAN
Skilled, qualified employees
and service providers

INTELLECTUAL
International certifications and licenses; brands (CBMM, Niobium); niobium technology and know-how; integration with universities and research/science/technology institutes

SOCIAL AND RELATIONSHIP
Relationship with the community; suppliers and strategic partners; partnership with public entities

NATURAL
Niobium ore (pyrochlore);
energy (hydroelectricity);
water (dam reservoirs)

KEY BUSINESS ACTI

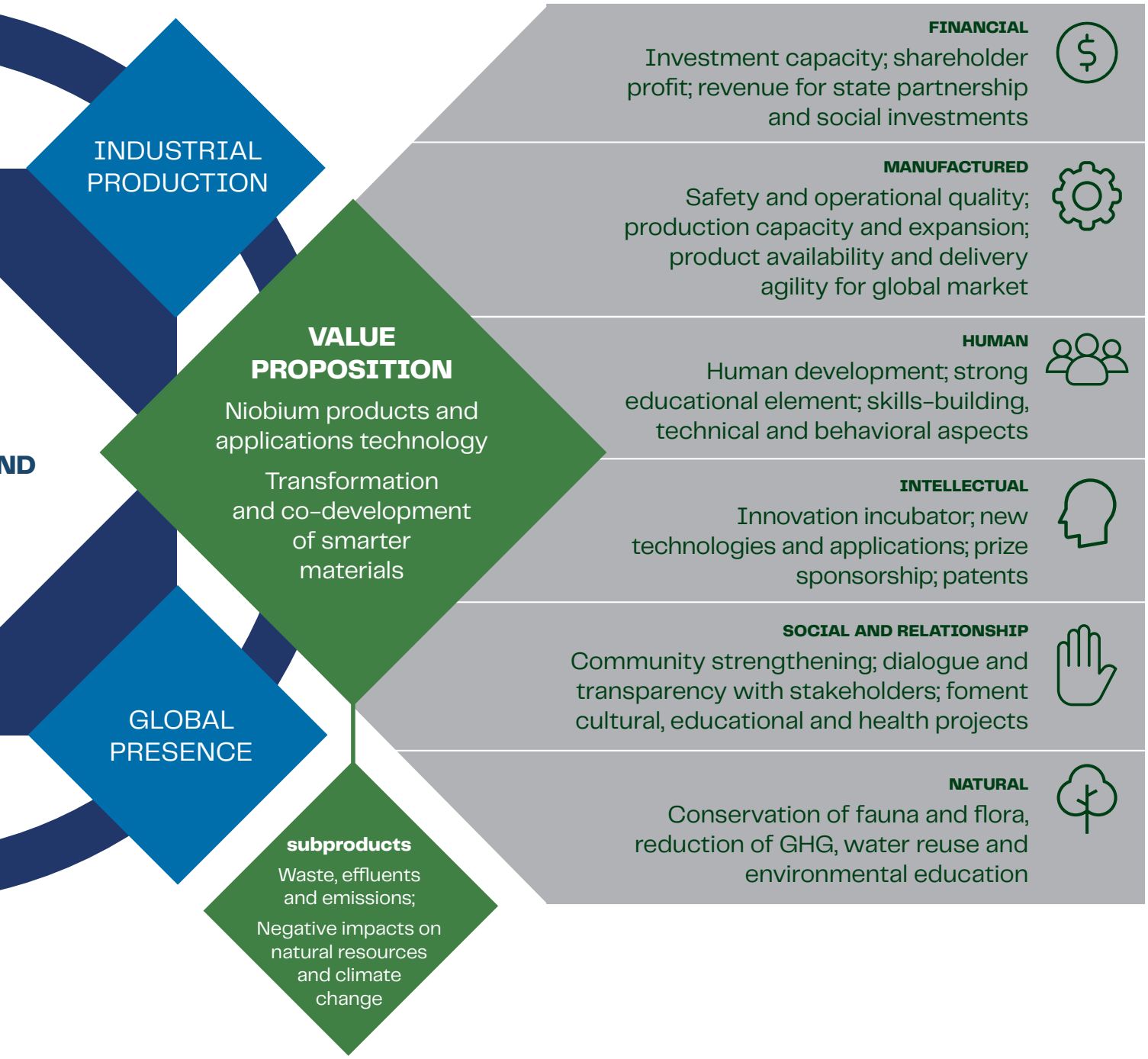
INTEGRATED MANAGEMENT SYSTEM

DEVELOPMENT OF NIOBIUM TECHNOLOGIES AI APPLICATIONS

STRATEGIC PARTNERS

VITIES

IMPACTS



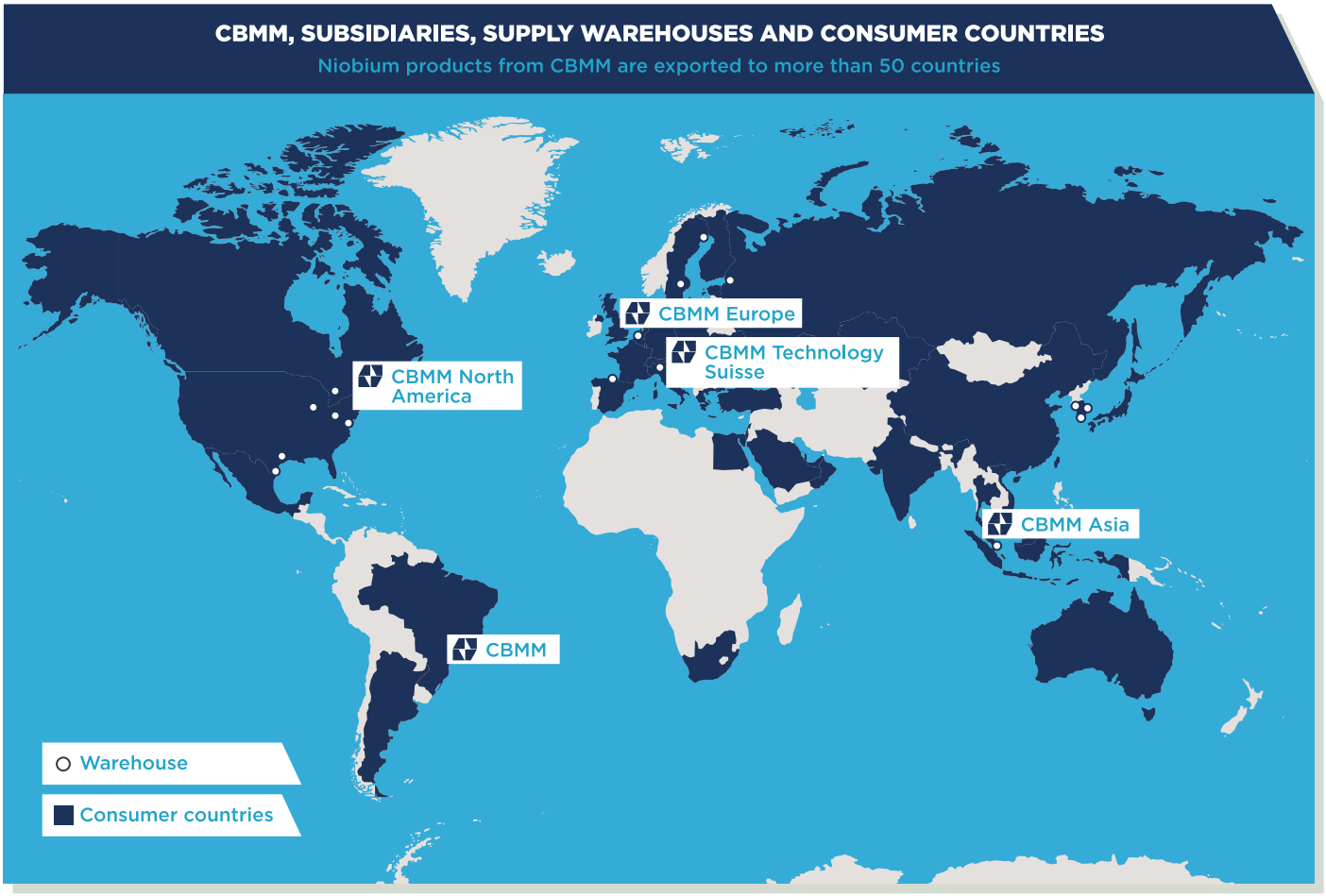
CBMM AND NIOBIUM:
GENERATING VALUE

gy Center
gical Processes and Research Center
Metal Plant
Oxides Plant
ty Niobium ant
Alloys Plant
nental nent Center
ter Treatment Plant
Dam 5 (inactive)

20 Tailings Dam 6 (in operation)
21 Dam 7 (fresh water)
22 Tailings Dam 8 (in operation)
23 Supply Warehouse
24 Central Warehouse
25 Administration Offices
26 Technical Offices
27 Maintenance
28 Restaurant

Global reach

In addition to São Paulo, we operate subsidiaries and offices outside of Brazil (China, USA, Netherlands, Singapore and Switzerland) that are responsible for customer relationships and activities related to developing new applications and markets. We also rely on distributors and commercial representatives, including CITIC Metal in China and Sojitz Corporation in Japan, South America, India and Taiwan. To ensure a steady, stable supply of niobium products, CBMM maintains a network of 26 warehouses strategically located near our customers in over 50 countries around the globe. **GRI 102-4**



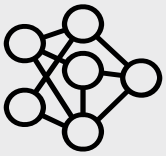
Araxá–MG

Araxá is the site of the world's largest known geological resource of pyrochlore currently being mined, with 829 million tonnes containing on average 2,5% of niobium (Nb_2O_5). Several aspects of CBMM's operations make it a stand-out among global niobium producers, including high quality, high grade niobium ore; an open-pit mine; optimized mining and production processes; ongoing investments in infrastructure improvements at the industrial complex; commercialization of a range of niobium products and consolidated partnerships. Since 1972, mining operations have been carried out through a partnership between CBMM and the State Economic Development Company (CODEMG), formerly CAMIG. The current contract runs through 2032.

2019 highlights

Social

1.905

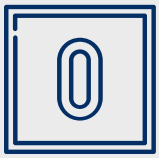


9.309
direct and indirect **jobs** generated or maintained[1]

2.113
suppliers contracted

R$ 48,7 million
invested in social initiatives
(incentivized and not incentivized)

Health and safety



Zero
occupational illnesses

Environmental education

2.700
students and teachers
from schools in the Araxá region participated in environmental education activities

Environmental

Water consumption

19,2 m³
of fresh water
used to produce 1 tonne of ferroniobium products

17,1 m³
of fresh water
used to produce 1 tonne of niobium products

96,4%
of water recirculated at production facilities

The use of fresh water (m^3/t of niobium products) dropped by
8,1%
between 2017 and 2019

Energy consumption

21,86 GJ
of energy consumed
to produce 1 tonne of ferroniobium

20 GJ
of energy consumed to produce 1 tonne of niobium products

73,8%
of energy from renewable sources

100%
of electricity from hydroelectric sources

Emissions

CBMM has been a member of the **Brazilian Greenhouse Gas Protocol** since 2013, with data available for public consultation[2]

0,88 tCO_2e
emitted per tonne of niobium products produced[3]

0,71 tCO_2e
emitted per tonne of ferroniobium produced[4] (market-based method)

0,96 tCO_2
emitted per tonne of ferroniobium produced[3]

Between 2017 and 2019, emissions of CO_2e dropped by **19 %**
per tonne of niobium products produced[3]

0,65 tCO_2e
demitted per tonne of niobium products produced[4] (market-based method)

Production

Annual production capacity grew to **110.000 tonnes** of niobium products

Project to expand production capacity to **150.000 tonnes/year** scheduled for completion in 2020

Financial

R$ 1,7 billion
net equity

R$ 8,6 billion
net revenue

R$ 3 billion
net profit

General

R&D budget corresponded to
1,64%
of consolidated net revenue

208
technical cooperation projects underway with customers, universities and research institutes

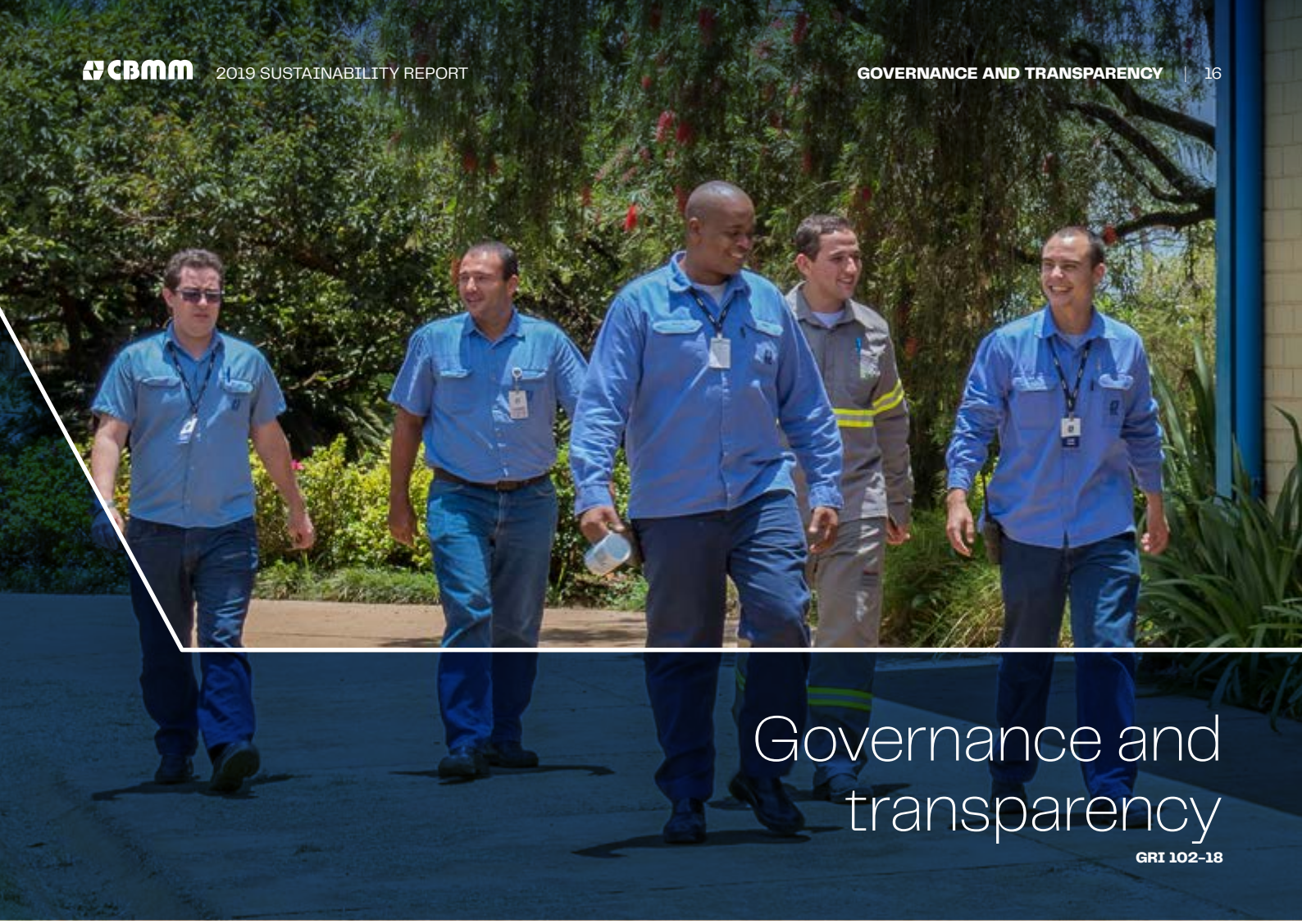
R$ 4,8 mi
invested in employee training and skills development

Zero
non-compliance with social and economic laws and/or regulations

Work climate survey among employees showed engagement level of
86%

CBMM Science and Technology Prize launched to recognize Brazilian professionals and encourage young researchers to contribute to national development

1. Calculation based on the investment made in 2019 using the methodology published by BNDES.
2. CBMM's GHG Inventory is available at https://registropublicodeemissoes.com.br/
3. The calculation for purchased electricity used the location basis. To quantify scope 2 GHG emissions, the integrated national grid emission factor was used.
4. As certified by Cemig, 100% of the electricity consumed by CBMM came from renewable sources (hydroelectric). Thus, the calculation of electricity consumed by the company was performed using the purchased electricity option and therefore registering no scope 2 emissions.



Governance and transparency

GRI 102-18

We've strengthened our governance, risk management and compliance practices, and incorporate sustainability into our daily activities with engagement across all levels of the organization

16 PEACE, JUSTICE AND STRONG INSTITUTIONS

Our material topic

Transparency with stakeholders and a governance structure that enhances management are fundamental for companies with a long-term vision, like CBMM. Visibility for shareholders and the local community are key to achieving transparency.

Strategic management

We have invested in refining our corporate governance practices and growing our transparency. Our governance structure contemplates a Board of Directors and executive management team, as well as five advisory committees: People, Strategy, Technology, Audit and Risk and Finance.

Our goal is to continuously improve our governance practices and transparency

The Board oversees the company's overall performance, including issues related to sustainability, risk and opportunities. The Board meets regularly every quarter and extraordinarily when corporate matters dictate. The term for members is one year with the possibility of re-election. The selection process for Board members considers several aspects, such as independence and experience related to economic, environmental and social issues. **GRI 102-19, 102-20, 102-24, 102-29, 102-30, 102-31**

The primary responsibilities of Board members include: setting the overall direction and business strategy of the company; approving the income and capital budgets; establishing general compensation criteria and benefits policies; monitoring the conduct of company management as defined in CBMM's bylaws and current legislation; and electing and removing members of executive management and defining their roles. **GRI 102-26**

Members of the executive management team serve one-year terms with the possibility of re-election. In addition to overall management, the executive team is responsible for drawing up budgets that cover the management plan and for submitting financial statements to the Board each fiscal year. Members of the executive team must also keep the Board apprised of progress in business operations, among other duties described in CBMM's by-laws. Human resources, legal, compliance, institutional relations, risk and internal audit all report directly to the CEO. **GRI 102-27**

COMPOSITION OF THE BOARD OF DIRECTORS GRI 102-22

Chairman:
Pedro Moreira Salles

Vice-Chairman:
Fábio Colletti Barbosa

Members:
Demosthenes Madureira de Pinho Neto
João Fernando Gomes de Oliveira
Mauro Agonilha
Mitsunori Okimura
Youngseob Jang
Maurício Novis Botelho
Zhihai Wang[1]
Sun Yufeng

COMPOSITION OF EXECUTIVE MANAGEMENT

CEO:
Eduardo Augusto Ayroza Galvão Ribeiro

Directors:
Adalberto Guimarães Parreira
Alex Silva e Amorim[2]
Carlos Alberto Bezerra de Moura[3]
Ricardo Fonseca de Mendonça Lima
Rogério Contato Guimarães

1. Replaced Chen Qun in March 2019.
2. Elected in October 2019.
3. Departed in September 2019.

COMMITTEES

Strategy Committee:
Pedro Moreira Salles; Demosthenes Madureira de Pinho Neto; Fabio Colletti Barbosa; João Fernando Gomes de Oliveira; Maurício Novis Botelho; Mauro Agonilha; Eduardo Augusto Ayroza Galvão Ribeiro; Adalberto Guimarães Parreira; Carlos Alberto Bezerra de Moura (through September 9, 2019); Alex Silva and Amorim (starting October 3, 2019); Ricardo Fonseca de Mendonça Lima; Rogerio Contato Guimarães; e Marcos Alexandre Stuart Nogueira (through February 12, 2019).

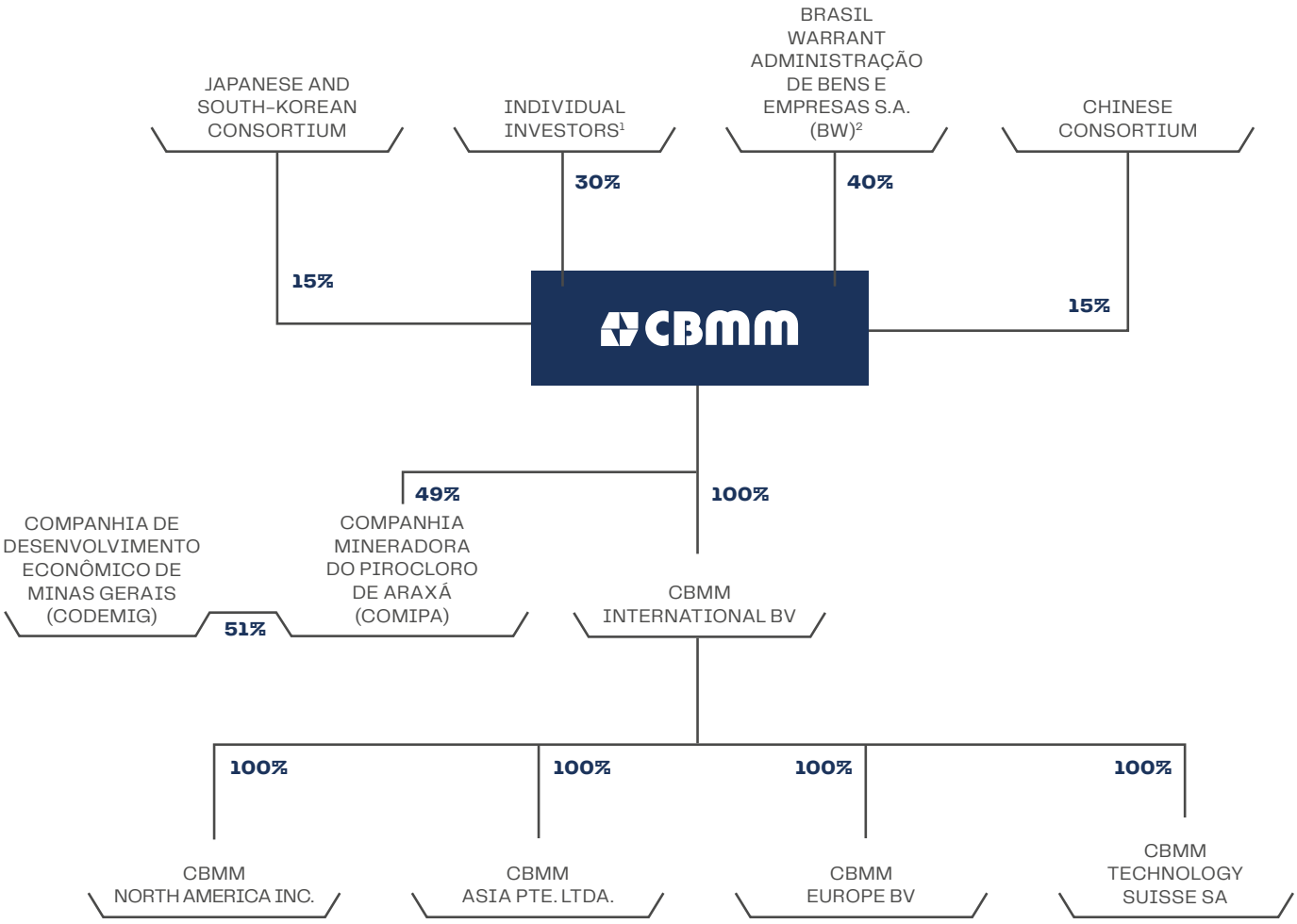
People Committee:
Pedro Moreira Salles; Fabio Colletti Barbosa; Maurício Novis Botelho; Eduardo Augusto Ayroza Galvão Ribeiro; and Ricardo Fonseca de Mendonça Lima.

Technology Committee:
João Fernando Gomes de Oliveira; Maurício Novis Botelho; Ricardo Fonseca de Mendonça Lima; and Marcos Alexandre Stuart Nogueira (through February 12, 2019).

Finance Committee:
Fabio Colletti Barbosa; Mauro Agonilha; Demosthenes Madureira de Pinho Neto; Carlos Alberto Bezerra de Moura (through September 9, 2019) and Alex Silva e Amorim (starting October 3, 2019)..

Audit and Risk Committee:
Fabio Colletti Barbosa; Mauro Agonilha; Ricardo Baldin. Formed on December 11, 2018 with members elected during the Board meeting held on April 24, 2019. **GRI 102-15**

SHAREHOLDER STRUCTURE



1. Individual investors are Fernando Roberto Moreira Salles, Pedro Moreira Salles, Walther Moreira Salles Junior, João Moreira Salles, Lucas Espínola Moreira Salles e André Espínola Moreira Salles.
2. Brasil Warrant is controlled by Fernando Roberto Moreira Salles, Pedro Moreira Salles, Walther Moreira Salles Junior and João Moreira Salles, all of whom hold equal shares.

Risk and compliance

GRI 102-11, 102-15, 102-16, 102-17, 103-1, 103-2, 103-3

Two
new policies were implemented in 2019,
Conflicts of Interest and Anti-Corruption

In line with the evolution of our compliance practices, we treat risk management as a critical tool to detect business exposures, mitigate them and leverage opportunities to improve practices, policies and strategies. The goal, in addition to reducing risks and protecting our reputation and business, is to strengthen the corporate governance structure, increase levels of transparency through relationships and communication with stakeholders and meet short- and long-term targets per budget planning.

We evaluate compliance risks, including corruption, the performance of the program and activities that should be reviewed or executed. We have zero tolerance for corrupt practices and our anti-corruption efforts are strengthened through:

- Internal policies
- Communications channels (Compliance Hotline) open to employees and the public
- Third-party due diligence (identifies risks from service providers, representatives, business partners, suppliers and consultants)
- Specific training
- Anti-corruption clauses in contracts
- Internal audits

In 2019, two new policies were institutionalized: Conflicts of Interest and Anti-Corruption. The Compliance Department will conduct a new round of training on Compliance Program policies in 2020 covering subsidiaries in the United States, Asia and Europe to reinforce the compliance commitments established by the company. For Brazil, we are planning to develop a specific campaign.

Confidential Hotline

Through the Compliance Hotline (canalconfidencial.com.br) we receive reports of conduct that may be illegal or violate our Code of Ethics and Conduct. The channel is managed by an independent, specialized firm.

In 2019, 176 new reports were received, 175 of which were closed, considering reports that were received or ongoing in 2019. Most cases referred to non-conformities with standards, policies, internal or external procedures; conflicts of interest and others. Reports may be made anonymously and are received by the Compliance Department, then they proceed to an internal investigation, during which disciplinary action may be determined.

Contact numbers:
Brazil: 0800 721 0754
Singapore: 800 852 3836
USA: 1 800 982 0934
Netherlands: 0800 022 2352
Switzerland: 0800 835 088

24 hours a day
7 days a week

Site:
www.cbmmcompliance.com

Email:
cbmm@cbmmcompliance.com

Letter:
Caixa Postal 521,
CEP 06320-971, Brasil

Integrated Management Commitments

Based on compliance with the requirements of relevant international standards, our Integrated Management System is regularly audited by ABS–Quality Evaluations

We promote and invest in the continuous improvement of our processes, products and services. We were the first mining and metallurgy company in the world to earn ISO 14001 (environment) and we have incorporated into our management system other important certifications, such as ISO 9001 (quality), OHSAS 18001 (occupational health and safety) and ISO/IEC 27001 (information security):

WE HAVE ESTABLISHED EIGHT COMMITMENTS AS PART OF OUR MANAGEMENT SYSTEM THAT IS DESIGNED TO ENSURE WORLD-CLASS OPERATIONS

1

Prevent pollution; occupational accidents, injuries and illness; and adverse environmental impacts resulting from the company's activities;

2

Continuously improve the performance and efficacy of the Integrated Management System;

3

Respect legislation and requisites defined by CBMM regarding its activities, products and services;

4

Optimize the use of the natural resources entrusted to CBMM;

5

Encourage employees and suppliers to adopt sound management practices;

6

Ensure that the quality of products and services meet customers' needs;

7

Provide resources for the implementation and maintenance of the Integrated Management System;

8

Guarantee the confidentiality, integrity and availability of information.

Developing technologies and innovative products

We invest in research, foster partnerships and apply best practices to develop new products and technologies

9 INDÚSTRIA, INOVAÇÃO E INFRAESTRUTURA

Our material topic

Product quality is an essential feature in any business, but it is even more relevant in products that have a strong technological component. The relevance and the relationships of the company in the various sectors where we operate depends on the quality of our products and of the value that niobium adds at different levels of customers' needs.

Research and production process optimization

We transform niobium from ore to high value-added products using advanced, efficient processes developed in-house. We invest in technical cooperation projects with universities, research institutes and customers. And, the main objective of our technology program is to increase sales volumes, which grew by 3% compared to 2018, through the development of the niobium market. To support our research, we rely on two centers:

Technology Center

R$138,4 million was invested in R&D in 2019

One of the most comprehensive niobium research centers in the world, CBMM's Technology Center in Araxá aims to optimize natural resources, input materials, ore processing and product industrialization. In 2019, 58 researchers worked on 57 new projects associated with innovative technologies linked to the niobium supply chain, in addition to 100 ongoing projects. Facilities include laboratories, pilot plants for ore processing and treatment (grinding, classification and flotation), pilot plants for metallurgical assays (pelletization, sintering and fusion) and pilot plants for chemical assays, in addition to infrastructure for environmental research and physio-chemical characterization of materials.

Within the Technology Center, we operate a Laboratory capable of collecting samples, running environmental tests and analyzing all intermediate and final niobium products, in addition to participating in research and new process and product development. Our Laboratory is accredited by NBR ISO/IEC 17025:2005 with scopes covering raw and residual water, atmospheric emissions, potable water and ferroniobium. Nadcap accreditation was achieved in 2017 for chemical and metallographic analyses in nickel alloys (Inconel), material developed at CBMM's Metallurgical Processes and Materials Research Center.

Metallurgical Processes and Materials Research Center

CBMM's Metallurgical Processes and Materials Research Center houses an innovative vacuum induction melting furnace and uses processes that involve three patents and accreditation by global aerospace regulatory authority, Nadcap. The equipment enables the development of superalloy prototypes for rapid insertion of innovative new products containing niobium in the aerospace, energy generation and oil and gas markets.

R&D budget corresponds to **1,64%** of consolidated net revenue

208 technical cooperation projects underway with customers, universities and research institutes

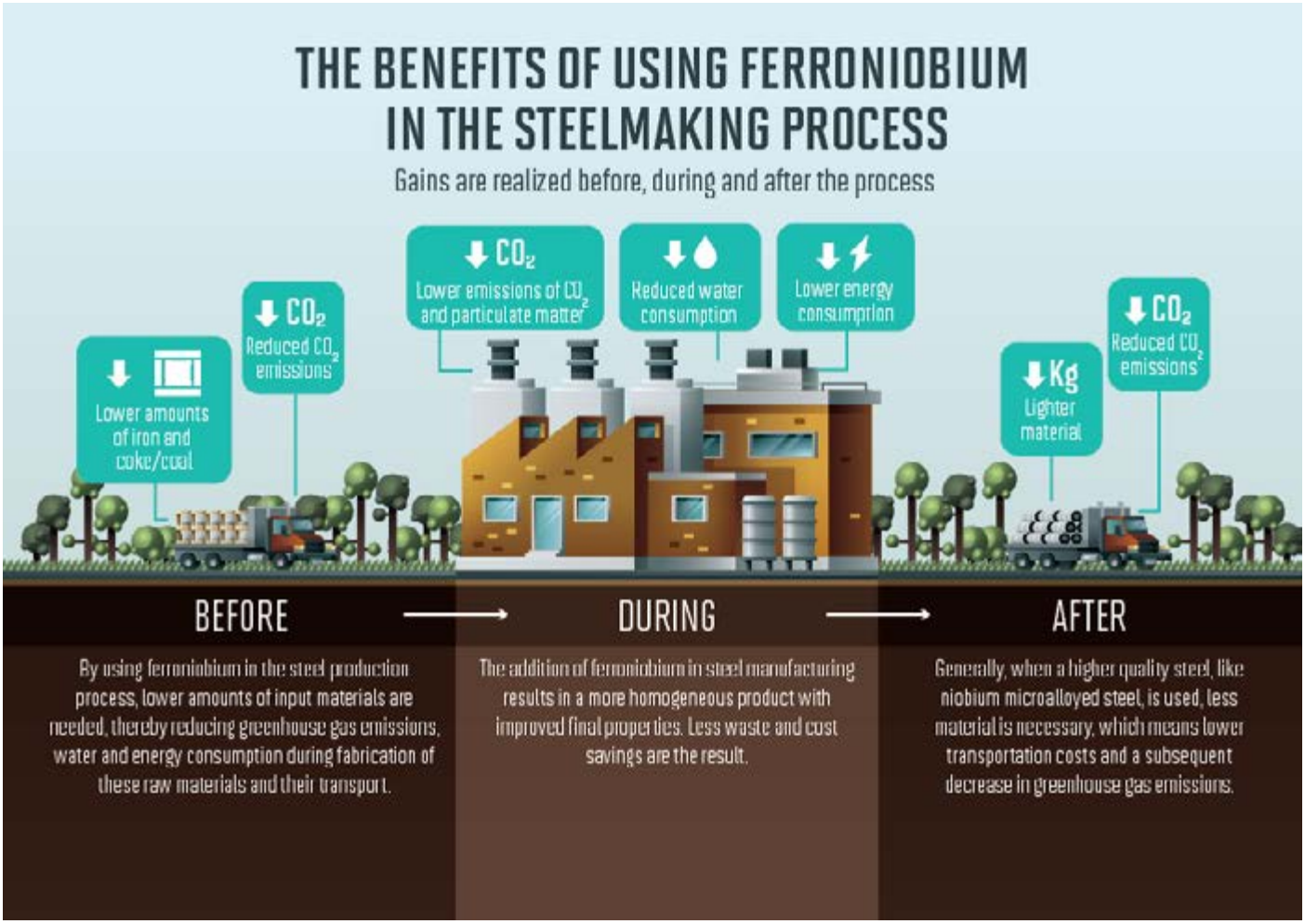
Our products

We are the only company present in all niobium market segments

Our portfolio of niobium products has the capacity to transform the properties of materials that are used in the mobility and infrastructure sectors, as well as for the generation and distribution of transitional and renewable energy resources.

There are also niche applications in medical equipment, precision optics and aerospace that demand special products with high technological grades, applications which we co-develop with partners around the globe. The niobium products that satisfy all these demands are manufactured at our integrated plant in Araxá.

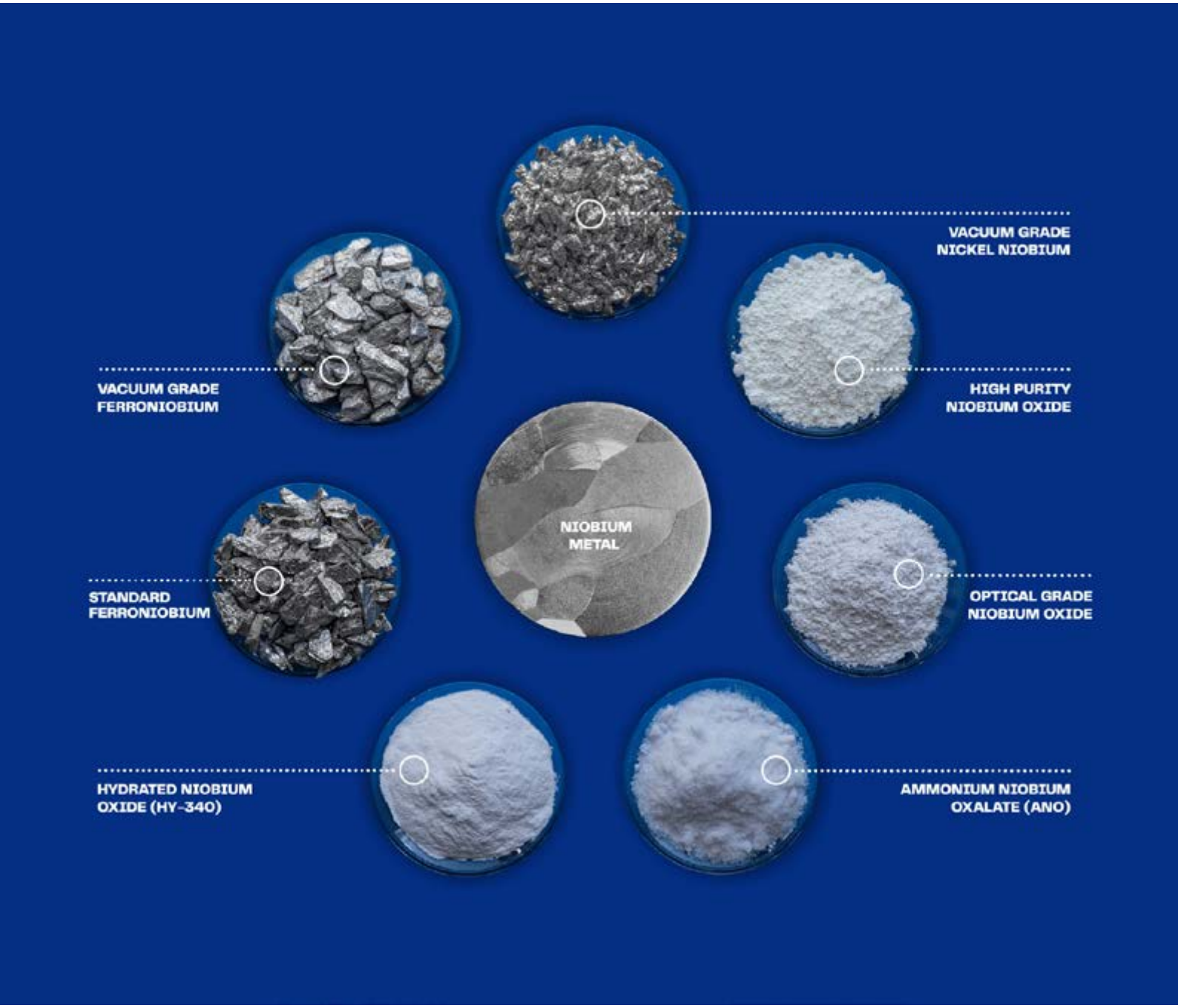
When employed in the steel industry, in addition to enabling enhanced steel properties, niobium can help mills reduce their greenhouse gas emissions, water and energy consumption during the steelmaking process.



Our products are recognized by the European Chemicals Agency (ECHA) as safe and inoffensive to health and the environment. The reports emitted by reference laboratories were evaluated and authorized without restriction by ECHA.

Since 2011, CBMM has satisfied the requirements of REACH (Registration, Evaluation, Authorization and Restriction of Chemical Substances). REACH is a European Union initiative that is concerned with the health and safety of the users of chemical products and requires from industry a higher level of responsibility in managing the quality of its products and the information it provides on the safety of the chemical substances marketed in Europe.

A complete line of high-quality niobium products



Promoting niobium technologies GRI 103-1

We understand that niobium technology is a potential ally in the search for solutions to some of society's most pressing challenges

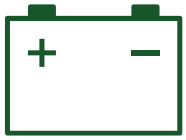
We believe that the dissemination and exchange of knowledge is the expectation for companies and others working in this context.

Our activities aim to solve some of today's biggest challenges, meeting demands of larger and larger cities, using fewer and fewer natural resources to reduce environmental impacts and increase the well-being of populations.

In 2019, we invested in initiatives in the digital environment to increase the frequency and reach of our dissemination activities and success cases. One of the year's main initiatives was the launch of www.niobium.tech, a digital platform that was designed to integrate with proprietary social media channels. Key target audiences for this new platform include the scientific community, customers, material designers and end-users.

Sustainable solutions for the mobility, structural and energy sectors drive the content on the platform, which focuses on how niobium technology can transform materials to achieve end products that are efficient and cost effective.

Check out some of the work we did in 2019 to develop and disseminate niobium technologies that offer solutions to today's challenges:

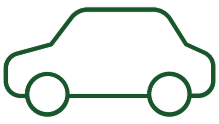


BATTERIES

Niobium is playing a key role in a new generation of batteries by helping to develop materials with shorter charge time, higher energy density, increased safety and enhanced durability. Learn more about niobium's role in energy storage.

STRUCTURAL STEELS

Niobium helps solve complex engineering challenges cost-effectively and makes modern projects more efficient. Smarter materials lead to greater design freedom and lower material consumption during construction, an attractive solution for the structural sector. See how niobium is applied in tall buildings.



VEHICLES

Niobium has important applications in the automotive sector, enabling materials to be stronger, lighter and safer. Extreme E is a motorsport race that will use electric SUVs for off-road racing in remote regions of the planet that are threatened by climate change. Niobium is used in the structures of these robust vehicles. CBMM's relationship with Extreme E represents an opportunity to build new partnerships to further develop the expanding potential of sustainable mobility, and also to raise public awareness about the use of niobium in the creation of cleaner technologies. Learn more about niobium solutions in the mobility sector.

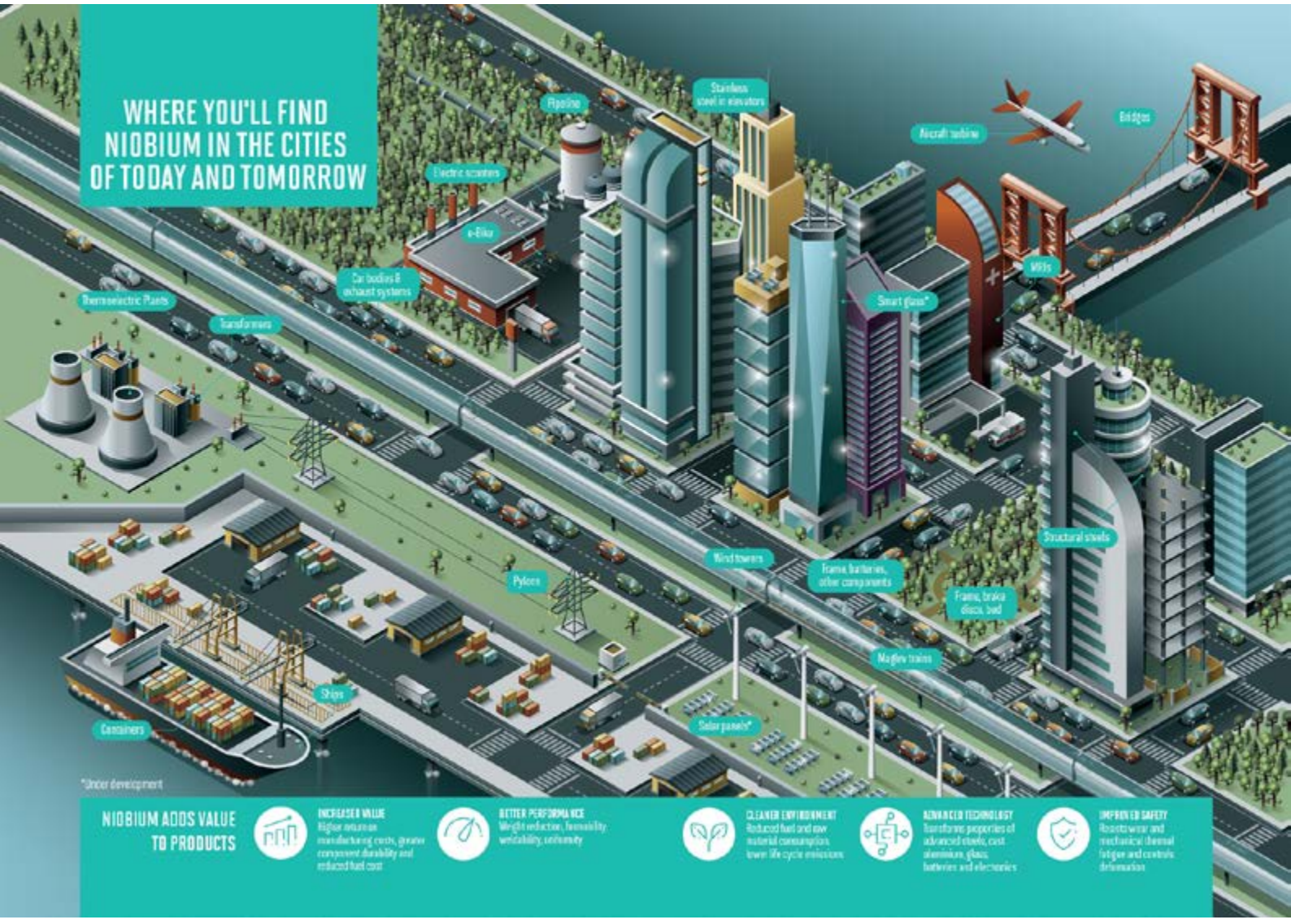
PIPELINES

Niobium technology contributes to the safety and integrity of the world's natural gas transmission and distribution infrastructure, an important energy source for the transition from the fossil-fuel based economy to renewable resources. Niobium steels provide the required properties for high-pressure pipelines that transport gas over long distances. Watch representatives of the production chain describe how niobium was essential to one of the biggest pipeline projects in recent times.

CBMM is the only Brazilian company sponsoring Formula E, an ecosystem that includes leading global technology companies and serves as a platform for accelerating the development, testing and validation of new sustainable solutions for electric mobility in cities.

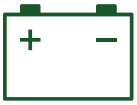
Niobium Hub

To learn more about how niobium can improve various materials used in mobility, structural and energy applications, check out the Niobium Hub, a collection of digital content containing almost 500 items.



Research, where it all started GRI 102-10, 102-15

The total R&D budget in 2019 was R$138,4 million, which is 1,64% of consolidated net revenue. We were involved in 208 partnerships with research institutes, universities and customers, and here is a sample of the activities linked to those projects



The potential synergy between graphene and niobium may spark the production of a **new generation of electric batteries**

- Acquired the option to become a minority shareholder in 2DM, a Singapore-based company that is a world leader in the development of graphene. The potential synergy between graphene and niobium may spark the production of a new generation of more sustainable, safe electric batteries, which could help to accelerate the transformation to more sustainable mobility, as well as provide smarter energy storage and distribution systems. Graphene is recognized for its energy conductivity, thermal properties, strength, lightness and other features that position it as one of the most promising materials for the coming decade;
- Inaugurated the Niobium and Titanium Laboratory to investigate and supply nanostructured materials for fast-charging batteries;
- Worked to apply niobium throughout the steel supply chain to accelerate increased sales for rebar, flat materials or structural profiles;

We built our business by investing heavily in the development of niobium research, technologies and applications, both in-house and through partnerships with research institutes, universities and customers

- Promoted the use of microalloyed solutions with niobium in press-hardened steels to make lighter, safer passenger and commercial vehicles;
- Stimulated energy supply chain insights by reviewing standards that tend to restrict the higher use of niobium; disseminated the application of niobium in nanocrystals, present in electrical components such as wireless chargers and filters;
- Produced aluminum, niobium and boron master alloys as grain refiners in aluminum-silicon alloys for automotive components. Before marketing, the next phase is to gain approval from manufacturers, especially wheels and engine blocks;
- Produced pilot-scale low-nitrogen superalloy ingots for testing in the aeronautical industry for the manufacture of turbines. The expectation is to provide benefits such as longer lifecycle and lower maintenance costs for these components.

The CBMM award recognizes Brazilian scientists and researchers

CBMM Science and Technology Award

We believe that scientific and technological knowledge generates economic, social and environmental contributions, which are fundamental to a country's development. To encourage the production of innovative scientific and technological research, in 2019 we launched the CBMM Science and Technology Award, which reinforces our commitment to a legacy beyond the worldwide development of the niobium market.

In the Science category, which recognizes researchers who put Brazil in the spotlight on the world scientific stage, the winner was Marcelo Viana, researcher and director general of the Institute of Pure and Applied Mathematics (IMPA). In the Technology category, which honors professionals whose work generated relevant impacts in the development of practical applications in Brazil, the award was bestowed on João Batista Calixto, a retired professor of pharmacology at the Federal University Santa Catarina (UFSC). Each recipient received a prize of R$500.000.

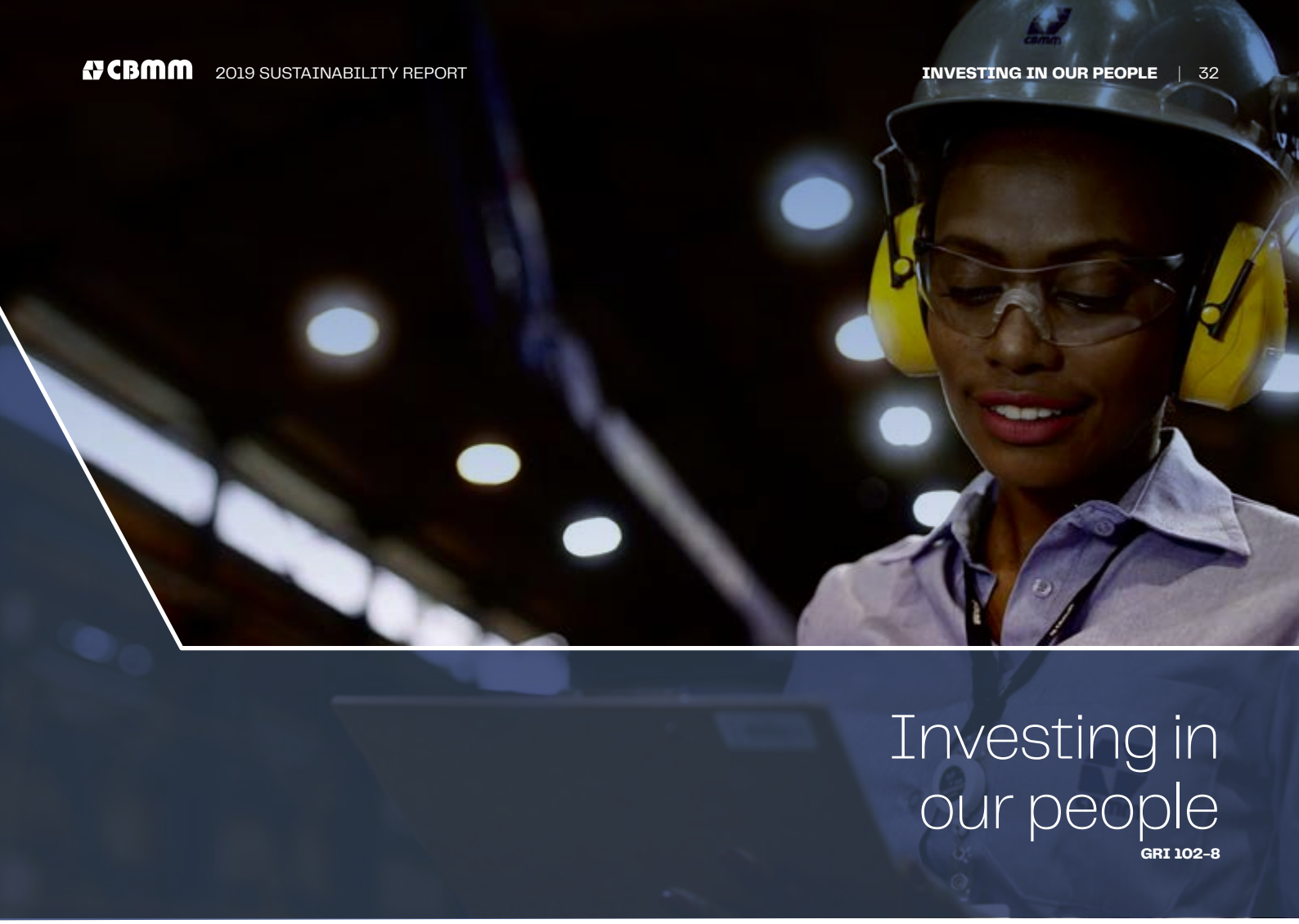
During the awards ceremony, US economist and the 2018 Nobel Laureate in Economics, Paul Romer, delivered a presentation on the theory of endogenous growth, positing that investments in the development of people, innovation and knowledge significantly contribute to the growth of countries.

Charles Hatchett Award

This prize was created in 1979 and is bestowed annually on the authors of the best work published on the science and technology of niobium and its alloys. A selection committee comprised of renowned international specialists is tasked with identifying relevant work and choosing the annual recipients. CBMM has sponsored the award since its inception with the objective of publicizing niobium and its applications. London-based Institute of Materials, Minerals and Mining (IOM3) grants the medal, which is minted in niobium and bears the likeness of the man who discovered element 41. https://www.charles-hatchett.com/

Encouraging young scientists

Since 2011 we have been the lead sponsor of the Young Persons' World Lecture Competition, an annual event that seeks to promote the communications skills of engineers and scientists under the age of 28. The competition is organized by IOM3. **GRI 102-12**



Investing in our people

GRI 102-8

We prioritize workplace safety, healthcare and a positive work environment.
We also provide professional development, encourage challenges and expand opportunities

Our material topic

People can promote the key improvements and innovations that are so critical to an enterprise's success. Having employess who are qualified, motivated and given the proper space to develop theirselves is fundamental to business continuity.

The safety of employees, visitors and others who access our industrial complex is non-negotiable for a large company. Occupational health and safety are foundational values for us and extend to all our stakeholders. This approach ensures the ongoing operation of the company.

We value the development of people and seek to strengthen our culture and values with our internal audience by investing in programs and projects to admit and retain individuals with high potential and performance.

We have built a culture that prioritizes safety, quality and productivity, aligned with workplace health and wellness. A direct communication channel allows employees to register, anonymously, via an intranet portal, observations, criticism, suggestions or complaints to senior management, which responds on the same platform.

In 2019, an Employee Engagement and Prosperity Survey was conducted by consultant Mercer. All employees received an online questionnaire with 47 closed and six open-ended questions. The survey had a 77% participation rate and registered an engagement level of 86%. While areas with room for improvement were identified, overall the survey results were positive.

93%
affirmed that CBMM **adequately handles issues related to workplace accidents**

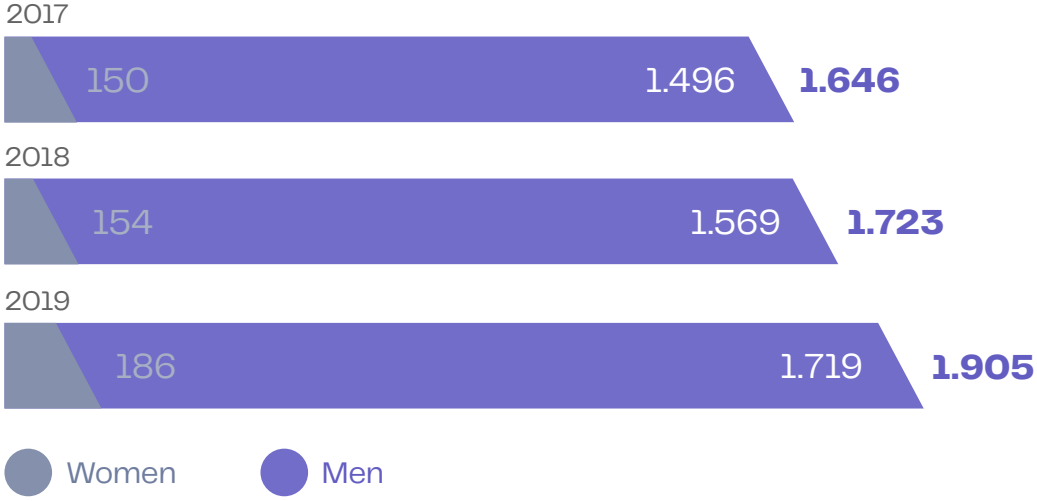
92%
felt that they were treated with **respect and dignity by their immediate supervisor**

89%
reported that working at the **company is helping them achieve financial goals**

84%
believed that their work **provides a sense of personal fulfillment**

84%
are satisfied with the **benefits package**

EMPLOYEES BY GENDER



Workforce by level and gender GRI 102-8

Level	2017		2018		2019	
	Men	Women	Men	Women	Men	Women
Board	10	0	10	0	10	0
Executive team	5	0	6	0	5	0
Management	24	1	51	10	54	11
Heads/coordinators	60	17	34	6	49	8
Technical/supervisory	99	5	115	6	400	40
Administrative	268	77	268	84	144	102
Operational	1.040	50	1.095	48	1.067	25
Trainees	1	1	0	0	4	4
Third-parties (COMIPA)	185	8	170	9	176	10
Third-parties (other)	0	0	0	0	0	0
Apprentices	9	12	26	17	29	15
Interns	0	0	11	5	2	4
Total by gender	1.701	171	1.786	185	1.940	219
Total	**1.872**		**1.971**		**2.159**	

Employees by type of contract and type of employment GRI 102-8

	2017			2018			2019		
	M[1]	W[2]	T[3]	M	W	T	M	W	T
Time-limited	0	0	0	30	3	33	23	8	31
Open-ended	1.497	151	1.648	1.539	151	1.690	1.696	178	1.874
Total	1.497	151	1.648	1.569	154	1.723	1.719	186	1.905
Full-time	1.495	144	1.639	1.566	147	1.712	1.716	180	1.896
Part-time	2	7	9	4	7	11	3	6	9
Total	**1.497**	**151**	**1.648**	**1.569**	**154**	**1.723**	**1.719**	**186**	**1.905**

1 M = men; 2 W= women; 3 T = total.

Employees by type of contract and region GRI 102-8

	2017		2018		2019	
	Araxá (MG)	São Paulo (SP)	Araxá (MG)	São Paulo (SP)	Araxá (MG)	São Paulo (SP)
Time-limited	0	0	33	0	31	0
Open-ended	1.577	71	1.620	70	1.796	78
Total	**1.577**	**71**	**1.653**	**70**	**1.827**	**78**

Data were compiled from SAP-generated reports. Interns, apprentices and trainees were not included.

Number of employees by age group GRI 102-8

	2017	2018	2019
< 30 years	208	205	221
30 – 50 years	1.265	1.360	1.519
> 50 years	175	158	165
Total	**1.648**	**1.723**	**1.905**

Data were compiled from SAP-generated reports. Interns, apprentices and trainees were not included.

Attracting and retaining talent GRI 103-1, 103-2, 103-3

We encourage professional development through training and qualification courses and initiatives that expand diversity and inclusion.

We prioritize hiring from local communities, regardless of hierarchical level. Thus, a majority of professionals are contracted in Araxá, Minas Gerais or in São Paulo (SP), depending on the position requirements, with the exception of specific competencies not found in these communities.

We seek professionals aligned with our values, part of which are described in our Code of Ethics and Conduct, a set of principles that guides employees in Brazil and at our subsidiaries.

In 2019, we had an increase of approximately 11% in our workforce, with the hiring of 250 people, which led to additional strengthening of our occupational safety governance.

Entryways

CBMM has instituted gateway programs to foster the entry of talented workers. One of them is the Young Apprentice Program, in partnership with Senai, which develops skills related to jobs at the company, like operators and technicians. In 2019, 54 young people participated in the program and they will start jobs at CBMM in 2020. Our Internship program, aimed at students from the technical and higher levels of the cities of Araxá, São Paulo and the region, students have the possibility to join CBMM for technical functions and analysts. Another initiative, the Trainee Program, began in 2019 and is open to candidates from all over Brazil. During 2019, the trainees participated in 300 hours of training provided by the company in the position of senior analyst. Through the Inclusion program, aimed at the physically disabled, CBMM hired 16 individuals.

Employee turnover in 2019 GRI 401-1

Hires by age group, gender and region

	Age group						Gender				Region			
	< 30 years		30 – 50 years		> 50 years		Men		Women		Araxá (MG)		São Paulo (SP)	
	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate
2017	5	0,02	22	0,02	2	0,01	17	0,01	12	0,08	20	0,01	9	0,13
2018	45	0,22	89	0,06	1	0,06	119	0,08	116	0,75	126	0,08	9	0,13
2019	76	0,34	184	0,12	7	0,04	227	0,13	40	0,22	247	0,13	20	0,26

Departures by age group, gender and region

	Age group						Gender				Region			
	< 30 years		30 – 50 years		> 50 years		Men		Women		Araxá (MG)		São Paulo (SP)	
	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate
2017	5	0,02	43	0,03	15	0,09	53	0,03	10	0,07	40	0,02	23	0,32
2018	4	0,02	39	0,03	19	0,12	49	0,03	13	0,08	50	0,03	12	0,17
2019	6	0,03	52	0,03	27	0,16	77	0,04	8	0,04	77	0,04	8	0,04

Total hires and departures

	2017		2018		2019	
	N	Rate	N	Rate	N	Rate
Hired	29	0,02	135	0,08	267	0,14
Departures	63	0,04	63	0,04	85	0,04

Reason for departures

	2017		2018		2019	
	N	Rate	N	Rate	N	Rate
Death	2	0,03	4	0,06	1	0,01
Involuntary	53	0,84	56	0,90	73	0,86
Voluntary	8	0,13	2	0,04	7	0,08
End of contract	0	0	0	0	4	0,05

Members of upper management[1] recruited from the local community[2] GRI 202-2

	2017	2018	2019
Number of members of upper management	8	6	5
Number of upper management hired from local community	6	4	3
Percent of upper management hired from local community	75%	67%	60%

1 CEO and directors.
2 For CBMM headquarters in Araxá, local community is defined as the state of Minas Gerais, while the state of São Paulo is considered local community for the São Paulo office.

Employee Benefits **GRI 103-1, 103-2, 103-3**

CBMM provides a robust benefits package that covers healthcare, education, retirement, housing and wellness services. A plan to encourage home ownership that in the past created residential areas, currently provides R$38.000 directly to employees to be used towards the purchase of a home or to pay off a mortgage.

Additionally, in partnership with the Metallurgical, Mechanical and Electrical Material Labor Union of Araxá, we support the House-Raising Project, a collaborative project to construct homes, and we established an agreement with a financial institution for low-interest home loans for employees. We postponed the implementation of a systematized retirement preparation program, initially planned to go live in 2019.

Education for all

One of CBMM's most significant employment benefits is educational assistance. Besides motivating staff to study, whether a technical course or for a university degree, the company also extends the coverage to dependents.

Children of employees receive subsidies during every stage of their education through college graduation. Children from four months to five years of age have no-cost access to the CBMM-sponsored Human Development Center (CDH), which since 1980 has offered a methodology that stimulates language development, reasoning skills and socialization.

Educational activities are designed around environmental awareness, reading and reasoning skills, while fostering imagination and creativity.

For students in primary school, secondary school and college, CBMM contributes towards the cost of tuition. The subsidy, which also extends to language courses starting in high school, is publicized in table format. In 2019, tuition coverage was established at 80%, with certain caps.

Continuously improving skills GRI 103-1, 103-2, 103-3

An internal policy addresses employee training and provides guidelines regarding courses, professional development opportunities and continuing technical education

With qualification plans that include the development of technical and behavioral skills, we are committed to providing employees with the knowledge necessary for the proper performance of their functions. In addition, we encourage the continuous improvement of different skills and invest in national and international specialization and language courses.

In 2019, roughly R$4,8 million was invested in actions related to skills and professional development of employees. Indicators and a training and development standard were established to monitor the use of different programs, providing visibility regarding training actions and development opportunities at CBMM.

Nearly R$ 4,8 million was invested in employee development

PERFORMANCE ANALYSIS GRI 103-1, 103-2, 103-3, 404-3

The performance evaluation process started to use organizational competencies as a foundation. In 2019, 85 managers participated in the debut of the people management process that aims to evaluate performance and career development. The first evaluation cycle took place in June and had a 100% participation rate, and included a self-assessment, a manager evaluation and a subordinate evaluation for those who lead teams with at least three people.

The evaluation scores plus the results of the year's goals led to the positioning of the professionals within the 9box methodology. The People Committee discussed each professional's result and feedback rounds were held between managers and employees. Based on this, employees built their Individual Development Plan in the online system.

Managers at all levels participated in a Leadership Training Program, which totaled approximately 8.000 hours of training in 2019.

Employees receiving performance reviews by category and gender (%)[1] GRI 404-3

Category	Men	Women	Total
Directors	100%	–	100%
Management	94,74%	90,91%	92,82%
Heads/Coordinators	100%	100%	100%

1 Board members are not employees of the company and therefore are not reviewed. Technical and supervisory positions do not have defined goal plans (performance analysis).

GOOD IDEAS ARE WELCOME

To promote interaction between employees and encourage their feedback, the CBMM Ideas program was created, especially for the areas of quality, process improvement (production and administrative), safety, health and well-being and the environment. The program is hosted on the company's intranet site where employees can log in and register their suggestions.

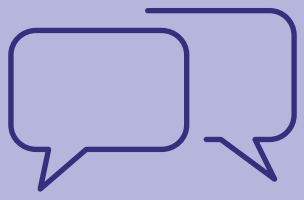
THERE'S ALWAYS ROOM FOR IMPROVEMENT

In 2019, we implemented a new program called Our Commitment, which is a set of attitudes and behaviors employees are expected to exercise in their daily activities. The five organizational commitments are Candor, Leave it to Us, Building the Future, Excellence in Every Detail and Performance Defines Us. For leadership, there are two additional commitments – Leaders Developing Leaders and Always Connected. Each of the commitments are defined in detail and include attributes and skills such as motivation, discipline, critical thinking, collaboration and prioritization. Training and awareness campaigns were conducted throughout the year to ensure that employees understand the expectations, learn ways to incorporate the commitments into their work life and evaluate their progress.

HIERARCHY WITHOUT DISTANCE

Two new internal communications channels were introduced in 2019 to optimize the sharing of ideas between and among employees, departments and leadership. The Talk to Eduardo (CBMM's CEO) channel is designed to encourage frank, transparent conversations with the company's top executive. Direct Connection, on the other hand, is a way for any employee to send suggestions, criticisms or questions to help in the development of the company. Users of the Direct Connection channel can choose to send messages anonymously or identified. These channels are in addition to the Compliance Hotline and Ideas Program.

We are committed to providing employees with the knowledge necessary for the proper performance of their functions



Transparent communication

During 2019 we invested in stakeholder relationships and communications. The aim is to be transparent and proactive in the face of various issues that concern our business in Brazil and abroad. In addition to topics related to niobium production, we want to convey our institutional and strategic positioning, including new business, the expansion of operations and sustainability actions.

Through these efforts, we strengthen our relationship with the media in Brazil and abroad, expand our proprietary channels in the digital environment and on social networks, disseminate in real-time the actions and events in which we participate, revitalize and expand the perception and presence of our institutional brand (CBMM) in addition to our exclusive technology and product brand (Niobium).

We also disseminated our support of sports and cultural projects, such as the sponsorship of the Minas Gerais Philharmonic Orchestra and Fliaraxá, an important literary event. Additionally, in 2019 we supported the São Paulo State Orchestra's trip to China to mark the beginning of the 40-year commemoration of CBMM's partnerships in China.

On our internal channels, we communicated that we were the recipient of the Friend of Sports award, given by the Ministry of Citizenship through its Special Secretariat of Sports. Due to the volume of investments made through the law to incentivize sports, we ranked first among contributors in the state of Minas Gerais and third in Brazil.

CONNECTING WITH OUR AUDIENCES

Throughout 2019, various activities were implemented to better engage and communicate with stakeholders. To accomplish this, we reinforced and created functions and a team dedicated to marketing and communications. Topics considered important for engagement include products, price, promotions, socio-environmental impacts, dams, community actions, as well as organizational climate, ombudsman and performance.

Occupational health and safety

GRI 103-1, 103-2, 103-3, 403-1, 403-3, 403-6

Employees have a hands-on role in the management of workplace health and safety. Several initiatives work in an integrated manner to prevent accidents and occupational illness, including the Internal Commission for Accident Prevention (CIPA), the Safety Engineering and Occupational Medicine Specialized Service (SESMT), the Emergency Response Action Brigade (BARE) and the Occupational Health and Safety Facilitators. Our occupational illness rate is zero. **GRI 403-4**

TOOLS AND MONITORING

We use tools to identify and evaluate workplace risks in order to develop control measures. A training matrix is applied to employees who perform activities that may involve a risk. Everyone has the right to refuse risky tasks and there are anonymous channels to report them, including an intranet portal. **GRI 403-2**

Worker health and safety is monitored and evaluated using frequency and severity rates reported monthly using the StratwsOne software, which is designed to control and track multiple indicators. Accident records are included in an Accident Communication Report and are treated, as appropriate, by a Corrective Action Request, which records the analysis of accidents, as well as the actions established in an action plan. The records of occupational accidents, procedures and classification are contemplated in NBR 14280 and OHSAS 18001. **GRI 403-2**

KEY ACTIVITIES RELATED TO CONTINUOUS IMPROVEMENT IN 2019:

- Implementation of an emergency alarm system for dams;
- Reduction of suspended particulate matter at the Dephosphorization and Desulfurization plants;
- Survey of events with high injury potential by multidisciplinary work groups.

Prevention and quality of life

The Occupational Health and Medical Control Program establishes criteria for onboarding, periodic, return to work and dismissal examinations, helping to carryout controls for diseases among employees and out-sourced workers, including activities related to the Environmental Risk Prevention Program.

We also address health promotion through efforts to prevent and treat obesity, prevention of prostate cancer, tobacco awareness and cessation activities, women's health prevention, flu vaccinations, prevention and control of high blood pressure and diabetes and mental health treatment oversight. Additional programs have been developed related to ergonomics, respiratory protection, hearing loss prevention, inorganic lead control, cutting accidents and medical waste management.

Zero occupational illness

All new employees are included in the health and safety management system, which is a topic covered during new employee orientation. Out-sourced workers who report to our facilities are provided face-to-face training. **GRI 403-5, 403-8**

SAFETY INDICATORS

CBMM

	SERIOUS INJURY RATE	FATALITY RATE	INJURY RATE
2017	zero	1,18	2,84
2018	zero	2,84	2,60
2019	zero	zero	1,05

SERVICE PROVIDERS

	SERIOUS INJURY RATE	FATALITY RATE	INJURY RATE
	zero	2,35	3,14
	zero	1,53	3,44
	zero	0,63	1,05

Safety indicators GRI 403-9

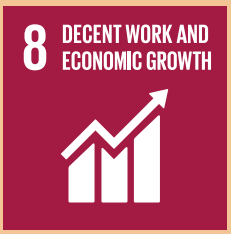
Work related injuries GRI 403-9

	2017		2018		2019	
	Employees	Workers who are not employees but whose work/ workplace is controlled by CBMM	Employees	Workers who are not employees but whose work/ workplace is controlled by CBMM	Employees	Workers who are not employees but whose work/ workplace is controlled by CBMM
Number of hours worked	4.229.334	2.549.935	4.227.321	2.612.780	4.757.206	6.381.450
Number of deaths resulting from work-related injuries	0	0	0	0	0	0
Number of work-related serious injuries (excluding deaths)	5	6	6	4	0	4
Number of recorded work-related injuries (including deaths)	12	8	11	9	6	15

Starting in 2019, the ABNT standard (1.000.000 hours worked) is being used to calculate the rates. Previously, the calculation was done according to the OHSAS standard (200.000 hours worked).

Partnerships

Sustainability is the fruit of a good relationship with stakeholders, and attention to their demands.
This relationship is based on open dialogue and respect



Our material topic

Open, transparent relationships increase the synergy between CBMM and our stakeholders. This enables us to maintain our social license to operate in the community and enhances our resilience and capacity to respond to needs, in both positive and negative scenarios.

We are an important driver of the local economy since we attract and encourage new businesses, plus our commitment to social responsibility has positively impacted the quality of life in Araxá.

Relationships and open dialogue

We share value with all our stakeholders, including employees, customers, suppliers, shareholders, government entities and NGOs. We develop strategic initiatives designed to engage each specific audience because we believe that partnerships are essential for good performance today and in the future. **GRI 102-40, 102-43**

We participate in the development of public policy and have taken part in a wide range of forums, like Mineral Forum, Research and Development Forum and CODEMA (Environmental Policy Council of Araxá). We engage in activities that encourage public commitments to sustainability, development and research, but we do not participate in any form of lobbying/advocacy. Our participation addresses topics such as the reduction of greenhouse gas emissions, better land use as it relates to mining, product and process development, resource optimization and the application of cleaner, less costly technologies. There is no difference between the manner CBMM manifests its views in these forums and how it publicly states its positions.

GOVERNMENT GRI 103-1

We maintain a solid, productive partnership with the three spheres of government. With the Ministry of Mines and Energy and the Ministry of Science and Technology, we address institutional issues like complying with norms and technological demands. The relationship with the municipal government focuses on the social and infrastructure needs of the city and involves educational, cultural and environmental issues.

ASSOCIATIONS GRI 102-13

Our interactions with associations are meant to disseminate technological best practices related to the use of niobium, the transformation of materials and the development of more sustainable solutions. We support the Brazilian Association of Metallurgy, Materials and Mining (ABM) and we have a relationship with research institutes like Institute for Technological Research of the State of São Paulo (IPT) and the Center for Innovation and Technology (CIT/SENAI/FIEMG). We are also associated with the Brazilian Institute of Mining (IBRAM), through which we participate in dialogues with the business sector.

For 40 years we have maintained lines of research with China's Central Iron and Steel Research Institute to develop niobium steels for all market segments.

Technical consortia comprising CBMM's customers and universities are other important tools to develop the niobium market. The most active currently are with the Colorado School of Mines in the United States, Shanghai University and the University of Science and Technology in Beijing. We also participate in technical standards committees, foremost among them is ASTM (American Society for Testing and Materials) in the United States.

We engage in activities that encourage sustainability, research and development

Suppliers GRI 102-9, 103-1, 103-2, 103-3

While maintaining equal conditions, we prioritize local suppliers. In 2019, 89,5% of products were purchased in Brazil and the remainder came from the United States, Spain, Mexico, China, Germany and others.

We ended the year with a supply chain composed of 9.116 registered companies, including manufacturers, distributors, resellers and direct service providers. Of this total, 38% were from Minas Gerais. A total of 2.113 suppliers were contracted in 2019, of which 368 were based in Araxá and we acquired 15% in value of products or services in Araxá, totaling R$340 million. GRI 204-1

Spending on local suppliers[1] GRI 204-1

	2017	2018[2]	2019[3]
Total amount of budget allocated for suppliers (R$)	1.075.728.793,78	1.581.741.664,31	2.103.265.578,49
Total amount spent on local suppliers (R$)	239.493.318,13	289.087.114,31	333.062.856,23
Percent of budget spent on local suppliers (%) Percent of budget spent on local suppliers (%)	22,26	18,28	15,84

1 Only companies from Araxá (MG) are considered local.
2 Revised data.
3 In 2019, payments to suppliers emitting invoices from the state of Minas Gerais totaled R$1.109.942.600,99 (48,92% of total spend).

We prioritize local suppliers and our purchasing practices value raw material traceability and impact mitigation

We invest in the development of new suppliers and help them to improve their processes through initiatives such as qualification courses and health and safety training. We require qualification certifications from select suppliers and we perform annual audits of key service providers in order to verify their compliance with legal requirements.

Our procurement practices address the traceability of raw materials and inputs and the management of negative impacts on the chain. We use the SAP/R3 system to monitor performance, in addition to meetings, technical and commercial visits, market and regulatory research to ensure compliance.

In 2019, we completed the restructuring of the supply chain department. There was a complete revision of the purchasing model, which added new types of contracts – including those with long-term (five years) duration – and new kinds of suppliers, like companies with different logistics modals and manufacturers of equipment for the construction of a new furnace for the Dephosphorization Plant.

Routine Management Diagnosis measures the degree of maturity in management areas, from the evaluation of practices to improving results.

Our industrial complex in Araxá welcomes customer visits. In 2019, we received delegations from China, Japan, South Korea, Luxemburg, Sweden, Russia, the United States and Brazil

Customers and Partners

To strengthen our presence and physical proximity to key customers and markets, in 2019 we expanded our commercial, technical assistance and market development teams in Asia, Europe and North America. We offer technical support to develop niobium products and also help customers cut costs by maintaining inventories at strategic locations to ensure near immediate delivery.

Customer satisfaction is measured by analyzing information collected throughout the year in the manufacturing, laboratory, commercial and quality sectors. Complaints, technical visit reports and other information provided by customers are evaluated to identify real and potential areas for improvements.

The latest customer satisfaction survey was conducted in 2018 and revealed that we have maintained a high level of satisfaction, with 95% of customers reporting a favorable partnership for developing niobium applications.

95%
customer satisfaction reported in our latest survey

For 50 years we have developed technical seminars with our customers to disseminate niobium technology and reinforce the sustainable aspects of its use. Without taking unnecessary risks, we act responsibly towards customers, investing our own funds to expand the size of the global niobium market. Several initiatives in partnership with customers are under development, some of which are described on our website, https://www.niobium.tech

Our industrial complex in Araxá welcomes customer visits. In 2019, we received customer delegations from China, Japan, South Korea, Luxemburg, Sweden, Russia, the United States and Brazil. A commercial team also visits customers on a periodic basis.

Also in 2019, we invested in initiatives in the digital environment to increase the frequency and reach of our dissemination activities and success cases through proprietary channels targeting our customers and the value chain. We've published technical content and case studies, and transmitted in real-time product launches related to niobium technology.

Social and economic development

GRI 103-1, 103-2, 103-3, 413-1

We are located in Araxá and are committed to being an agent for local development, supporting the education of children and youth

We are closely linked to the city of Araxá, Minas Gerais and we invest resources there with a focus on initiatives related to education, health, culture and sports. We generate value in the community where we operate and thus fulfill the eighth goal of the Sustainable Development Goals. By being integrated with the city of Araxá, our impact goes beyond simply increasing the tax base and investments in the education of employees and their families.

Based on the National Economic and Social Development Bank (BNDES) employment and income generation model, CBMM's capacity to promote employment and income in the community in 2019 was equal to 4.475 indirect jobs and 9.309 total jobs. **GRI 203-2**

Without creating an assistance bias, we support the education of children and young people in the community and seek to be an agent for local development through active participation in initiatives that meet the demands of the population and enhance their well-being.

Our model prioritizes sponsorships and investments that have the power to transform Araxá into a more autonomous city. We have evolved in terms of monitoring the application of these resources and have formed a partnership with a consulting firm to optimize the management of our social investments, work that will be completed in 2020. For now, we do not have an effective system to evaluate the indirect economic impact generated from our social investments. Once resources are allocated, there is no systematic monitoring, except for large projects that require accountability of resource spending, but not the final impact of that investment. **GRI 102-15**

In 2019, we invested R$48,7 million, through incentivized and non-incentivized funding, in cultural, educational and health initiatives, among others, and those destined for education and health were highlights for the year.

In 2020, we will conclude improvements to our social investment management system

R$ 48,7 million invested, with a focus on health and education

EDUCATION

- Promotion of quality education for Araxá residents;
- Donation of R$2 million for the construction of the Dom Pixote Preschool;
- Construction and partnership since 1982, on the SESI/SENAI Djalma Guimarães Complex, which provides professional training courses in the areas of electro-electronics, boiler making, mechanical design, electricity, industrial machinery maintenance, hydraulics, industrial sewing and patternmaking, foundry and metallurgy.

HEALTH

- Incentivize and encourage other businesses to use CBMM's model through health programs in the community;
- Donation of R$ 850.000 to Santa Casa de Araxá in June to contribute toward the maintenance of the hospital that is a reference for care for the local population;
- Financial contributions to the Fundação de Assistência à Mulher (Women's Assistance Foundation); Fundação de Assistência à Pessoa com Deficiência de Araxá (Araxá Assistance Foundation for Disabled People); Associação do Combate ao Câncer do Brasil Central (Central Brazil Association for Combatting Cancer); Centro Nacional de Pesquisa em Energias e Materiais (National Center for Energy and Materials Research); and Fundação Pio XII (Pio XII Foundation);
- Maintenance of the Projeto Renascer (Rebirth Project) in partnership with the city of Araxá through the Fazenda Senhor Jesus (Little Farm): recovering substance abuse addicts produce seedlings of native Cerrado plants to reclaim springs and riparian forests in the region. In 2019, 13.345 seedlings were distributed to 44 small farmers;

SAFETY

- Emergency Action Plan for Dams: conducted siren tests in November as a preventive measure to ensure the operation of the dam emergency warning system;
- Yellow May: support the campaign created to promote driver awareness to reduce the number of traffic accidents. Event was held in partnership with Stock Car during the Santa Cruz race.

SPORTS

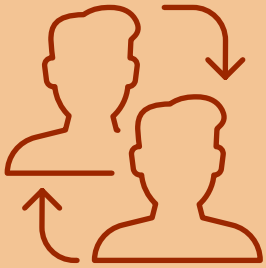
- Encourage the practice of sports in the community.

CULTURE

- Stimulate interest in and general knowledge of culture;
- Support cultural events in Araxá: literature, arts, music, gastronomy and holiday festivals;
- Renovation of the Araxá History Museum – Dona Beja and construction of a university amphitheater (both projects are ongoing). **GRI 203-1**

ENTREPRENEURSHIP

- We encourage entrepreneurship. An especially relevant example is our participation in HousingPact, a social impact initiative that involves a network of 12 institutions focused on developing job opportunities, products and services related to the housing sector for at-risk individuals. Learn more at: www.housingpact.com



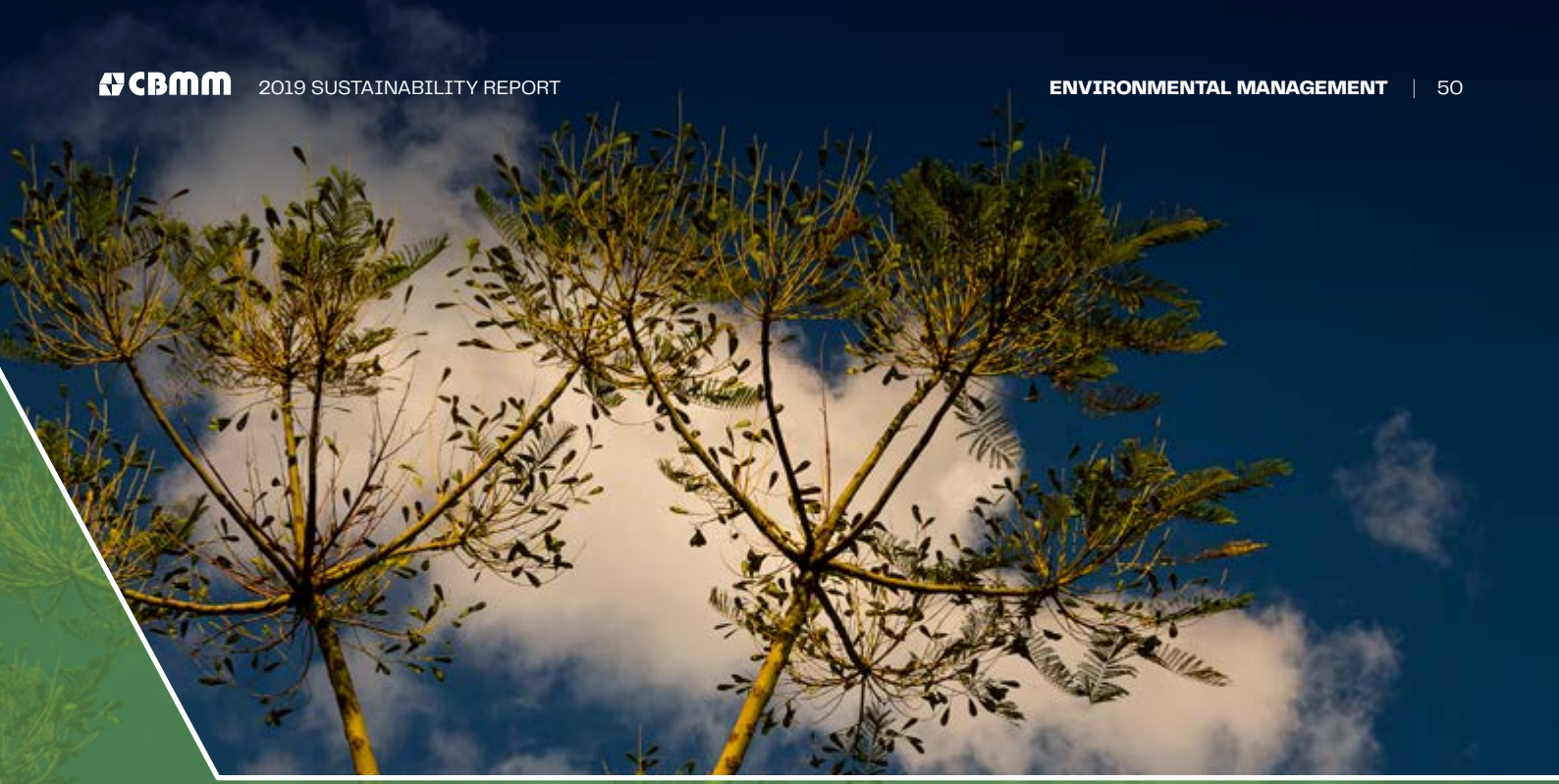
Donations and Sponsorships GRI 103/203

Aligned with our Compliance Program and Code of Ethics and Conduct, our Donations and Sponsorship Policy regulates the general rules to be practiced in relation to the company's internal and external audiences. First, the Executive Committee analyzes the request for support of cultural, social, educational, sports, environmental, urbanization and health initiatives from the community. Then, the requirements set out in the policy are analyzed. Initiatives that receive support are monitored to evaluate their indirect economic impact in the community. Monitoring includes reviewing reports, conducting visits, participating in events and analyzing social media channels.

INVESTMENTS IN INFRASTRUCTURE AND SERVICES[1] (R$) GRI 102-15, 203-1

Type[2]	Actual or expected impacts on local communities and economies	Amount		
		2017	2018	2019
Education	Promote quality education for Araxá residents	232.097	305.671	2.807.318
Health	Encourage businesses to continue doing the best for the health of the communities served	3.954.495	4.164.607	8.822.093
Sport	Encourage sports practices in the community	5.076.244	5.067.630	4.059.138
Culture	Stimulate interest in and general knowledge of culture	18.346.209	23.082.435	21.015.929
Other	Improve the quality of life in specific communities	12.488.536	11.260.285	11.956.327
Total		40.097.581	43.880.629	48.660.805

1. 2017 and 2018 data were revised. All data contemplate incentivized and non-incentivized funding.
2. Investments in Safety and Environment have been incorporated into other types of investments or removed from the calculation.



Environmental management

We are committed to respecting stakeholders and developing processes, products and services that are environmentally sound, socially just and economically viable

Our material topic

Adequately addressing environmental issues and operational licenses is critical to operational continuity, and assumes even more importance as our customers, investors and communities are increasingly concerned about climate issues.

Biodiversity and Environmental Education

Our Environmental Development Center (CDA) is composed of the Wild Fauna Scientific Conservation Breeding Center, Plant Nursery, Environmental Education Program and the Native Cerrado Species Arboretum. The CDA covers approximately six hectares within our industrial complex. Through the CDA, we develop initiatives to conserve the biodiversity of the Cerrado, including research projects, studies related to the management and reproduction of the plants and animals of this biome and associated educational actions.

Conservation of Cerrado fauna is carried out at the Conservation Breeding Center, which is regulated by IBAMA, in accordance with Ordinance 169/08, and houses on average 130 specimens. The goals of the program include the captive breeding of Cerrado animals, scientific research, technical and animal exchanges with institutions in Brazil and abroad and professional training in Cerrado fauna management and conservation.

24

protected, rare or threatened species are produced at our Seedling Nursery

Of the 33 species of flora in the Araxá region protected by law, rare or threatened with extinction, 24 are routinely produced at our Seedling Nursery. Between 2000 to 2019, over 1,44 million seedlings were distributed to help environmental mitigation in the Araxá region and for reforestation efforts on company grounds and in the community.

Since its inception in 1992, the Environmental Education Program has built strong partnerships with educational institutions in the Araxá region, encouraging participants to discover and value their home biome, the Cerrado. The program promotes observation, experimentation and documentation of experiences around proposed themes that come alive in the hands of teachers and students.

In 2019, over 2,500 students and 213 teachers from Araxá schools participated in activities of the Cerrado Scientists Project. The project addresses themes related to Cerrado biodiversity (concepts, threats and conservation), fauna, vegetation and flora, medicinal plants, pollination, deforestation, fires, wild animal trafficking, conservation, as well as the local riches, sustainable development and the urban environment.

Another component of the Environmental Education Program is called Eyes on the Future, which engages employees, service providers and interns with the goal of strengthening the culture of sustainability.

Over
72.500
students, teachers and administrators have participated in environmental education activities at CBMM since 1992

2.700
students and teachers from educational institutions in Araxá and the region participated in environmental education activities in 2019

120 specimens
of 17 species of Cerrado fauna are protected at our Conservation Breeding Center, which is a reference in maned wolf management

210 species
of rare or threatened Cerrado flora are protected by CBMM's conservation projects

Since 2000, about
1,44 million
seedlings have been used for remediation and beautification projects at CBMM, in the municipality of Araxá and in surrounding areas

Dams GRI 103-1, 103-2, 103-3

Since the beginning of our operations, we have invested in the best engineering practices and continuous improvement measures in our dam management system. Our pro-activity and transparency with environmental agencies, public entities and the technical community are the fundamental pillars for ongoing improvements to the safety of our dams.

With one dam for sediment contention, one for freshwater accumulation and four for waste/tailings disposal from the niobium concentration process, our industrial complex in Araxá has six dams designed by specialized companies in accordance with best engineering practices.

To ensure continuity of operations, in January 2019 the Environmental Permit for Operation was obtained for Dam 8. The first phase of construction on Dam 8 was finalized in 2018. The structure was built using the downstream method on compacted earth using clay material and overburden. The pond is fully lined with a layer of impermeable 1,5-milimeter thick HDPE material. This system of impermeabilization has enabled us to recirculate 96,4% of industrial water. Furthermore, sand and gravel drains were installed under the impermeable layer, allowing water to be carried under the dam and along its natural path.

All dams, from the start of operation, are monitored, inspected and undergo routine maintenance to ensure they are safe. We constantly invest in the adoption of new monitoring and inspection technologies, in addition to improving our procedures and processes. In recent years, we have implemented the automation of the reading of dam monitoring instruments and in 2019, we inaugurated the Integrated Monitoring Center (IMC). Through the IMC, skilled technicians monitor and inspect our dams in real-time, 24/7.

6
dams designed by specialized companies are located in our industrial complex

Our proactivity and transparency are pillars for ongoing improvements to our dam safety system

To maximize safety, we employ a specialized team that is responsible for the safety management of our dams, performing the technical coordination of the activities of design, implementation, operation and closure. This team reports directly to the CEO, thus ensuring a direct line of communication with the company's highest leadership and greater agility in decision-making.

In addition, we count on technical support from national and international companies that provide highly qualified, multidisciplinary professionals who work to ensure that best practices and the best available technologies are adopted.

To evaluate the procedures adopted by the CBMM team and the safety conditions of the dams, complying with current legislation, external auditors carry out a Technical Audit of Dam Safety. This audit evaluates the conservation status of the dams, the monitoring, inspection and operation data of the analysis period and the technical documentation, in addition to attesting to the structural stability of the dam.

We meet all legal requirements and current best practices. In 2019, we enhanced the input data for our Dam Emergency Action Plan by completing a socioeconomic survey to identify, qualify and record all the properties located in the valleys downstream from our dams. These downstream areas do not include any urban zones. The survey revealed that no individuals reside in the self-rescue zone (considered to extend for 10 kilometers downstream of the dams or areas that would be impacted by flooding in 30 minutes). In addition, we simulated the operationalization of the Dam Emergency Action Plan, with the support and participation of the Civil Protection and Defense Agencies.

Key improvements implemented in 2019:

- Refinement of the governance structure;
- Completion of the automation of geotechnical monitoring instrument readings (water level indicators, piezometers, internal drainage flow meters, water level meters of the reservoirs);
- Installation of video cameras with night vision capabilities for monitoring purposes;
- Deformation monitoring via satellite;
- Acquisition of drones for inspections;
- Installation of sirens to communicate emergency situations;
- Inauguration of the Integrated Monitoring Center;
- Service for weather forecasting contracted.

Water GRI 103-1, 103-2, 103-3, 303-1, 303-2

Dam 7 is used as a fresh water source. The volume of the reservoir is some 3.550.000 m^3 cubic. It is not located within a protected area, nor does it have high biodiversity or relevance to the local community. The reservoir is fed by the dammed Pirapitinga Creek and is located within CBMM's property. It is duly permitted, and the company pays a fee for exclusive withdrawal rights. Consumption from this source is considered relevant since withdrawals correspond, on average, to 5% or more of the annual volume of the water body.

Since the start of operations, we have recirculated water used in our industrial processes. Recirculated water is process water that is treated chemically and then submitted to a natural clarification process in the tailings dam to make it suitable for reuse in the manufacturing process. In 2019, we exceeded the minimum water recirculation target of 96%, reaching 94,6%, even with an increase of about 32% in ferroniobium production.

Effluents are treated at a specific plant before release. They are discharged to watercourses within the permitted standards. Our environmental team duly monitors the process. **GRI 306-5.**

19,2 m^3 of fresh water used to produce 1 tonne of ferroniobium products

17,1 m^3 of fresh water used to produce 1 tonne of niobium products

96,4% of water recirculated at production facilities

The use of fresh water (m^3/t of niobium products) dropped by 8,1% between 2017 and 2019

Barreiro Hydromineral Complex GRI 203-1

Since 1984, together with other companies, we have been a signatory of a cooperative technical and financial agreement with the government of the state of Minas Gerais to protect the area of the Barreiro Hydromineral Complex. After building infrastructure works on the site and remediating the change caused by barium chloride, in 2018 we signed a new agreement to consolidate in a single document all ongoing actions. The agreement stipulates that we will continue to operate the barium chloride remediation system, which has been deemed efficient to date by all pertinent environmental regulatory bodies. The presence of soluble barium not associated with chloride in waters of the Alkaline–Carbonatitic Complex of Barreiro in Araxá and its areas of influence is naturally occurring and precedes the implementation of any mining–industrial activity in the region. This geological body has had high concentrations of barium among its mineral constituents (barium carbonates and barite) since its formation 90 million years ago. Therefore, it is expected that the waters of this complex present naturally higher soluble barium concentrations than in other regions.

Water withdrawal and consumption[1] GRI 303-3, 303-5

	2017	2018	2019
Total water withdrawal by source – surface water (ML)	1.417,20	1.658,18	2.106,21
Specific consumption (ML/t of niobium products)	0,0186	0,0177	0,0171
Specific consumption (ML/t of ferroniobium	0,0206	0,0200	0,0192

1 No water was withdrawn from water stress areas. There was no water withdrawal from groundwater, seawater. produced water or third-party water.
The methodology of GRI standards for water indicators was revised in 2018 and, from the current report, CBMM will report according to the updated version. As agreed at a meeting of CBMM's Water Committee in early 2017, and reinforced in 2018/2019, the water used (266.849,08 m3) in the construction of the new Dam 8 and the construction of new plants will not be accounted for in the global recirculation rates.
ML=megaliters.

Water consumption GRI 303-5

	2017	2018	2019
Total water storage at the beginning of the reporting period (ML)	3.550,00	3.550,00	3.550,00
Total water storage at the end of the reporting period (ML)	3.550,00	3.550,00	2.900,00
Change in water storage (ML)	0,00	0,00	-650,00

Water discharge[1] GRI 303-4

Total water discharge by destination (ML)	2017	2018	2019
Surface water	1.054,25	446,02	2.523,16
Water reused by the organization[2]	34.700,00	46.700,00	57.047,11
Total volume of discharged water	1.054,25	446,02	2.523,16

1.There was no water discharged to areas with water stress and 100% of discharged water was classified as freshwater.
2. 83% of this amount was measured via flow meters and 17% by mathematical models due to the large volume of processed material (granulation of metallurgical slag and floated concentrate). In 2019, ferroniobium production increased by over 20%. Even with this production gain, we maintained water recirculation above 96%.

Waste GRI 103-1, 103-2, 103-3

We have always invested in waste management best practices to reduce environmental impacts

We have specific procedures that help to extend the life cycle of materials and promote their proper recycling, co-processing or disposal.

Waste is segregated and stored separately in the production areas for later collection and storage at a temporary yard to coordinate final distribution for internal use, external use, donation or commercialization. We systematically inform the relevant environmental agencies regarding the destination of each type of waste. Overburden, the mining material that does not contain niobium, is mainly used for construction projects on CBMM's grounds.

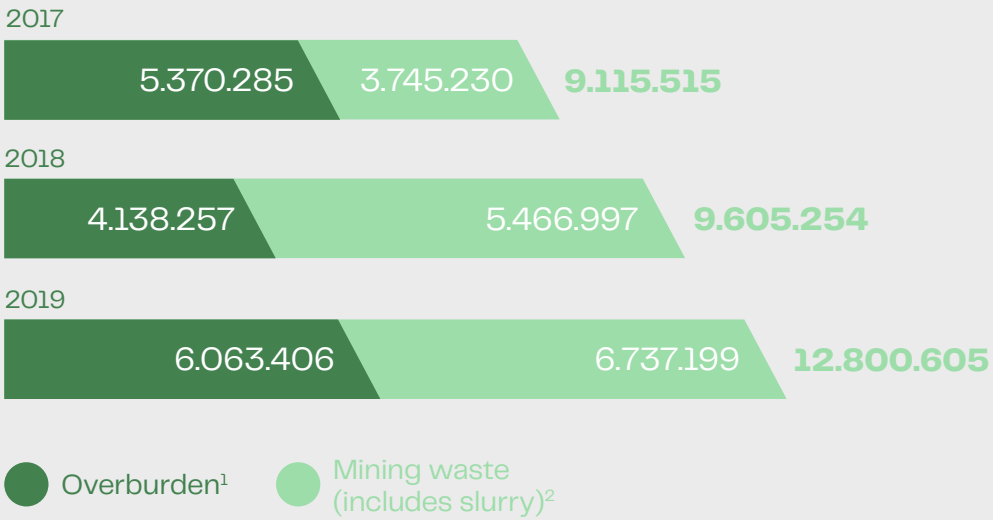
IMPACT MITIGATION

There were no significant spills or leaks of waste or liquids in 2019. We maintain procedures related to inspections and preventative maintenance. GRI 306-3

In 2019, a program of environmental inspections was implemented covering the production, support and construction work areas. A project, currently in the detail phase, aims to uncover all the buried pipes on our property in order to better evaluate possible leaks or the potential risk of leaks.

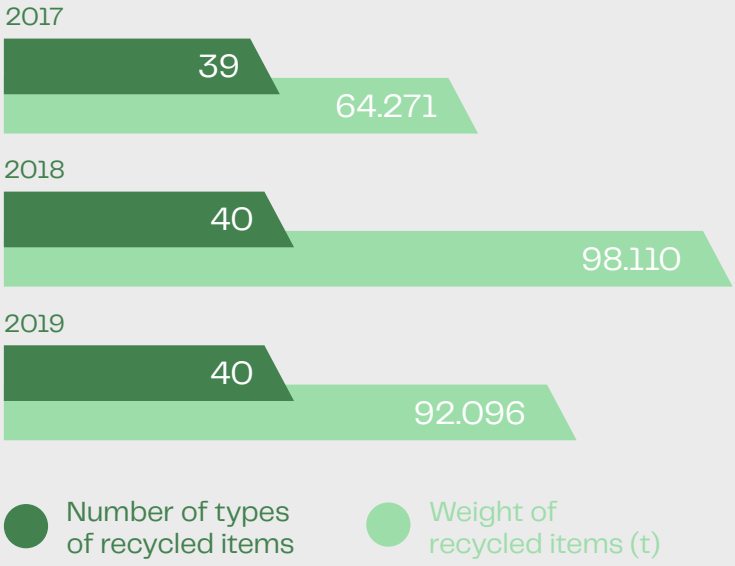
The engineering department developed a new process that recovers niobium from metallurgical slag, thereby increasing production. The initiative resulted in a gain of 3.000 tonnes in 2019. In the same year, controls related to Waste Transport Manifests were implemented in accordance with Minas Gerais legislation.

TOTAL AMOUNT OF MINING SPECIFIC WASTE (T)



1. Overburden is non-hazardous, inert waste (Class IIB). The 46,5% increase in 2019 is related to mine expansion and dam decommissioning activities.
2. Mining waste is non-hazardous and not inert (Class IIA). The 23,2% increase in 2019 is related to increased production levels.

RECYCLED ITEMS



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

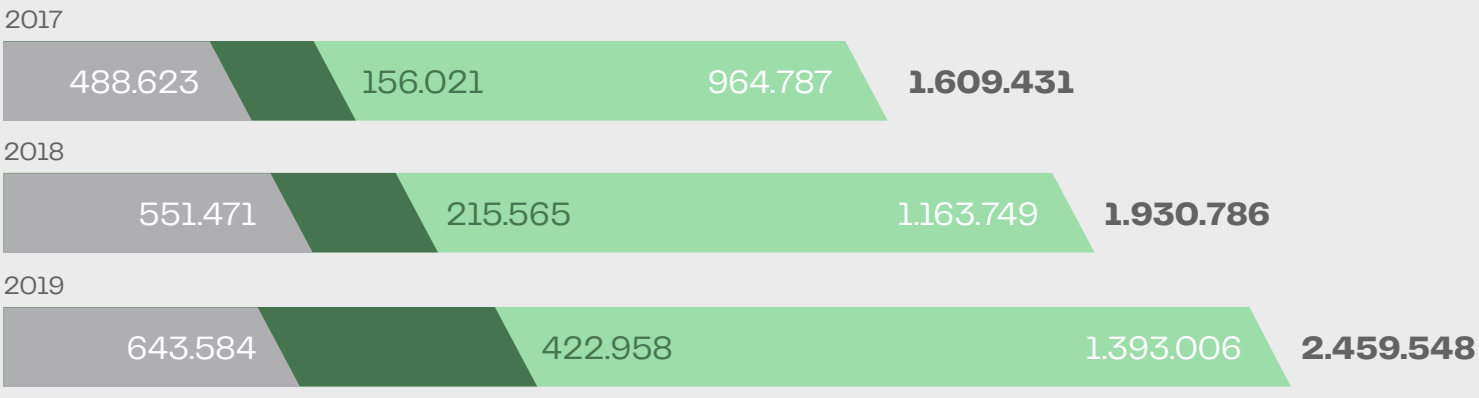
We encourage the optimized use of resources and continuous improvements in processes. Smart energy use both internally and by third parties is relevant to our results

Cemig Geração e Transmissão S.A. generated and supplied to CBMM 100% hydroelectric electricity, a clean, renewable source of energy. Our energy consumption in 2019 totaled 2.459.548 GJ, a 27% increase over the previous year. The rise in consumption is related to expanded production activities. Nevertheless, 73,8% of energy consumed by the Company derived from renewable sources (renewable fuels and electricity).

We developed the following initiatives to optimize energy consumption:

- Promotion of tele and video conferences;
- Collective transportation for employees and promoting ride sharing;
- Internal transportation scheme involving vans with fixed itineraries to reduce the number of trips that previously were made by private passenger cars;
- Onsite production of concrete to reduce costs and emissions associated with the transportation of this material;
- A mechanics shop for mobile equipment located within the industrial complex;
- A water reservoir positioned at an elevated point to reduce energy needed for pumping;
- Acquisition and use of high efficiency equipment.

ENERGY CONSUMPTION WITHIN THE ORGANIZATION BY SOURCE (GJ)



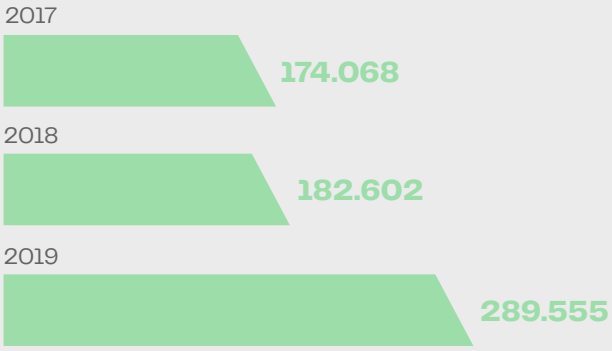
Energy consumption within the organization by source (Gj) GRI 302-1

Fuel from non-renewable sources	2017	2018	2019
LPG	242.702,17	310.164,17	380.918,18
Petroleum coke	91.971,21	96.024,74	110.234,06
Diesel fuel	149.002,60	140.029,90	146.147,82
Aviation fuel	4.946,95	5.252,49	6.283,58
Total	**488.623,00**	**551.472,30**	**643.583,64**
Fuel from renewable sources	2017	2018	2019
Charcoal	144.127,15	201.024,78	407.226,63
Biodiesel	11.894,00	14.540,32	15.731,82
Total	**156.021,15**	**215.565,10**	**422.958,46**
Electric energy[1]	**964.786,83**	**1.163.750,40**	**1.393.006,48**

1 Electricity supplied by Cemig, 100% hydroelectricity.

ENERGY CONSUMPTION OUTSIDE OF THE ORGANIZATION (GJ) GRI 302-2

Third-party fuel consumption was quantified for CBMM activities and the energy conversion was made using conversion factors from the Brazilian GHG Protocol tool,



The figures do not include fuel consumption for rail transport.

21,86 GJ
of energy consumed to produce 1 tonne of ferroniobium

73,8%
of energy from renewable sources

20 GJ
of energy consumed to produce 1 tonne of niobium products

100%
of electricity from hydroelectric sources

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

We've participated in the Brazilian Greenhouse Gas Protocol since 2013 and we invest in disseminating the potential of niobium to reduce emissions.

Our calculations cover scopes 1, 2 and 3, meaning that we consider emissions related to our own production and energy consumption, as well as those of our main service providers.

In 2019, the 18,5% increase in direct CO_2 emissions (scope 1) and the 18,8% rise in indirect CO_2 emissions (scope 2) are primarily related to higher ferroniobium production (+28%). The 51,9% increase in other indirect greenhouse gases (scope 3) is linked to the construction of the Dephosphorization Plant, closure work on Dams 4 and 5 and Dam 8 operational activities.

Between 2017 and 2019, emissions of CO_2e dropped by 19% per tonne of niobium products produced

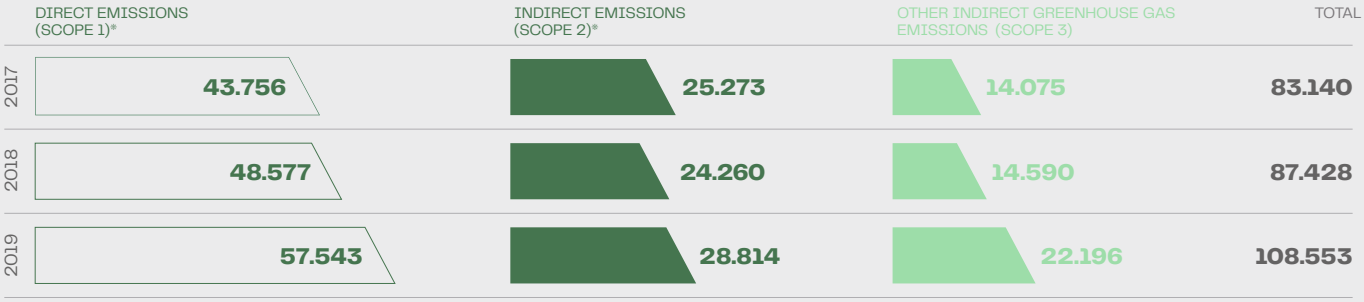
Emissions are monitored and evaluated through external audits, and internally we routinely monitor emissions from stationary sources, including parameters such as particulate matter and sulfur dioxide, considering the rates and hours of operation of each stack.

We do not emit substances that are destructive to the ozone layer. Gases in refrigerated equipment are properly maintained and during maintenance they are stored in pressurized tanks. To minimize impacts, we have implemented initiatives at our industrial complex, including:

- Watering the roadways used by mining equipment to prevent the generation of particulate matter;
- Use of ore transport belts to reduce truck traffic and subsequent emissions;
- Use of ethanol to fuel flex vehicles;
- Purchase and use of hybrid (electric + gas) vehicles;
- Inspection of all incoming tank trucks that transport raw materials and products;
- Monitoring of greenhouse gas emissions of third-party equipment.

Pyrochlore mining permits cover an area of approximately 986 hectares, of which 270 hectares are currently being actively mined in a region that is located five kilometers south of the city of Araxá. CBMM owns an area measuring over 7.000 hectares. Air quality at CBMM's industrial complex and in downtown Araxá has been monitored systematically since 1997. The results demonstrate that the levels are well below legal limits. This impact is not significant since the quality of the air adjacent to the mine is about 30 microns per meter cubed. The secondary air quality standard is 150 microns per cubic meter – below that level minimal adverse effects are expected for the wellbeing of populations, fauna, flora and the environment in general. **GRI 413-1**

DIRECT AND INDIRECT GREENHOUSE GAS EMISSIONS (tCO_2e) **GRI 305-1, 305-2, 305-3**



DIRECT AND INDIRECT GREENHOUSE GAS EMISSIONS BY SOURCE (tCO_2e) GRI 305-1

Direct emissions (scope 1)[1]	2017	2018	2019
Generation of electricity, heat or steam	25.668,85	30.276,71	37.018,00
Physical-chemical processing	3.148,96	4.091,53	4.590,92
Transportation of materials, products, waste, employees and passengers	10.978,34	10.866,16	11.788,50
Fugitive emissions	3.473,73	2.891,66	2.996,70
Solid waste and effluents (category added by the Brazilian GHG Protocol Program – 2016 Inventory)	485,75	451,21	532,93
Change in soil use (category added by the Brazilian GHG Protocol Program – 2016 Inventory)	-	0,00	615,50
Total	**43.755,63**	**48.577,27**	**57.542,55**
Biogenic emissions of CO_2 (from burning or biodegradation of biomass)	16.250,72	22.485,33	44.601,99
Purchased energy – location methodology	25.273,45	24.260,46	28.813,57
Purchased energy – market-based methodology option for purchased energy (category added by the Brazilian GHG Protocol – 2017 Inventory)	-	-	0,00

1 Brazilian GHG Protocol methodology used, approach = operational control consolidation. For calculations of atmospheric emissions, the following were considered: CO_2 –carbon dioxide; CH_4 – methane; N_2O – nitrous oxide. The base year is 2013, corresponding to the first publication of CBMM's GHG inventory for the Brazilian GHG Protocol Program. Total emissions in the base year were 3.186.092,95 tCO_2 equivalent. New base-year emissions calculations were not necessary since there were no significant changes.
2 Brazilian GHG Protocol methodology used, approach = operational control consolidation. Base year: 2013 – first publication of CBMM's GHG inventory for the Brazilian GHG Protocol Program. Total emissions in the base year were 25.058,48 tCO_2 equivalent. No alterations were made to the calculation since there were no significant changes in emissions. Scope 2 emissions refer to third-party fuel consumption during CBMM activities, converted into energy, according to the Brazilian GHG Protocol.

Other indirect greenhouse gas emissions (Scope 3)1 (tCO_2e) GRI 305-3

Upstream	2017	2018	2019
Transportation and distribution	8.334,08	5.780,58	13.564,88
Business travel	1.478,98	3.774,84	2.199,61
Employee transportation	536,98	638,71	827,95
Subtotal	10.350,04	10.194,13	16.592,44
Downstream	**2017**	**2018**	**2019**
Transportation and distribution	3.724,81	4.410,00	5.603,70
TOTAL	**14.074,85**	**14.604,13**	**22.196,14**
Biogenic CO_2 emissions	1.101,30	1.548,08	2.335,02

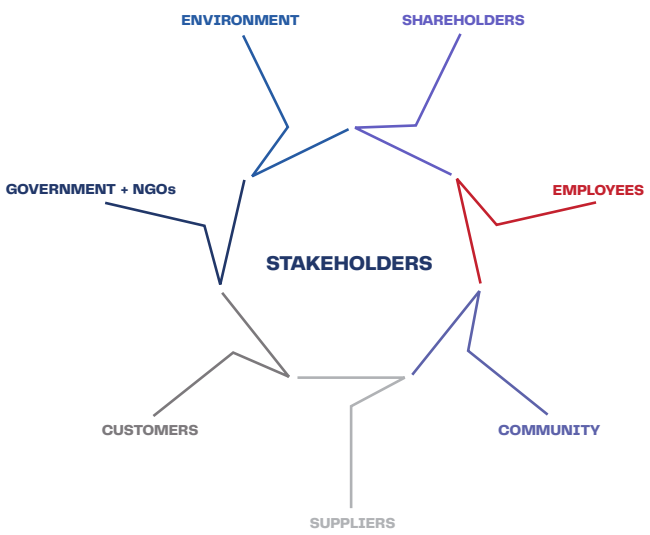
1 For calculations of atmospheric emissions, the following were considered: CO_2 –carbon dioxide; CH_4 – methane; N_2O – nitrous oxide. The base year is 2013, corresponding to the first publication of CBMM's GHG inventory for the Brazilian GHG Protocol Program. Total emissions in the base year were 13.950,74 tCO_2 equivalent. New base-year emissions calculations were not necessary. The Brazilian GHG Protocol Program methodology was used and the consolidation approach for emissions was operational control.
CBMM's GHG Inventory is available at https://registropublicodeemissoes.com.br/

0,96 tCO_2e
emitted per tonne of ferroniobium produced

0,88 tCO_2e
emitted per tonne of niobium products produced

0,71 tCO_2e
emitted per tonne of ferroniobium produced (market-based method)

0,65 tCO_2e
emitted per tonne of niobium products produced (market-based method)



GRI Content Index

GRI 102-55

General Disclosures

GRI Standard	Disclosure	Page/response	Omission	SDG*
GRI 101: 2016 General Disclosures				
	No disclosures for GRI 101			
Organizational Profile				
GRI 102: General disclosures	**102-1** Name of the organization	5		
	102-2 Activities, brands, products and services	8		
	102-3 Location of headquarters	8		
	102-4 Location of operations	8, 11		
	102-5 Ownership and legal form	8		
	102-6 Markets served	8		
	102-7 Size of the organization	8		
	102-8 Information on employees and other workers	32, 34, 35		8, 10
	102-9 Supply chain	45		
	102-10 Significant changes to the organization and its supply chain	27		
	102-11 Precautionary principle or approach	19		
	102-12 External initiatives	28		
	102-13 Participation in associations	44		
Strategy				
GRI 102: General disclosures	**102-14** Statement from senior decision-maker	4		
	102-15 Key impacts, risks and opportunities	4, 18, 19, 27, 47, 49		
Ethics and Integrity				
GRI 102: General disclosures	**102-16** Values, principles, standards and norms of behavior	16		16
	102-17 Mechanisms for advice and concerns about ethics	19		16
Governance				
GRI 102: General disclosures	**102-18** Governance structure	16		xx
	102-19 Delegating authority	17		
	102-20 Executive level responsible for economic, environmental and social topics	17		
	102-21 Consulting stakeholders on economic, environmental and social topics	5		16
	102-22 Composition of the highest governance body and its committees	17		5, 16
	102-23 Chair of the highest governing body	He's not.		16

GRI Standard	Disclosure	Page/response	Omission	SDG*
GRI 102: General disclosures	**102-24** Nominating and selecting the highest governance Body	17		5, 16
	102-25 Conflicts of interest	Since CBMM has a customer on its Board of Directors, the contract omits confidential information, in compliance with legislation. The contract includes clauses to mitigate conflicts of interest.		16
	102-26 Role of highest governance body in setting purpose, values and strategy	17		
	102-27 Collective knowledge of highest governance body	17		
	102-28 Evaluating the highest governance body's performance	There is no evaluation.		
	102-29 Identifying and managing economic, environmental and social impacts	17		16
	102-30 Highest governance body's role in reviewing the effectiveness of the organization's risk management processes for economic, environmental, and social topics	17		
	102-31 Frequency of the highest governance body's review of economic, environmental, and social topics and their impacts, risks, and opportunities	1		
Stakeholder Engagement				
GRI 102: General disclosures	**102-32** Highest governance body's role in sustainability reporting	The executive team is also responsible for approving the Sustainability Report.		
	102-40 List of stakeholder groups	5, 44		
	102-41 Collective bargaining agreements	The collective bargaining agreements cover 99,74% of all employees, the remainder are members of the statutory board.		8
	102-42 Identifying and selecting stakeholders	5		
	102-43 Approach to stakeholder engagement	5, 44		
	102-44 Key topics and concerns raised	5		
Reporting Practices				
GRI 102: General disclosures	**102-45** Entities included in the consolidated financial statements	5		
	102-46 Defining report content and topic boundaries	5		
	102-47 List of material topics	5		

GRI Standard	Disclosure	Page/response	Omission	SDG*
GRI 102: General disclosures	**102-48** Restatements of information	There are no significant restatements. Revisions of numbers and data are pointed out on a case-by-case basis throughout the text.		
	102-49 Changes in reporting	5		
	102-50 Reporting period	5		
	102-51 Date of most recent report	May 2018.		
	102-52 Reporting cycle	Annual		
GRI 102: General disclosures	**102-53** Contact point for questions regarding the report	cbmm@cbmm.com		
	102-54 Claims of reporting in accordance with the GRI standards	5		
	102-55 GRI content index	64		
	102-56 External assurance	5		

Material topics

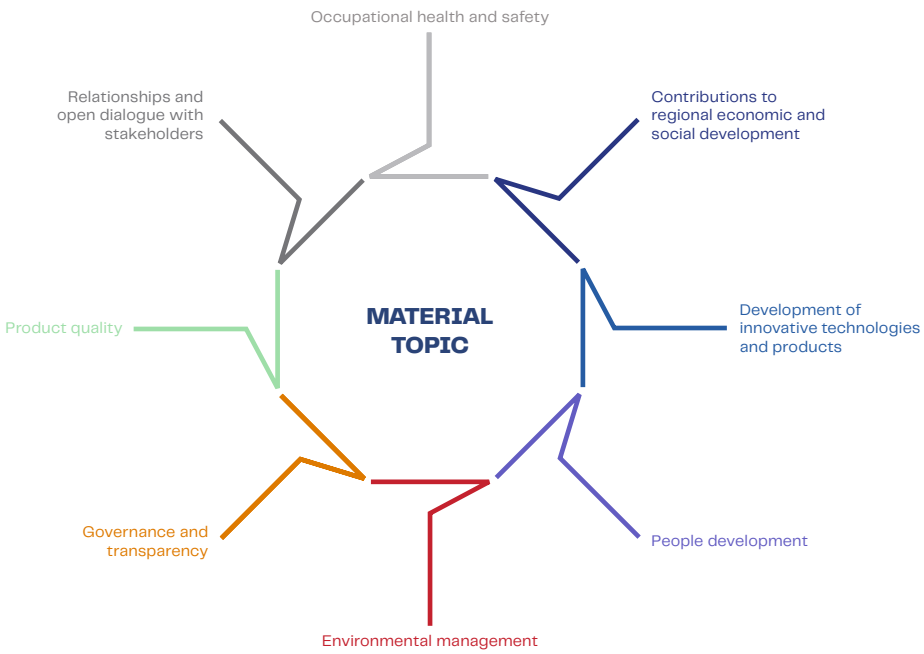
GRI Standard	Disclosure	Page/ response	Omission	SDG*
Market Presence				
GRI 103: 2016 General disclosures	**103-1** Explanation of the material topic and its boundary	35		
	103-2 The management approach and its components	35		
	103-3 Evolution of the management approach	35		
GRI 202: 2016 Market presence	**202-2** Proportion of senior management hired from the local community	36		8
Indirect Economic Impacts				
GRI 103: 2016 Management approach	**103-1** Explanation of the material topic and its boundary	49		
	103-2 The management approach and its components	49		
	103-3 Evolution of the management approach	49		
GRI 203: 2016 Indirect economic impacts	**203-1** Investments in infrastructure	48, 49, 56		5, 9, 11
	203-2 Significant indirect economic impacts	47		1, 3, 8,
Procurement Practices				
GRI 103: 2016 Management approach	**103-1** Explanation of the material topic and its boundary	45		
	103-2 The management approach and its components	45		
	103-3 Evolution of the management approach	45		
GRI 202: 2016 Market presence	**204-1** Proportion of spending on local suppliers for significant locations of operations	45		8
Anticorruption				
GRI 103: 2016 Management approach	**103-1** Explanation of the material topic and its boundary	19		
	103-2 The management approach and its components	19		
	103-3 Evolution of the management approach	19		

GRI Standard	Disclosure	Page/ response	Omission	SDG*
GRI 205: 2016 Anticorruption	**205-3** Confirmed incidents of corruption and actions taken	No cases of corruption or any public lawsuits related to corruption brought against the company or its employees have been identified.		16
Energy				
GRI 103: 2016 Management approach	**103-1** Explanation of the material topic and its boundary	59		
	103-2 The management approach and its components	59		
	103-3 Evolution of the management approach	59		
GRI 302: 2016 Energy	**302-1** Energy consumption within the organization	60		7, 8, 12, 13
	302-2 Energy consumption outside the organization	60		7, 8, 12, 13
	302-4 Reduction of energy consumption	There was no decrease in energy consumption due to the increase in production.		7, 8, 12, 13
Water				
GRI 103: 2016 Management approach	**103-1** Explanation of the material topic and its boundary	55		
	103-2 The management approach and its components	55		
	103-3 Evolution of the management approach	55		
GRI 303: 2018 Water	**303-1** Interactions with water as a shared resource	55		6, 12
	303-2 Management of water discharge related impacts	55		6
	303-3 Water withdrawal	56		6,
	303-4 Water discharge	56		6,
	303-5 Water consumption	56		6,
Emissions				
GRI 103: 2016 Management approach	**103-1** Explanation of the material topic and its boundary	61		
	103-2 The management approach and its components	19		
	103-3 Evolution of the management approach	19		
GRI 305: 2016 Emissions	**305-1** Direct greenhouse gas emissions (Scope 1)	62		3, 12, 13, 14, 15
	305-2 Indirect greenhouse gas emissions (Scope 2)	62		3, 12, 13, 14, 15
	305-3 Other indirect greenhouse gas emissions (Scope 3)	62, 63		3, 12, 13, 14, 15
Effluents and Waste				
GRI 103: 2016 Management approach	**103-1** Explanation of the material topic and its boundary	55, 57		
	103-2 The management approach and its components	55, 57		
	103-3 Evolution of the management approach	55, 57		

GRI Standard	Disclosure	Page/ response	Omission	SDG*
GRI 306: 2016 Effluents and waste	**306-3** Significant spills	57		3, 6, 12, 14, 15
	306-5 Water bodies affected by water discharges and/or runoff	55		6, 14, 15
Employment				
GRI 103: 2016 Management approach	**103-1** Explanation of the material topic and its boundary	35		
	103-2 The management approach and its components	35		
	103-3 Evolution of the management approach	35		
GRI 401: 2016 Employment	**401-1** New employee hires and employee turnover	36		5, 8 and 10
Occupational Health and Safety				
GRI 103: 2016 Management approach	**103-1** Explanation of the material topic and its boundary	41		
	103-2 The management approach and its components	41		
	103-3 Evolution of the management approach	41		
GRI 403: 2018 Occupational health and safety	**403-1** Occupational health and safety management system	41		8
	403-3 Occupational health services	41		8
	Worker participation, consultation, and communication on occupational health and safety	41		8, 16
	403-5 Worker training on occupational health and safety	41		8
	403-6 Promotion of worker health	41		3
	403-7 Prevention and mitigation of occupational health and safety impacts directly linked by business relationships	The products are accompanied by documentation related to their safety.		8
	403-8 Workers covered by an occupational health and safety management system	41		8
GRI 403: 2018 Occupational health and safety	**403-9** Work-related injuries	42		3, 816
	403-10 Work-related ill health	No diseases and deaths were recorded in 2019 as well as in 2018 and 2017.		
Training and Education				
GRI 103: 2016 Management approach	**103-1** Explanation of the material topic and its boundary	38		
	103-2 The management approach and its components	38		
	103-3 Evolution of the management approach	38		
GRI 404: 2016 Training and education	**404-1** Average hours of training per year per employee	This indicator will be reported in 2020.		4, 5, 810
	404-3 Percentage of employees receiving regular performance and career development reviews	38, 39		5, 810
Local Communities				
GRI 103: 2016 Management approach	**103-1** Explanation of the material topic and its boundary	47		
	103-2 The management approach and its components	47		
	103-3 Evolution of the management approach	47		

GRI Standard	Disclosure	Page/ response	Omission	SDG*
GRI 413: Local communities	**413-1** Operations with local community engagement, impact assessments and development programs	47, 62		
Socioeconomic Compliance				
GRI 103: 2016 Management approach	**103-1** Explanation of the material topic and its boundary			
	103-2 The management approach and its components			
	103-3 Evolution of the management approach			
GRI 419: 2016 Socio-economic compliance	**419-1** Non-compliance with laws and regulations in the social and economic area	There was no non-compliance. All the lawsuits received and defended were part of the organization's routine.		16
Mining sector supplement				
Biodiversity	**G4 MM1** Amount of land (owned or leased, and managed forproduction activities or extractive use) disturbed or rehabilitated	The impacted area remains the same because the activities in the mine are done vertically, at depth. For now, there are no mine closure plans. In Minas Gerais, mines can only go through a recovery process two years before they are exhausted.		3, 6, 12, 14, 15
Effluents and waste	**G4 MM3** Total amounts of overburden, waste and sludge and associated risks	58		3, 6, 12
Management of materials	**G4 MM11** Programs and progress related to the management of materials	Material management is carried out in a safe manner, mainly with regard to mineral use and the appropriate disposal of these materials.		7, 8, 9, 12, 13, 17

* The Correlation is an official GRI document.



Third-party assurance

Independent auditor's limited assurance report on the sustainability information included in the 2019 Sustainability Report

To the Management and Stockholders
Companhia Brasileira de Metalurgia e Mineração
Araxá– MG

INTRODUCTION

We have been engaged by Companhia Brasileira de Metalurgia e Mineração ("Company" or "CBMM") to present our limited assurance report on the compilation of the sustainability information included in the 2019 Sustainability Report of Companhia Brasileira de Metalurgia e Mineração for the year ended December 31, 2019.

MANAGEMENT'S RESPONSIBILITIES

The Company's management is responsible for the preparation and fair presentation of the sustainability information included in the 2019 Sustainability Report, in accordance with the guidelines of the *Global Reporting Initiative* (GRI–STANDARDS) and for such internal control as it determines is necessary to enable the preparation of information free from material misstatement, whether due to fraud or error.

INDEPENDENT AUDITOR'S RESPONSIBILITY

Our responsibility is to express a conclusion on the sustainability information included in the 2019 Sustainability Report based on our limited assurance engagement carried out in accordance with the Technical Communication CTO 01, "Issuance of an Assurance Report 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 we comply with ethical and independence requirements, and other responsibilities, including in relation to the Brazilian Standard on Quality Control (NBC PA 01) and, therefore, the maintenance of a comprehensive quality control system, including documented policies and procedures for ethical requirements, professional standards and legal and regulatory requirements.

In addition, those standards require that we plan and perform our engagement to obtain limited assurance that the sustainability information included in the 2019 Sustainability 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 the entity involved in the preparation of the sustainability information, as well as applying analytical procedures to obtain evidence that enables the issue of 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 the auditor to believe that the information taken as a whole might present significant misstatements.

The procedures selected were based on our understanding of the process for the compilation and presentation of the sustainability information included in the 2019 Sustainability Report and on our analysis of the areas in which significant misstatements might exist. The following procedures were adopted:

(a) Planning the work, taking into consideration the materiality and the volume of quantitative and qualitative information and the operating and internal control systems used to prepare the sustainability information included in the 2019 Sustainability Report of the Company.

(b) Understanding the calculation methodology and the procedures adopted for the compilation of indicators through interviews with 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 sustainability information included in the 2019 Sustainability Report.

(d) Agreeing the financial indicators with the financial statements and/or accounting records.

The limited assurance engagement also included tests to assess compliance with the guidelines and criteria of the *Global Reporting Initiative* (GRI- STANDARDS) applied in the preparation of the sustainability information included in the 2019 Sustainability Report.

We believe that the evidence we 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 are substantially less detailed than those applied in a reasonable assurance engagement, the objective of which is the issue of an opinion on the sustainability information included in the 2019 Sustainability Report. Consequently, we were unable to obtain the level of reasonable assurance sufficient to become aware of all significant matters that might be identified in an assurance engagement, the objective of which is the issue of an opinion. Had we performed an engagement with the objective of issuing an opinion, we might have identified other matters and possible misstatements in the sustainability information included in the 2019 Sustainability 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 years, nor future projections and goals.

The preparation and presentation of the sustainability indicators were performed pursuant to the criteria of the GRI-STANDARDS and, therefore, do not aim to provide assurance with the 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 limited assurance report should be read and understood in this context, which is inherent to the criteria selected (GRI-STANDARDS).

CONCLUSION

Based on the procedures performed, described herein, no matter has come to our attention that causes us to believe that the sustainability information included in the 2019 Sustainability Report of Companhia Brasileira de Metalurgia e Mineração has not been compiled, in all material respects, in accordance with the guidelines of the *Global Reporting Initiative* (GRI – STANDARDS).

Belo Horizonte, May 12, 2020
PricewaterhouseCoopers
Auditores Independentes
CRC 2SP000160/O-5 "F" MG

Maurício Colombari
1SP195838/O-3

Corporate contacts

CBMM – COMPANHIA BRASILEIRA DE METALURGIA E MINERAÇÃO
www.cbmm.com

Headquarters, Manufacturing & Technology Center
Córrego da Mata, s/nº
38183-903
Araxá (MG) – Brazil
+55 (34) 3669-3000

Sales & Applications Technology
Avenida Brigadeiro Faria Lima, 4285, 9º andar
04538-133
São Paulo (SP) – Brazil
+55 (11) 3371-9222 ou +55 (11) 2107-9222

Subsidiaries
CBMM TECHNOLOGY SUISSE SA
Avenue Pictet-de-Rochemont, 8
1207
Geneva – Switzerland
+41 (22) 318-4050

CBMM ASIA PTE. LTD.
10 Collyer Quay
#26-10 Ocean Financial Centre
Singapore
+65 6303-0290

CBMM EUROPE BV
WTC H-Tower - Zuidplein 96 / 1077 XV
Amsterdam, Netherlands
+31 (0) 20 881-3140

CBMM NORTH AMERICA, INC.
1000 Omega Drive, Suite 1110
Pittsburgh (PA) 15205 – USA
+1 (412) 221-7008

Representative Offices
CBMM Beijing
B1199, 01-1106, F10, No. 1 Building No. 8 Yard
North Road of the Workers Stadium
Chaoyang District
Beijing, China
+86 1381138-7305

CBMM Shanghai
Suite 4704-A5
47F Hong Kong New World Tower
No. 300 Huai Hai Zhong Road
Huangpu District
Shanghai, China
+86 (21) 5116-2822

Credits

GENERAL COORDINATION
CBMM

PROJECT COORDINATOR
Thiago de Souza Amaral

PROJECT MANAGEMENT TEAM
Thiago de Souza Amaral
Paulo de Tarso Gonçalves Nolli
Dawn Kelly

KEY SUPPORT
CBMM employees who provided valuable information and suggestions

CONSULTANT
Bruno Fernando Riffel

GRI CONSULTING, EDITORIAL COORDINATION AND DESIGN
Report Sustentabilidade
www.reportsustentabilidade.com.br

ENGLISH TRANSLATION
Dawn Kelly

PHOTOGRAPHY
AbsolutVision on Unsplash
Archive CBMM
Bruno Fernando Riffel
Gladstone Pereira & Lobo Jr
João Lima
Marcio Schimming
Ricardo Correa
Sander Dib
Shutterstock

INFOGRAPHICS
Cássio Bittencourt