



2024 Integrated Report





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Introduction



Photo: Gabriel Lordélio

Vitória-Minas passenger train.

Letter from the CEO

GRI 2-22

**GUSTAVO PIMENTA**

Vale CEO

It is an honor to lead this great Company, and I am extremely confident and optimistic about our future. At the end of 2024, we launched our Vale 2030 Vision, which aims to position the Company as a trusted partner with a superior portfolio and a results-oriented approach. Together, we will strive to ensure that Vale achieves the best performance in our industry.

To deliver a superior portfolio and create value over the next five years, we are focusing on flexibility to adapt our product mix to any market scenario. Our Mega Hubs are a prime example of how we are looking to make progress on projects to decarbonize the steel industry. Last year, we took a step forward by forming a new partnership, this time with Hydnium Steel, to develop low-carbon solutions for steel production. This agreement includes a joint assessment of the possibility of building an iron ore briquette plant to produce green steel in Puertollano, Spain. We also launched the New Carajás Project, which envisions investments of USD 13 billion by 2030 to expand iron ore and copper operations at the Carajás complex in Pará. As well as boosting mineral production, New Carajás focuses on circular economy practices in mining, using innovative technologies and dry mining processes. This initiative seeks to help position Vale and Brazil as leaders in supplying critical minerals.

The second pillar of our strategy aims to improve our competitiveness, safety and operational excellence, while fostering innovation, digital solutions and talent development.

Our efforts here have already yielded impressive results. In 2024, we achieved our highest iron ore production since 2018, reaching 328 million metric tons, at the top of our guidance range. We successfully delivered two of the Company's three major projects: Vargem Grande and Capanema, both in Minas Gerais. These projects have added 30 million metric tons of low-cost production capacity. In base metals, we completed the expansion of Voisey's Bay

Mine in Canada, while the New Carajás Project will further increase our copper production capacity. Our circular solutions program has gained momentum, becoming an increasingly important element of our business strategy. In 2024, we produced approximately 12 million metric tons of iron ore from tailings, and by 2030, we expect to reach around 30 million metric tons. This program has unlocked opportunities to enhance efficiency and reduce risks in our production plans.

We continue to work diligently on dam management and safety. Last year, we decharacterized four more upstream structures, bringing the total number of upstream dams in Brazil that have been decommissioned since 2019 to 57%. We also improved the safety categories of five dams, putting us on track to remove the only dam still classified as emergency level 3 in 2025.

Safety will always be a key value and priority. This means that, regardless of the moment, it will be present in all our decisions and behavior, permeating the entire Company. However, we deeply regret that four colleagues lost their lives at our operations in 2024. We will not rest until we reach zero fatalities. While we have made progress in recent years, the road ahead remains long and challenging.

Finally, we are enhancing our processes for institutional and social dialogue and engagement, building trust and fostering a positive agenda.

In 2024, we reached a historic milestone for Brazilian society by signing the definitive agreement for full reparations for the collapse of Samarco's Fundão Dam in Mariana, Minas Gerais. The engagement of the Brazilian public authorities ensured the legitimacy of the agreement, which was grounded in social, environmental and technical criteria. This important agreement underscores our commitment to a better future for people, communities and the

environment. In Brumadinho, we have fulfilled 75% of our commitments and are on track to complete approximately 90% by 2026.

We remain disciplined in evolving our practices, resolving disputes and enhancing transparency in our sustainability efforts. This has led to a consistent improvement in Vale's risk perception among leading ESG rating agencies since 2019, as well as our removal from the exclusion lists of major international investment funds and asset managers. While our concrete progress has not yet been fully reflected in these ratings, we are firmly committed to transparency and continuous engagement to ensure Vale's achievements are fairly recognized.

Vale's success in the coming years will be defined by our performance in our strategic pillars, which seek to align sustainability with our business goals. As we develop a superior portfolio, guided by results, we will continue to focus on operational stability and efficiency, which will help enable us to deliver on our production and cost commitments. Ultimately, we strive to be an even more reliable partner, with no dams at emergency level 3, progressing with our safety, circular economy and decarbonization initiatives, and addressing extreme poverty while working closely with local, traditional and indigenous communities.

We are making robust investments in health, education and income generation to help drive socioeconomic and cultural development in the regions where we operate. We will continue working to boost local economies while strengthening our reputation among communities and society. I have a lot of confidence in these drivers and believe that we are very well positioned and ready to embark on a more prosperous tomorrow. After all, we exist to improve life and transform the future together. That is our purpose.

Letter from the Chairman of the Board

GRI 2-22

**DANIEL STIELER**

Chairman of the Board of Directors

The year 2024 showed that Vale remains on track to become one of the best mining companies in the world in an environment of transformation towards a low-carbon economy. The company has advanced in innovative solutions, generating products necessary for the energy transition, and has been fulfilling its obligations of transparency and dialog with society and public authorities, supported by robust governance. Our efforts towards operational excellence enabled us to achieve the highest iron ore production since 2018 (328 million tonnes).

In this context, I would like to point out that, as Chairman of the Board of Directors, I could not fail to express my satisfaction with the successful choice of the new CEO, Gustavo Pimenta, who mobilized the entire company, especially the Board of Directors. Our governance has been further strengthened with the CEO succession process. This reinforced the corporation model, characterized by the dispersion of capital and absence of defined control, adopted in 2020.

The entire process was conducted within the guidelines established in Vale's bylaws and regulations. An international recruitment company was hired to evaluate the candidates, together with a committee appointed for this purpose, in addition to close monitoring by the Board of Directors and its People and Remuneration Committee.

The name chosen, unanimously, came from within the Company, since Pimenta had until then been vice-president of Finance. In his initial steps, the new CEO, supported by the Board of Directors, has shown that he intends to maintain the strategy of transforming Vale into an example of a mining company that operates safely and efficiently, reducing its environmental impacts, implementing circularity in mining and decarbonizing the operation. This will allow greater flexibility to meet the growing global demand for high quality ores, essential for the energy transition, while also ensuring greater operational efficiency. These are the guidelines for the true mining of the future.

In 2024, we will also advance our strategy of contributing to the decarbonization of the steel industry. Today, we have

five countries with mega hubs under development, with partners and in strategic geographies,.

Announced in 2022, the mega hubs are industrial complexes that provide for the construction of low-carbon product plants to produce lower-emission steel.

Still on our value chain, we carried out the first test of a Valemax, the world's largest ore carrier with a cargo capacity of 400,000 tonnes, powered by a wind propulsion system made up of five rotating sails. The ship docked at the Tubarão Unit (Espírito Santo), coming from China. Efficiency gains of 6% and a reduction of 3,000 tonnes of CO₂ equivalent per year are expected. Two more projects are planned until the end of 2025.

At the other end of the strategy is the reuse of waste from iron ore production, deposited in Vale's dams. In 2024, the Company recovered more than 12 million tonnes of iron ore through its circularity program, Waste-to-Value. Innovation, which underpins the mega hubs, the Waste-to-Value program and the sailing ore carriers, drives the Company in its quest for operational excellence with social and environmental responsibility.

On the issue of dam safety, we had important victories last year, such as the decharacterization of the B3/B4 dam, the first structure to reach emergency level 3. We also reduced the level of the Sul Superior dam in Barão de Cocais from 3 to 2. The Board closely monitors the Company's entire decharacterization program, which, since 2019, has invested USD 2.1 billion and decharacterized 17 (57%) of the company's 30 upstream structures in Brazil. These results reinforce Vale's commitment to improving operational safety.

The year was also marked by the Mariana renegotiation agreement, ensuring the full and definitive conclusion of reparations and compensation for the Fundação dam failure. We also made progress with the Brumadinho reparation process, executing 75% of the compensation plan. The Board and its advisory committees continue to monitor compliance with the plan through regular

visits and tracking of physical and financial progress. We also monitor Vale's risk management system, as well as efforts related to dam decharacterization efforts and dam safety improvements. Since the Brumadinho tragedy, Vale has undergone a profound cultural transformation, striving to build a mining model with reduced impacts, driving the energy transition and contributing to social development, especially in the regions where we operate. Cultural transformation has been a strategic priority for Vale in recent years, and it is an integral part of the annual work plans of the People and Compensation Committee and the Board of Directors.

In line with Vale's ambition to be a leader in sustainable mining, the short- and long-term performance-based compensation for top management is heavily weighted toward environmental, social and governance ESG metrics. For long term remuneration, ESG metrics have a 25% weighting and are linked to health and safety, climate change and Vale's goal of ranking among the top three miners in leading external evaluations.

I would also like to highlight the importance of proactive communication, which reinforces the Company's positions, reflects its evolution and strengthens its business strategies. Through continuous action, whether raising awareness of our initiatives among society or engaging employees in topics that are relevant to the Company's day-to-day activities, we seek to strengthen our reputation, brand and, above all, our relationships of trust. These pillars are fundamental to sustaining our social license to operate, positioning Vale as a reliable partner and leader in the mining sector.

Finally, I would like to close by thanking each member of the Board and the corporate governance team for their dedication to Vale's continued and sustainable success. I also wish success to Gustavo Pimenta and the other members of the Executive Committee, and all Vale employees on this journey of cultural transformation, which we will navigate together.

Overview of this report

GRI 2-22

Minerals: They are in everything: in the pots and pans we cook in, our stoves and refrigerators, aerospace equipment, cell phones, and even the goalposts on a soccer field. It's undeniable that minerals are essential in our daily lives. But we know that's not enough. We need to do more, because mining has both positive and negative impacts. And what defines responsible action is precisely the way it's conducted. That's why it's necessary to listen, question and engage in dialogue with society and within the business itself. This is the only way we can change our processes and build the mining industry of the future, in line with our purpose: "To improve life and transform the future. Together."

In this 2024 Integrated Report, we present our intentions and lessons learned, as we strive to make our operations increasingly sustainable. The structure of this document is aligned with Vale 2030 – our strategy that aims to make us an even more trusted partner with a more competitive and resilient portfolio. It consists of three broad chapters: A Superior Portfolio, Performance Driven, and A Trusted Partner. We hope you find this report helpful.

If you have any questions or feedback on this publication, please reach out to us via our **Contact Us** channel or our toll-free number, 0800 285 7000. Learn more about our responsiveness to stakeholders and our listening channels in the **Listening and Response section**.



For more information about our reporting methodology, see the **About This Report** section.

ESG Databook

Please refer to the ESG Databook, attached to this report, to find content regarding Global Reporting Initiative (GRI), Sustainability Accounting Standard Board (SASB) Mining & Metals Standard, The

World Economic Forum (WEF) key metrics, and our compliance with the Mining Principles of the International Council on Mining and Metals (ICMM). The premises base mentioned in the PwC Limited Assurance Report is also in the Databook.

 [CLICK HERE TO LEARN MORE](#)

Photo: Ricardo Teles



Recovery equipment – Serra Sul, Pará, Brazil.

About Vale: Who we are

GRI 2-22

Our 174,000 people, including employees and contractors, who produce iron ore and metals for the energy transition, are the core of our business. We are one of the world's leading producers of iron ore pellets, copper and nickel, as well as platinum group metals, gold, silver, cobalt, and iron ore briquettes.

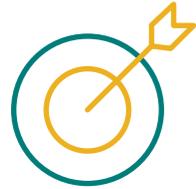
Our logistics systems, comprising railroads, maritime terminals and ports, as well as distribution centers, are integrated with our mines to support the delivery of iron ore around the world. Directly or through our associates and joint ventures, we invest in energy businesses.

Vale is present in 17 countries. Our head office is located in Rio de Janeiro, Brazil. We have been a publicly traded corporation (Vale S.A.) since 1970, and our shares are traded on the Novo Mercado listing segment of the São Paulo Stock Exchange (B3), the New York Stock Exchange (NYSE) and the Latibex¹ Securities Exchange in Madrid.

Our culture

To pursue our purpose every day and achieve our ambitions, we strive to practice our culture's values and key behaviors.

¹ Latibex is an unregulated electronic market of the Madrid Stock Exchange where Latin American securities can be traded.



Our Purpose

We exist to improve life and transform the future. **Together.**



WHY DO WE EXIST?

Values

- Life matters most
- Act with integrity
- Value the people who build our Company
- Make it happen
- Respect our planet and communities



WHAT DO WE BELIEVE IN?

Key Behaviors

- Obsession with safety and risk management
- Open and transparent dialogue
- Active listening and engagement with society
- Empowerment with commitment
- Sense of ownership



HOW DO WE ACT?

Levers

- Safety
- VPS (Vale Production System)
- People
- Innovation
- Sustainability



HOW DO WE ACT?

Ambitions

- A great Company recognized by society for being a:
- Benchmark in safety
 - Best-in-class reliable operator
 - Talent-driven organization
 - Leader in sustainable mining
 - A benchmark in creating and sharing value



WHAT DO WE LOOK FOR?

Strategic pillars

Vale 2030: A trusted partner with a competitive and resilient portfolio.

Our goal is to establish ourselves as a global leader in mining, recognized for our superior portfolio, performance driven culture and reputation as a trusted partner.

Vale's pillars for 2030 aim to create shared value for our stakeholders:

Superior Portfolio

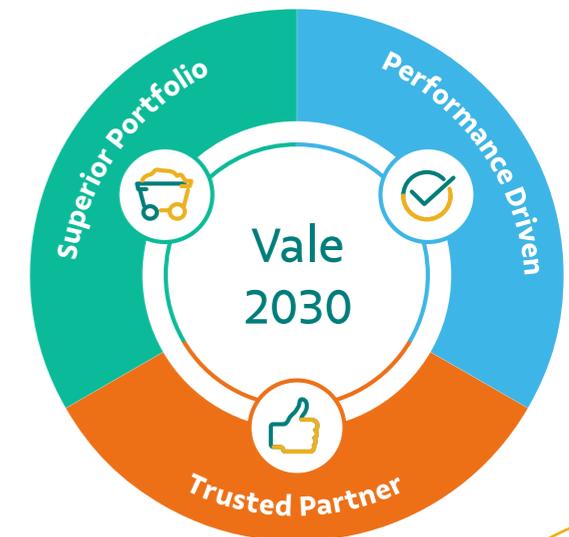
We seek to focus on a high quality and flexible iron ore portfolio, client-oriented solutions and accelerating growth in the copper segment to support growing demand for copper in renewable energy, electrification and green infrastructure technologies.

Performance Driven

We aim to promote a performance-driven culture, with an emphasis on safety, operational excellence and innovation.

Trusted Partner

We strive to ensure greater trust through increased transparency, cultivating institutional relations and generating positive impacts for society and the environment.



Vale around the world

GRI 2-1

 INTERACTIVE CONTENT

CLICK THE LEGEND
TO EXPLORE
THE MAP

3.26 GW

of installed capacity, in hydroelectric, wind and solar power assets in Brazil and Canada.

975 thousand

hectares of preserved areas, including 787,000 hectares in the Amazon and 188,000 hectares protected in partnership with Conservation Areas and REDD+ projects.

USD 5.4 billion

of taxes paid in the jurisdictions where Vale operates

Activities:

Product Portfolio

⁴Platinum group metals (PGM) are byproducts of Canada's operations

Business model

Our complex network of mines, processing facilities and global distribution networks requires detailed organizational, financial, operational and logistical planning.

Value capture

FINANCIAL CAPITAL:

- USD 92 million in total assets
- Completion of carve-out of the sale of a 10% stake in Vale Base Metals (VBM) to Manara Minerals Investments
- USD 155 million received from the sale of a stake in PTVI
- USD 6 billion in investments made, in line with guidance: USD 1.5 billion in capital projects and USD 4.5 billion in maintenance projects

NATURAL CAPITAL:

- 106.9 million m³ of water used for operational purposes
- 126,200 TJ of energy consumed (30.2% renewable)
- 100,267 hectares occupied by our operations
- 974,641 hectares of habitat protected

HUMAN CAPITAL:

- 174,000 workers (employees and contractors)
- 26.5% women in the workforce
- 37.7% black representation in leadership positions

MANUFACTURED CAPITAL

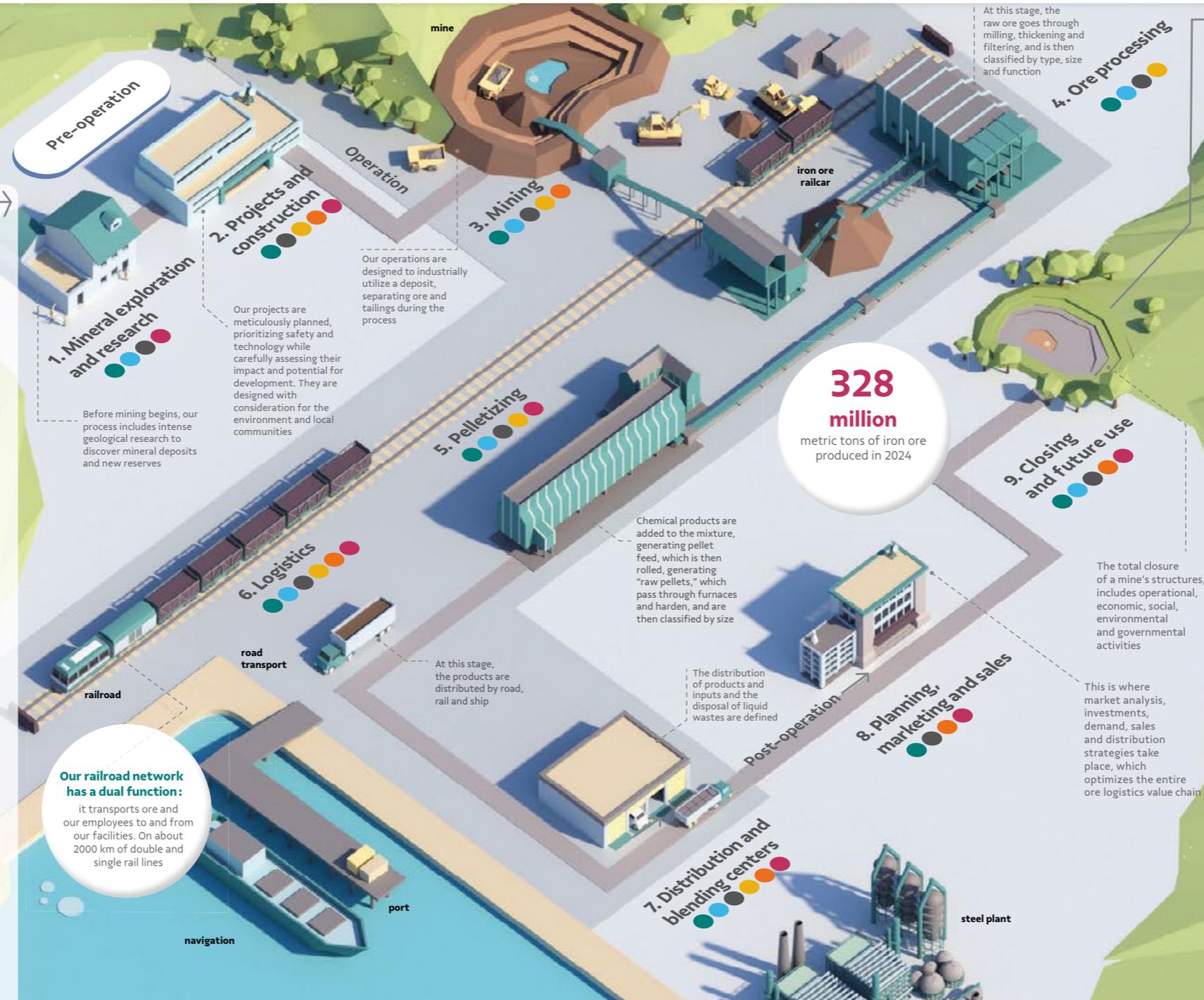
- Operating sites in six countries: Brazil, Canada, the United Kingdom, Oman, Malaysia and Japan
- ~1,800 km of railroads operated by Vale in Brazil, comprising the Vitória-Minas Railroad (905 km) and the Carajás Railroad (892 km)

SOCIAL AND RELATIONSHIP CAPITAL

- More than 19,000 suppliers
- USD 11.9 billion in local purchases (58% of total)
- Mapping of 1,214 local communities, 28 indigenous peoples and 91 traditional communities that interact with the Company

INTELLECTUAL CAPITAL:

- USD 23.3 million invested in the Vale Institute of Technology's Sustainable Development and Mining arms in 2024
- USD 16.1 million invested in R&D by the Vale Institute of Technology in 2024
- 800 people dedicated to innovation at Vale in Brazil and 365 projects in its research, development and innovation portfolio
- 11 internal innovation hubs
- 5 countries with Mega Hubs under development
- 61 patents granted to Vale in 2024 (16 in Brazil and 45 in other countries)



Our railroad network has a dual function:
it transports ore and our employees to and from our facilities. On about 2000 km of double and single rail lines

328 million
metric tons of iron ore produced in 2024

Shared value

FINANCIAL CAPITAL:

- USD 14.8 billion of adjusted EBITDA from ongoing operations
- USD 6.2 billion of net profit from ongoing operations
- USD 5.4 billion of taxes paid to governments
- USD 2.1 billion of social, environmental and institutional expenditure, including items related to Brumadinho
- Approximately USD 595 million in voluntary investments

NATURAL CAPITAL:

- 7.7 million tCO₂e of emissions (Scopes 1 and 2 Market Based), down 26.9% from the 2017 base year
- 7.12 TWh of electricity generated (97.8% renewable)
- 7.6 km² of habitat restored in 2024 or 988 hectares of habitat restored in our operations in 2024
- 598,000 tonnes of non-mineral waste generated
- 389.4 million tonnes of mineral waste (waste rock, tailings and slag) generated

HUMAN CAPITAL:

- Reduction of approximately 68% in total accident rate since 2019
- 98 accidents/incidents involving injuries among community members
- ~53 hours of training on average for all employees

MANUFACTURED CAPITAL:

- 328 million tonnes of iron ore (our highest output since 2018) and 37 million tonnes of pellets
- 348,000 tonnes of copper, 160,000 tonnes of nickel and around 1.4 million tonnes of sustainable sand produced by processing iron ore tailings
- USD 6 billion of investments, including USD 4.6 billion of maintenance capex
- 1.3 million people transported by passenger trains: 845,000 on the Vitória-Minas Railroad and 423,000 on the Carajás Railroad
- 17 upstream dams decharacterized in Brazil

SOCIAL AND RELATIONSHIP CAPITAL:

- Vale Foundation: 2.9 million people benefited from activities in 48 municipalities in the areas of education, health and income generation
- Vale Cultural Institute: more than 830 projects conducted, involving total investment of USD 205.4 million, using own and tax-deductible resources, since the institute's creation in 2020
- Fundo Vale: 400 impact businesses supported, 146 initiatives fostered, directly and indirectly impacting 60,000 people in 15 years of work.
- Around 18,700 requests made by communities
- 897 families involved in involuntary resettlement processes

INTELLECTUAL CAPITAL:

- 15 awards related to innovation in 2024
- Around 40 products and 1,500 models implemented through 80 AI projects
- 111 scientific publications and R&D projects supported by Vale Institute of Technology

Highlights of the year

Superior Portfolio



328 Mt

of iron ore produced, our highest level since 2018



1st batch of iron ore briquettes

for direct reduction produced – a more sustainable solution for making steel



348.2 thousand

tonnes of copper produced



5 countries

with Mega Hubs under development



Launch of the **Novo Carajás** program



USD 15 billion

in adjusted EBITDA

Performance Driven



57%

of upstream dams decharacterized



26.5% women

in our workforce



68% reduction

in total recordable injury frequency rate (TRIFR) compared to our 2019 baseline



12.7 million tonnes

of mineral waste recovered in the Waste to Value program.



1.1

injury frequency rate (TRIFR)



USD 257 million

invested in decarbonization initiatives in 2024

Trusted Partner



75%

delivery of obligations under the Brumadinho Comprehensive Reparation Agreement



Signing of **definitive agreement**

with the Brazilian public authorities for full reparations for the failure of Samarco's Fundão dam



Voluntary and early adoption

of international standard issued by the International Sustainability Standards Board (ISSB)



51,000 people

engaged in initiatives to overcome extreme poverty



Vale Cultural Institute is the **largest investor in culture in Brazil**

CLICK THE HIGHLIGHTS TO FIND OUT MORE DETAILS

Photo: Washington Alves



Danielle Rodrigues, welder at the Mar Azul Mine Workshop, MG, Brazil.

Materiality

GRI 2-12 GRI 2-14 GRI 2-25 GRI 3-1 GRI 3-2

In 2024, Vale consolidated its materiality approach, aligned with Global Reporting Initiative (GRI) guidance, reaffirming our commitment to sustainability, transparency and meeting the expectations of our stakeholders. This process was structured to, among other things, assess the impacts of our operations on our environment and society, to identify risks and opportunities, and strengthen our governance on issues critical to the business and society.

The analysis followed GRI's impact materiality approach, assessing the social, environmental and economic impacts, and longer-term impacts of the Company's activities. This approach enables a comprehensive view of the challenges and opportunities related to the global mining market, as well as the ability to more accurately identify high-priority themes for strategic management.

Process and methodology

The 2024 materiality analysis was conducted in four main phases:

Analysis of documents and global trends:	Review of relevant reports and studies, such as the WEF' Global Risks Report 2024 and analyses of risks and opportunities in the mining sector undertaken by EY and KPMG, as well as ESG indexes and ratings, such as MSCI, Morningstar Sustainalytics and Dow Jones Sustainability Indices, plus the material themes in the GRI 14: Mining Sector 2024 and SASB Metals & Mining standards.
Review of ongoing engagement channels:	Evaluation of the most relevant topics that appeared most frequently in the main ESG surveys for the mining industry (Sustainable Development Index, RepRisk and GlobeScan Stakeholder Survey 2023), as well as the most recurring topics in internal communications and media articles about the Company over the course of 2024.
Analysis of risks and impacts:	Based on our business risk matrix and human rights assessments, the pillars with potentially large influence on the Company's ESG strategy were highlighted.
Consolidation of analyses and final materiality check¹	Based on the main ESG standards, benchmarks, ratings and indices, aligned through consultations with executives and internal listening channels, as well as a list of impacts of operations, it was concluded that the topics that continue to be material are climate change, dams, biodiversity, health and safety, people, eco-efficiency, human rights, local communities, mine closure and future use, and governance and compliance, as well as innovation as a cross-cutting theme.

Results and impacts

The study reaffirmed the relevance of strategic themes for Vale and its value chain. The inclusion of innovation such as decarbonization initiatives and the efficient use of resources and waste recovery strengthens the Company's ability to meet the demands of a market in transition to a low-carbon economy. In addition, stakeholder engagement demonstrated progress in public perceptions while also highlighting some areas that require ongoing attention, such as communication and strengthening of institutional trust.

GRI 2-14

Nota: Vale's Board of Directors is responsible for defining the guidelines for preparing the Integrated Report in line with best market practices. The document, as well as the materiality assessment, is assessed by the Company's top management.

CLICK THE ARROWS TO SEE MORE
DETAILS ABOUT MATERIALITY

 INTERACTIVE CONTENT



Photo: Washington Alves

Heli Moura at the Mar Azul Mine Workshop, MG, Brazil

Long-term commitments

GRI 2-22 GRI 2-23 GRI 2-24

Vale's commitments	SDG	Baseline	Commitment	Status in 2024 (progress at the end of 2024)
Climate change		2017 baseline: 10,5 Mt CO ₂ e	Reduce absolute Scope 1 and 2 greenhouse gas (GHG) emissions by 33% by 2030 Global: Achieve zero net emissions in Scope 1 and 2 by 2050	Scope 1 and 2 emissions reduced by 26.9% – 81.5% progress towards target ² .
		2018 baseline: 528.4 Mt CO ₂ e ¹	Reduce net Scope 3 emissions by 15% by 2035	Scope 3 emissions reduced by 13.2% – 88.3% progress towards target.
Energy		2017 baseline: Global: renewable sources accounted for 79% of consumption. Brazil: renewable sources accounted for 83% of consumption	Global: 100% renewable energy consumption by 2030 Brazil: 100% renewable energy consumption by 2025	84.3% of consumption ³ . 100% of electricity purchased certified by renewable declarations.
		2017 baseline: Global: energy efficiency was 0.301 GJ/tFeEq ⁴	Improve global energy efficiency indicator by 5% by 2030	In 2024, the index was 0.301 GJ/tFe-eq
Forests		2019 baseline	Restore and protect 500,000 ha outside Company properties by 2030	2024: 5,828.55 ha restored through impact businesses and forest funds 35,000 ha of protection of forests financed through REDD+ projects Progress at the end of 2024: 218,536.73 ha of habitat protected and restored since 2020 (18,443.26 ha restored and 200,093 ha protected).

¹ Scope 3 emissions have been recalculated since the 2018 base year, reflecting the new investments incorporated into category 15 in 2024. Also transferred to Scope 1 were the emissions relating to the ships under leasing contract, under our operational control, which in previous years were being accounted for in Categories 4 & 9 of Scope 3.

² The reduction is mainly related to lower production compared to 2017, as well as improved operational discipline. The emissions curve is expected to rise with increased production in the coming years, but will be offset by technological initiatives to be implemented by 2030.

³ The renewable electricity percentage varies from year to year depending on consumption, the volume of certificates obtained and the power supplies in each country in which we operate.

⁴ The energy efficiency indicator (GJ/tFe.Eq.) has been recalculated since the base year, reflecting emissions related to leased ships under our operational control, which were not accounted for in previous years, and the removal of PTVI due to divestment.

Vale Targets	SDG	Baseline	Target	Status in 2024 (progress at the end of 2024)
Improvement in ESG practices		2019 baseline	Eliminate key ESG gaps in relation to best practices – 63 gaps mapped	57 gaps eliminated.
Social ambition		2021 baseline	Attain a top-three position in the leading external ESG assessments.	Evolution in key external indexes and ratings (MSCI, Sustainalytics and DJSI). See more in Indices and ratings .
			Help 500,000 people leave extreme poverty ¹	In 2024, around 51,000 people were involved in 20 initiatives across six states. Of these, 80% were in Pará and Maranhão.
			Support all indigenous communities neighboring Vale’s operations in drawing up and implementing their plans to uphold the rights set out in the United Nations Declaration on the Rights of Indigenous People (UNDRIP).	In 2024, we completed and published a Consultation Protocol for the Kayapó people in the state of Pará, Brazil. In addition, another four of the 11 indigenous communities that Vale has relations with in Brazil (the Ka’apor people in Maranhão, the Guajajara people of the Pindaré River, the Caru indigenous lands in Maranhão and the Tupiniquim people of Comboios Indigenous Land in Espírito Santo) are engaged in implementing the Company’s commitment to the rights described in the UNDRIP, whether through the development of their Consultation Protocols, Territorial and Environmental Management Plans or Life Plans.
Air emissions		2018 baseline ² : Particulate matter: 4.1 kt Sulfur oxides: 118.1 kt Nitrogen oxides: 76.7 kt	Reduce particulate matter emissions by 16%	Result: Year 2024 ³ . Particulate Matter: 2.9 kt In 2024, particulate matter emissions were 28% lower than in the 2018 base year.
			Reduce sulfur oxide emissions by 16%	Result: Year 2024 ³ Sulfur oxide: 33.4 kt In 2024, sulfur oxide emissions were 39% lower than in the 2018 base year
			Reduce nitrogen oxide emissions by 10%	Result: Year 2024 ³ Nitrogen oxides: 49.3kt In 2024, nitrogen oxide emissions were 72% lower than in the 2018 base year
Water		2017 baseline	Reduce the cumulative average specific use of new water by 27% by 2030 (compared to the 2017 baseline), especially in regions with the greatest water stress	In 2024, we achieved a 31% reduction in the specific use of new water in our operations, in relation to the baseline.

¹The international extreme poverty line is set at USD 2.15 per person per day, according to the World Bank, using 2017 prices. This means that anyone living on less than USD 2.15 a day is in extreme poverty. Almost 700 million people globally were living in extreme poverty in 2024.

²Figures were revised following the divestment and investment of assets.

³Although the 2024 results are below the target, emissions are expected to rise in the coming years due to increased production.

Vale Targets

SDG

Baseline

Target

Status in 2024 (progress at the end of 2024)



Health and Safety

2023 Baseline: 21 N1+N2 recorded

Reduction of N1+N2 compared to the previous year's closing results.

25 registrations in 2024, a 19% increase compared to 2023 results.

Reach zero fatalities

In 2024 there were four fatalities in our operations, but we continue to pursue our goal of zero fatalities.

Eliminate all risk situations classified as "very high" for health, safety, environment and communities

57% reduction in risk situations classified as "very high" between 2023 and 2024

2019 baseline: 23,000 exposures recorded

Reduce the number of exposures to harmful health agents in the workplace by 50% by 2025.

For the year 2024, 9 thousand exposures were recorded. A reduction of more than of 60% compared to 2019.

Dams



No tailings dam in critical safety condition (emergency level 3¹) by December 2025

Sul Superior and B3/B4 dams are no longer considered to be emergency level 3. The Forquilha III dam remains at level 3.

Implementation of Global Industry Standard on Tailings Management (GISTM) at all tailings storage facilities (TSFs²) by August 2025

48 out of 50 TSFs had implemented GISTM by 2023. The other two TSFs will comply with the standard by August 2025.

Decharacterize³ all upstream dams in Brazil by 2035

57% of upstream dams decharacterized

¹Emergency level is a category established by Brazilian legislation (National Mining Agency Resolution 95 of 2022) to classify potential risks that could harm dam safety.

²Tailings storage facilities are structures that include dams, drained piles and dikes.

³Decharacterization is the process of reshaping the site of an upstream tailing dam and partially or totally removing the tailings from the reservoir, functionally reintegrating the structure into the environment so that the structure no longer serves its primary purpose of containing tailings.



ESG Portal

Vale's ESG Portal offers a repository of up-to-date information about the Company's performance across the environmental, social and governance (ESG) pillars. It also provides additional details on the initiatives mentioned in this report and is a source of data for all our stakeholders.

 Find out more here.



Photo: Jorge Porci

Marcelo Bacci, Rafael Bittar, Carlos Medeiros, Gustavo Pimenta, Cátia Porto and Rogério Nogueira at the Leader's Forum 2024

Stakeholder engagement

GRI 2-12 GRI 2-25 GRI 2-29

Vale's relationship with its stakeholders is structured to promote transparency, active listening and the creation of shared value. The Company interacts with various stakeholders, including communities, employees, clients, suppliers, investors, public bodies, NGOs and the press. This engagement is fundamental to strengthening corporate governance, aligning sustainability strategies and building partnerships that drive innovation and the transition to a low-carbon economy.

The Company uses different channels and approaches to connect with its stakeholders, such as periodic meetings, technical forums, human rights due diligence processes and transparent communication initiatives. In addition, training programs, sector events and perception surveys are promoted to ensure that the concerns and suggestions of these stakeholders are incorporated into the Company's strategies.

Find out more [Stakeholder engagement](#).

CLICK THE STAKEHOLDERS TO
FIND OUT MORE DETAILS



A Superior Portfolio



Priscilla Moreira, heavy equipment maintenance supervisor at the Mar Azul Mine Workshop, Minas Gerais, Brazil

Photo: Pedro Rubens

A Superior Portfolio

This strategic pillar reflects our ongoing search for a product mix that is resilient, competitive and aligned with global demands. The Company seeks to prioritize the production of high-quality ores, such as iron and critical metals that are essential for the energy transition and the low-carbon economy. Through initiatives such as Mega Hubs and the reuse of waste through the Waste to Value circular solutions program, Vale aims to integrate operational excellence with innovation and environmental responsibility, contributing to a sustainable value chain.

 [Click here to learn more about our strategic pillars](#)

Samples of granulated ore.

In 2024...



5 countries
with Mega Hubs
under development



348 thousand tonnes
of copper produced
produced



Vale Base Metals (VBM)
with strategic
investments
and international
agreements



328 million tonnes
of iron ore



12.7 million tonnes
of materials recovered in
the Waste to Value program



Innovation in briquettes
that reduce emissions in
the steelmaking process

Business context

GRI 2-22

Vale is one of the world's largest iron ore miners, producing 328 million tonnes in 2024 and consolidating its leadership position in the sector. In addition, the Company is committed to decarbonizing its operations, seeking to reduce greenhouse gas emissions and increase the use of renewable energy. Vale is also expanding its presence in critical minerals, which are essential for the energy transition and sustainable technologies. Through innovative initiatives and strategic partnerships, Vale believes it is at the forefront of the transformation toward more sustainable and efficient mining, contributing significantly to the global economy and environmental conservation.

Minerals are integral to people's daily lives and are essential for the energy transition. Changing global production models depend on the expansion of electrification, whether through batteries, wind turbines or solar panels. All these technological advances require so called critical minerals, such as lithium, nickel, rare earths and copper. Without these resources, it would be impossible to make electric vehicles, energy storage systems and renewable energy sources, which are key to a sustainable future.

Demand for these products is set to grow exponentially in the coming years. In an address by Saudi Arabia's Minister of Industry and Mineral Resources, Bandar Alkhorayef, during the

opening session of the fourth Future Minerals Forum in Riyadh, Saudi Arabia, in January 2025, he noted that the global mining sector requires an investment of at least USD 6 trillion over the next decade to meet growing demand for critical minerals. And Vale, as one of the main players in the global market, has been preparing for this.

In February 2025, Vale announced the New Carajás Project, in the state of Pará, in Brazil, focused on resuming and maintaining iron ore volumes and expanding copper production. The program envisages investments of USD 13 billion in the Carajás region over five years (2025-2030), in line with the Company's guidance. The program brings together Carajás' mining expansion potential, including mines in operation, expansions and new targets, to boost the processing of critical minerals to produce green steel (high quality iron ore) and metal for energy transition (copper), which are fundamental for reducing carbon emissions. Iron ore production in Carajás is expected to reach a rate of 200 million tonnes per year by 2030. Copper is expected to grow by 32%, bringing production in the region to around 350,000 tonnes.

In 2024, we completed the sale of a 10% stake in Vale Base Metals (VBM), to Manara Minerals, a joint venture between Ma'aden and the Saudi Arabian Public Investment Fund, for USD 2.5 billion. VBM has already formed strategic partnerships

to supply low-carbon, high-purity nickel to major automakers and it is focused on extending the lifespan of its mines and developing growth projects across its portfolio. In 2024, the Company completed the expansion of Voisey's Bay Mine in Canada, an important project that will allow us to increase our nickel and copper production capacity. One of the Company's goals for 2025 is to invest in copper production to meet growing demand driven by the renewables sector and energy transition projects.

In 2024, Vale produced 348,200 tonnes of copper, in line with its guidance for the year. In 2025, we aim to produce between 340,000 and 370,000 tonnes,

rising to between 420,000 and 500,000 tonnes by 2030 and reaching around 700,000 tonnes by 2035. Overall, the Company plans to allocate between USD 2.5 billion and USD 3 billion to capital investments in metals for the energy transition in 2025, in line with the 2024 investment.

Vale is carrying out a strategic review of its assets as part of a global optimization process. A recent example is the review of operations in Thompson, in Canada's Manitoba province, announced by VBM in January 2025. This review aims to explore and evaluate a series of options, including the potential sale of mining and exploration assets in the region.



Serra Sul Complex, Canaã dos Carajás, Pará, Brazil.



Photo: Nilmar Lage

Long Distance Belt Conveyor at Vargem Grande Mine, Minas Gerais, Brazil.

Iron ore

Like critical minerals, iron ore is fundamental for the energy transition. It is in all the components used in the low-carbon economy, from wind turbine blades to the steel that makes up the frame of an electric car. However, the quality of iron ore and its production process will make a big difference in the future. Vale has significant competitive advantages. We produce a high-grade iron ore that requires less energy in steel production, and have created iron ore briquettes, capable of reducing emissions in steelmaking blast furnaces by 10%. The Company has signed several agreements with clients to build Mega Hubs – industrial

complexes for steel production, which use direct reduction iron in electric arc furnaces that are capable of reducing emissions by up to 50% compared to the traditional methods. In the future, through the use of low-carbon hydrogen in this process, we seek to reduce our emissions even more.

In January 2025, we signed a land use agreement with the Royal Commission for Jubail and Yanbu in Saudi Arabia to set up a Mega Hub in the industrial city of Ras Al Khair. In partnership with steel Company Stegra, we have been researching the manufacture of low-carbon

steel chain products in Brazil and North America, involving technologies such as green hydrogen and hot briquetted iron, using Vale's iron ore briquettes and electricity from renewable sources. [Find out more.](#)

Just as contributing to the decarbonization of the steel industry is strategic for Vale, circularity is also a priority, as it is related to two important imperatives in the industry: sustainability and the way mining companies operate. In 2024, Vale's Waste to Value circular solutions program recovered more than 12 Mt of iron ore by reusing tailings and waste rock from the Company's operations.

Exports

In 2024, Brazil's iron ore exports were in line with the export levels before the tragic Brumadinho TSF failure in January 2019. According to data compiled by the Ministry of Development, Industry, Trade and Services (MDIC), Brazil exported 389.1 Mt of iron ore and concentrates in 2024. Vale accounted for around 70% of Brazil's iron ore exports in 2024, producing 328 Mt in 2024, within its guidance range of 310–320 Mt¹. For 2025, the Company projects a slight increase in production, to between 325 and 335 Mt. The forecast range for 2026 is between 340 and 360 Mt.

¹ As announced on 5 December 2023 at Vale Day in NY.

Economic performance¹

GRI 2-22

In 2024, Vale recorded a net profit of USD 6.0 billion, down 26.3% from USD 8.1 billion the previous year. The Company's adjusted EBITDA² was USD 14.8 billion, down 20.2% compared to 2023. Net sales revenue was USD 38.1 billion, an 8.9% decrease year-over-year. These results were mainly impacted by a lower average realized price in the Iron Ore Solutions segment, partially offset by a positive exchange rate effect.

Extended net debt totaled USD 16.5 billion as of December 31, 2024, affected mainly by the net effect of USD 1.5 billion of new funding and debt payments, by the depreciation of the Brazilian real against the U.S. dollar and by additional provisions related to the agreement for the full and final reparation of the impacts resulting from the failure of Fundão Dam in Mariana, Minas Gerais. Vale's extended net debt remains within the target range of USD 10–20 billion.

The Company's operational performance in 2024 was marked by greater operational stability



Buffer pile at the Serra Sul Mine, Canaã dos Carajás, Pará, Brazil

and the start of some important projects. Iron ore production reached 328 Mt, the highest level since 2018, exceeding the original guidance of 310–320 Mt.² In the Energy Transition Metals segment, the Salobo Complex achieved record annual copper production.

In 2024, the C1³ cost was USD 21.8/t, at the lower end of the guidance range (USD 21.5–23/t) and down 2% year-on-year. This cost reduction was the result of operational stability, efficiency initiatives and the depreciation of the Brazilian real against the U.S. dollar.

In the Energy Transition Metals segment, adjusted EBITDA declined 26%, mainly driven by a 28% drop in the average nickel price and reduction in sales volume. This effect was partially offset by the higher average realized copper price (USD 8.811/t up from USD 7,960/t) and a 3.2% increase in demand for refined copper.

¹ The financial information included in this section, unless otherwise stated, refers to the consolidated financial statements of Vale S.A. ("Vale" or "Company"), prepared and presented in accordance with the International Financial Reporting Standards (IFRS), issued by the International Accounting Standards Board (IASB), currently referred to by the IFRS Foundation as "IFRS® Accounting Standards," including the interpretations issued by the IFRS Interpretations Committee (IFRIC® Interpretations) or its predecessor body, the Standing Interpretations Committee (SIC® Interpretations) and in accordance with the accounting practices adopted in Brazil, issued by the Accounting Pronouncements Committee (CPC), approved by the Brazilian Securities and Exchange Commission (CVM), for the financial year ended December 31, 2024.

The information in this section should be read and analyzed in conjunction with Vale's consolidated financial statements, available on the Company's website (<https://www.vale.com/pt/comunicados-resultados-apresentacoes-e-relatorios>) and on the CVM website (<https://www.gov.br/cvm/pt-br>).

² Earnings Before Interest, Taxes, Depreciation and Amortization

³ Unit Cash Cost

Business highlights

Greater flexibility

The completion of our iron ore growth projects is a key piece to improving our operational flexibility and product portfolio.

In 2024, we began commissioning the Capanema Maximization Project in the Mariana Complex, Minas Gerais and resumed wet processing at Vargem Grande Plant 1 in the Vargem Grande Complex, also in Minas Gerais. Each project will add 15 Mt to Vale's annual production capacity, resulting in an additional 30 Mt. We aim to have around 80% of the tailings generated by Plant 1 filtered and dry stacked, in line with Vale's operating model, which seeks to reduce dependence on TSFs. The Vargem Grande tailings filtration plant, which opened in 2021, has the capacity to filter all the tailings generated by the complex.

The Capanema Project consists of investments to reactivate Capanema Mine, install a long-distance conveyor belt and make adjustments to the storage and loading yard at Timbopeba Rail Terminal. Capanema will exclusively use autonomous off-highway trucks in its operations, ensuring greater safety and efficiency. The site will produce sinter feed using natural moisture processing, without generating any tailings.

Capanema and Vargem Grande, together with the S11D+20 project in Pará, scheduled to start up in the second half of 2026, represent an



 FIND OUT MORE

important step toward achieving our iron ore production guidance of 340 to 360 Mt in 2026. We have also progressed with partnerships that we believe add value and align with our business strategy and asset-light model¹, including collaboration with Anglo American on the Minas-Rio operation, which will provide access to high-quality pellet feed, and a partnership with Jinnan Iron & Steel Group to build an iron ore concentration plant in Sohar, Oman. This plant will have the capacity to produce approximately 12 Mt of high-quality concentrate annually

by processing low-grade ores. Its startup is scheduled for 2027.

In respect of base metals, we recently announced the commissioning of a project to expand Voisey's Bay Mine in the Canadian province of Newfoundland and Labrador – an important milestone in the nickel division's quest for cost dilution. As a result, the mine's annual production capacity will grow to around 45,000 t of nickel, plus 20,000 tonnes of copper and 2,600 t of cobalt as byproducts. The operation is expected to reach its full production capacity in the second half of 2026.

Reduction in stake in PTVI

In June 2024, our subsidiary Vale Canada Limited (VCL) completed the sale of part of its holding in PT Vale Indonesia Tbk (PTVI). VCL received approximately USD 155 million for the sale of these shares to PT Mineral Industri Indonesia (MIND ID). Following this transaction, MIND ID now holds approximately 34% of PTVI's issued shares, while VCL and Sumitomo Metal Mining Co. own approximately 33.9% and 11.5%, respectively. The remaining shares are listed on the Indonesian Stock Exchange. VCL continues to maintain significant financial exposure to PTVI as an affiliate and will continue to exercise strong governance through appointments to the Board of Commissioners. In addition, VCL's existing offtake rights are preserved.

Partial divestment of Vale Oman Distribution Center (VODC)

In September 2024, after fulfilling all prior conditions, Vale completed the sale of a 50% stake in the Vale Oman Distribution Center (VODC). In accordance with an agreement signed in August 2024, AP Oryx Holdings LLC (Apollo) paid a total consideration of USD 600 million for the 50% interest, thereby forming a joint venture. VODC operates a maritime terminal in Sohar, Oman, featuring a large deepwater quay and an integrated iron ore blending and distribution center with a nominal capacity of 40 million metric tons per year.

Onça Puma and Sossego

In February 2024, the Pará State Environment and Sustainability Secretariat (SEMAS) suspended the operating licenses of our Onça Puma and Sossego operations, alleging non-compliance with environmental conditions. The sites started to operate again after Vale obtained a court injunction, but in April the Pará State Court of Appeals suspended this injunction.

In June, after Vale signed an agreement with the state government of Pará and SEMAS, which was ratified by the Federal Supreme Court's Center for Consensual Dispute Resolution, the operating licenses were reinstated. The suspensions at Onça Puma and Sossego had no impact on achieving the guidance planned for the year.

¹ The term "asset-light" refers to a business model in which a Company owns few physical assets, such as real estate, factories or equipment. Instead, it focuses on using third-party assets or outsourcing significant parts of its operations, allowing for greater flexibility, lower fixed costs and the ability to adapt quickly to market changes.

Performance Driven

Shayanna Souza, environmental analyst at the Southern Corridor Environmental Control Center, collecting water quality data, Minas Gerais, Brazil.



Photo: Marcos Desimoni

Performance Driven

Our strategy's results-oriented approach emphasizes the importance of corporate governance, operational efficiency and continuous talent development. This pillar is based on Vale's commitment to excellence, safety and innovation, which are fundamental to meeting industry challenges and helping to achieve our strategic goals, such as reducing costs and implementing innovative solutions. Aligned with ESG criteria, this perspective strengthens the Company's position as a leader in sustainability and a benchmark in global mining.

 [Click here to learn more about the Strategic Pillars](#)

In 2024...



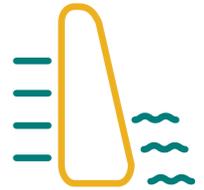
Gustavo Pimenta

appointed as new CEO



68% reduction

in total recordable injury frequency rate (TRIFR) compared to our 2019 baseline



57% of upstream dams

decharacterized



+ 24,000 employees

trained in integrated risk management



Artificial Intelligence

use and asset monitoring centers were expanded



USD 257 million

invested in decarbonization initiatives

Sabrina Santos, integrated control technician, on pier 2 of the Tubarão Complex, Espírito Santo, Brazil

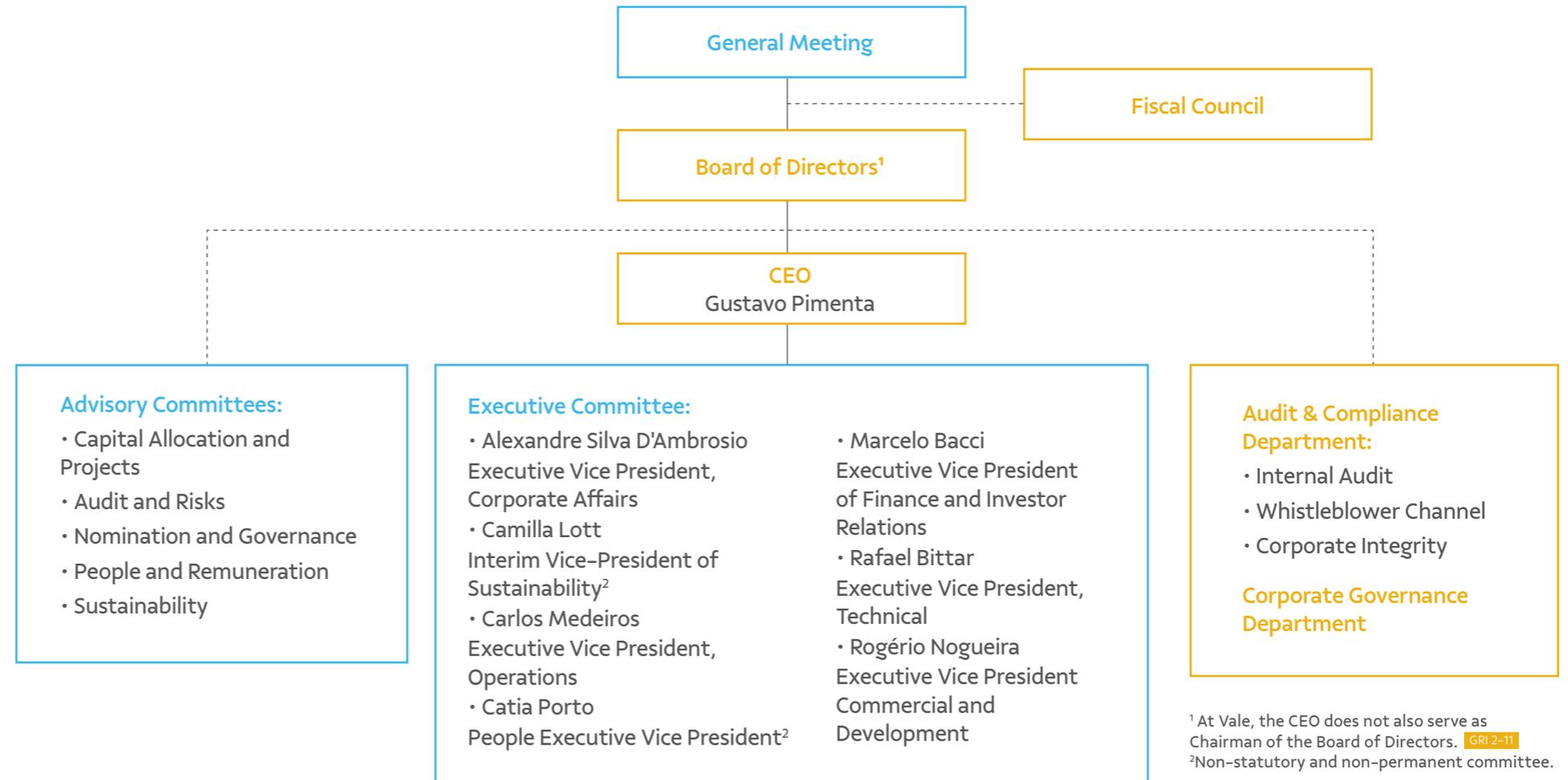
Corporate Governance Office

GRI 2-2 GRI 2-9 GRI 2-11 GRI 2-13 GRI 3-3

Since November 2020, Vale has been a publicly traded Company with broad ownership, meaning it is not controlled by a single owner or group of owners. This change was reflected in a restructuring of the Company's articles of incorporation and the internal regulations of its governance bodies.

The Board of Directors sets the general guidelines and policies that guide our strategy and operations and oversees their execution through discussions, meetings and reports presented by the Executive Committee. Our governance system seeks to reinforce the principles of clear roles, transparency and stability that guide our activities. In an effort to strengthen the decision-making process, in addition to the Board of Directors, our governance structure also includes five permanent and statutory Board Advisory Committees, composed exclusively of board members, although external specialists participate in some committees as consultants.

Vale's governance structure



¹ At Vale, the CEO does not also serve as Chairman of the Board of Directors. **GRI 2-11**
²Non-statutory and non-permanent committee.

 **FIND OUT MORE ABOUT VALE'S CORPORATE GOVERNANCE.**

CEO succession

The Board of Directors conducted Vale's CEO succession process in line with the guidelines established in the articles of incorporation, internal regulations, Board Governance Policy and applicable laws. In this context, the Board of Directors, with the support of the People and Compensation Committee, hired Russell Reynolds, an internationally recognized recruitment firm, to independently evaluate and present a shortlist of CEO candidates based on the skills, competencies and experience required, as previously defined by the board. The Board of Directors diligently deliberated in its selection of a candidate who would generate the greatest value for the Company and its stakeholders.

Gustavo Pimenta's unanimous election as CEO, which was met with positive stakeholder feedback, demonstrated adherence to governance best practices in the succession process.

Photo: Ben Hider



Gustavo Pimenta assumed the position on October 1, 2024.

Board of Directors

GRI 2-10 GRI 2-12 GRI 2-13 GRI 2-14
GRI 2-17 GRI 2-18

The Board of Directors' (Board) goals are to safeguard the Company's assets and maximize shareholders' return on investment over the long term, adhering to the highest ethical principles to ensure the Company's sustainability, in line with our purpose.

In accordance with our articles of incorporation, the Board consists of 11 to 13 members, who serve unified two-year terms, with the possibility of reelection. The board currently has 13 members. In addition, according to our articles of incorporation, of the 13 members of the Board, at least seven must be independent members, exceeding the minimum requirements of the São Paulo Stock Exchange's Novo Mercado listing segment. The Company has also established that one effective member and one alternate member will be elected by employees. Currently, eight of the 13 members (61.5%) are independent. The board's mandate runs until the 2025 Annual General Meeting (scheduled for 30 April 2025). Vale also has additional criteria for assessing the independence of board members, including term limits for independent directors.

The Boards' composition aims to balance experience and knowledge while promoting diverse and complementary profiles, in line with the Board of Directors Critical Competencies Matrix and its operational needs. Prioritized competencies include mining (or related industries), finance, capital markets, cultural transformation and talent management, ESG, external relations (institutional, governmental and regulatory), and risk and safety management.

In November 2024, two independent directors were elected to fulfil the current mandate, due to two vacant positions on the Board. The selection of the new directors was carried out with the advice of the Nominating and Governance Committee and with the support of an international recruitment consultancy. The process was conducted in accordance with the premises set out in the Company's Bylaws and Management Policy.

In 2025, the Company's shareholders will decide on the composition of the Board for the next term. In this context, the Board, with the support of the Nomination and Governance Committee, has been discussing this subject, with an emphasis on: a) reflecting on the results of the last board evaluation process; b) updating the Board of Directors Critical Competencies Matrix; and c) evaluating the current Board in accordance with the updated Critical Competencies Matrix, including in terms of continuity, overboarding, tenure and plurality, in line with the best global governance practices.

Vale's cultural transformation, which accelerated after Brumadinho tragedy, is a priority on the Board's agenda, in line with the Company's strategic business priorities. With the support of the advisory committees, the Board members monitor operational excellence indicators such as safety, the Vale Production System (VPS), risks, sustainability, innovation and people, among others. Together with Vale executives, they also track our status and progress in the following priority fronts: i) production and projects; ii) reputation, communication and ESG; iii) people training; iv) licensing and institutional relations; and v) agreements and liability management.

In this context, both the Annual Work Plan and the Board's Technical Visit Plan and the Board Members in Action Program include discussions and actions in areas that are critical to Vale's success, including making the Board Members available, with their experience and knowledge, to act on the Company's main value levers.

In 2024, four technical visits were undertaken to operations: one in Canada and three in Brazil, in Carajás (Pará), Belém (Pará) and Xerém (Rio de Janeiro). During these meetings, Board members had direct contact with employees and local communities, experiencing Vale's culture and the challenges of our operations and locations.

Board of Directors Highlights

The work of the Board of Directors is based on strategic issues and on establishing closer communication with critical internal and external stakeholders:

- Strengthening integration with the Executive Committee
- Presence in Vale's communities and operations
- Proximity to investors, clients and strategic partners
- Dialogue with authorities and international bodies
- Governance of the succession process and recomposition of the Board of Directors.



FIND OUT MORE ABOUT
THE MEMBERS OF VALE'S
BOARD OF DIRECTORS

Fiscal Council

GRI 2-9 GRI 2-10 GRI 2-12

The Fiscal Council is Vale's permanent supervisory body, which oversees and endorses the actions of the executive officers and the fulfillment of their legal and statutory duties. The committee seeks the best organizational performance based on the principles of transparency, fairness and accountability, in line with current Brazilian legislation, Vale's articles of incorporation and its own internal regulations. Its responsibilities include overseeing executive officers, reviewing annual management reports and financial statements, and maintaining direct communication with external and internal auditors.

 FIND OUT MORE ABOUT VALE'S FISCAL COUNCIL

Executive Committee

GRI 2-9 GRI 2-10 GRI 2-12

The Executive Committee is responsible for executing the business strategy defined by the Board and helps ensure efficient operational and financial performance. Its members are elected by the Board, and the president is responsible for presenting candidates for vice president positions for approval.

As of April 2025, the Executive Committee comprises seven vice presidents: operations; commercial and new business; technical; finance and investor relations; sustainability; corporate affairs; and people. The vice presidents report to the CEO, and the CEO reports to

the Board of Directors. At Vale, the CEO is elected by the Board of Directors for a defined three-year term and does not hold the position of chairman of the board. [GRI 2-11](#)

 GET TO KNOW THE MEMBERS OF VALE'S EXECUTIVE COMMITTEE

Executive compensation

GRI 2-19 GRI 2-20

In accordance with the Company's articles of incorporation, the annual overall compensation of the members of the Board, Executive Committee, Fiscal Council and Advisory Committees is decided by shareholders during the Annual General Meeting (AGM), based on a proposal submitted by Vale's Board of Directors. The Board, with the support of the Nominating and Governance Committee and the People and Compensation Committee, is responsible for distributing the remuneration approved at the AGM among the Board of Directors, Advisory Committees and Executive Committee members.

The remuneration of the members of the Board of Directors, Fiscal Council and Advisory Committees to the Board of Directors consists solely of a fixed monthly fee. The amount varies based on the position held and the level of responsibility, as outlined in the Internal Regulations of the respective board or committee. In the case of Audit Committee members, their compensation is set at a minimum of 10% of the average fixed monthly remuneration paid to members of the Company's Executive Committee. These compensation structures are informed by and

may be adjusted in line with market practices, as identified through periodic benchmarking surveys. The performance-based pay of the Executive Committee members, for both short- and long-term remuneration, encompasses various metrics, including related to financial performance, return to shareholders, and ESG.

Short-term compensation

In 2024, performance goals were established in the following proportions: 50% or 70% collective goals and 50% or 30% specific goals for each vice-presidency, depending on the Scope of action.

We focused our efforts on objectives linked to safety and sustainability, as well as EBITDA indicators and strategic objectives that contribute to the realization of the Company's ambitions.

In the collective portion, 35%–50% of the goals are linked to non-financial indicators and ESG themes and 35% are linked to financial targets (with the exception of areas that do not have financial performance targets).

In 2024, goals related to, among other factors, capital allocation, process-related safety incidents, volume guidance and cost indicators, among other aspects, were maintained.

Since 2020, the areas of Health & Safety, Geotechnics and Compliance (now called Audit and Compliance) have not had any financial results on their goal dashboard, given the importance placed on risk management.

Long-term compensation

The long-term remuneration plans offered by Vale are the Vale Shares Program and the Matching Program.

The Vale Shares Program is an incentive scheme that runs in three-year cycles, seeking to incentivize the performance of top management (senior managers to Executive Committee members) in creating sustainable value, aligning the focus of executives with the vision of shareholders. Since 2020, the Vale Shares Program has included indicators related to ESG issues, which currently carries a 25% weight.

As of 2021, the Vale Shares Program began compensating executives through the Company's common shares, replacing the previous cash compensation linked to the share price. In addition, the program incorporates the payment of "virtual dividends" at the end of each cycle.

In 2023, the Vale Shares Program eliminated a trigger linked to the total shareholder return (TSR) indicator, reinforcing ESG issues instead. In addition, it was decided to incorporate the return on invested capital (ROIC) metric into the Vale Shares Program from 2024, with a 25% weighting, establishing it as an internal value creation target. This change is aimed at ensuring greater alignment with investors and Vale's strategic objectives.

The Matching Program, based on restricted stock, is a talent attraction and retention initiative that reinforces a culture of long-term sustainable performance. By acquiring shares in the Company with their own resources, leaders (supervisors up to Executive Committee members) become eligible to receive extra shares at the end of a three-year cycle.

The program also includes "virtual dividends," which are paid by the Company in cash after Vale distributes dividends and/or interest on shareholders' equity to shareholders.

Risk management

GRI 2-16

Our risk management approach is based on our Risk Management Policy, which sets out the general guidelines defined by the Board. We have complementary documents detailing the guidelines, responsibilities and governance, methodology and response strategy for dealing with present and emerging risks identified by the Company.

We have adopted the lines of defense model, using global standards for risk management as a reference, such as ISO 31000, ISO 55000, COSO-ERM and, for our operational safety management system, Risk-Based Process Safety. One of our main tools is the Integrated Risk Map, a non-exhaustive instrument that contains a set of potential risk themes, covering certain risks that should be assessed and monitored at all our sites.

We have key risk indicators (KRIs), with acceptable tolerance ranges, focused on Vale's high-priority topics. We also aim to monitor indicators related to the performance of risks and controls. This set of indicators is an important monitoring tool.

In addition, in an effort to establishing a risk management culture and providing suitable training for our employees, we have invested in mandatory training for all functions responsible for controls and risks, as well as for all our employees. In 2024, we reformulated this knowledge pathway, seeking to offer more agile, autonomous and effective training on the integrated risk management process. During the year, approximately 24,000

courses were completed, including over 3,000 specifically for risk and control owners.

Risk factors

Our businesses, operations and performance are subject to various risks and uncertainties that may hinder the achievement of our objectives and harm our reputation, financial situation and operating results. Some of the main risks identified by the Company include those related to the following:

- Geotechnical structures such as dams, piles and pits;
- Operations, including health, safety, the environment and operational shutdowns;
- Production planning, including licensing;
- Talent management;
- Strategy;
- Sustainability, including climate change and nature;
- Cybersecurity;
- Financial management;
- Institutional relations and communication, including changes in the law and regulations;
- Compliance.



FIND OUT MORE ABOUT
RISK FACTORS IN OUR 20-F
REPORT

The escalation of global tensions, particularly stemming from the military conflicts between Russia and Ukraine, and the Middle East, has increased foreign trade risks for global companies like Vale that operate in multiple jurisdictions. The tightening of sanctions packages over the course of 2024 led us to strengthen trade compliance practices in an effort to help ensure that we are not violating international sanctions. This involves monitoring clients, suppliers, partners, letter of credit operators, individuals and even ships, through a robust system based on artificial intelligence.

Photo: Vale Archive



“Monitoring the counterparties with whom we interact globally, including our corporate chains, is essential to ensure Vale's compliance with international sanctions and export controls, and the fulfilment of our internal policies”

GUSTAVO NISKIER,
diretor de Assuntos Internacionais da Vale.

Risk governance

Vale has an integrated risk management governance system, based on the concept of lines of defense, that seeks to optimize the flow of communication for decision making and reinforcing alignment between strategy, performance and risk management. In addition, we have the following risk management advisory committees:

Audit and Risk Committee – advises the Board of Directors, and is responsible for assessing the appropriateness of the Company's risk management processes to enhance the efficiency of the board's work and the quality of its decisions.

Executive Risk Committees – advises Vale's Executive Committee (the CEO and executive vice presidents), on monitoring risks, and proactive measures to mitigate risks.

There are five Executive Risk Committees, each with a distinct Scope of action: (i) Operational risks; (ii) Geotechnical risks; (iii) Strategic, financial and cyber risks; (iv) Compliance, institutional relations and communication risks; and (v) Sustainability risks. **GRI 2-12**

Operational risk management program

Vale's Hazard Identification and Risk Assessment (HIRA) program continues to be one of the pillars for managing and mitigating operational risks. Between 2019 and 2022, we completed an overall assessment of risks at 100% of our operations, including mines, processing plants, railroads and ports.

In 2023 we began the second HIRA cycle, incorporating operational disruption scenarios into the analysis in addition to the operational risks addressed in the previous cycle. This approach reflects Vale's ongoing goal to identifying, monitoring and mitigating high criticality risks, in line with our management model, the Vale Production System (VPS).

The program's practical results include: (i) the implementation of preventive controls, such as real-time monitoring with alarms and audible alerts, to manage mobile equipment access in sensitive cave protection areas at Serra Leste Mine, thereby preventing potential environmental damage; (ii) a reduction in on-site storage of a hazardous product (carbon monoxide) at Tubarão Laboratory, achieved by replacing truck-based delivery with transportable cylinders, thus lessening the potential risk to people; and (iii) comprehensive studies of the potential impact on people from carbon monoxide leaks exceeding the permitted limits in the furnace area of the Tubarão pellet plants, which led to a reduction in high-criticality risks.

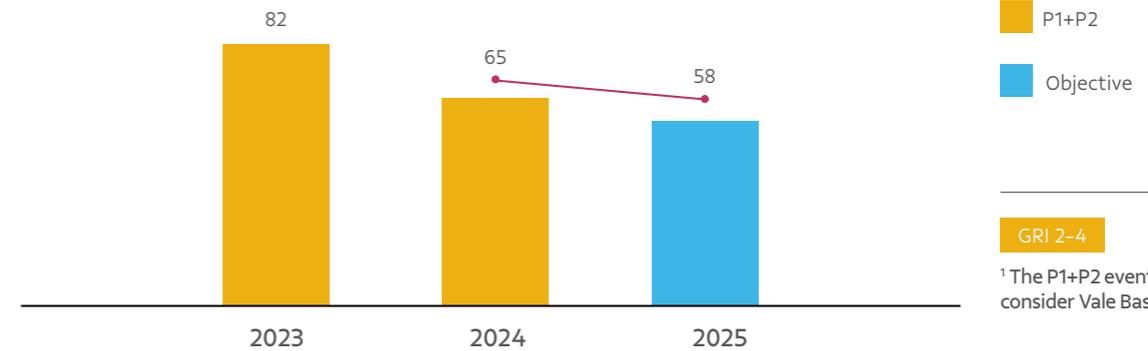
For geotechnical structures, HIRA helps us identify and assess risks related to the Company's dams, stockpiles, pits and slopes. It also supports the identification of high-priority risks and the implementation of critical controls that can help prevent the occurrence of undesirable events or mitigate their consequences.

We actively manage operational process safety incidents (called "P events"), and achieved a reduction in the number of events of greater severity (P1+P2) in 2024. This can be attributed to, among others:

- Effective implementation of actions identified via HIRA;
- Implementation of requirements in relation to asset integrity regulatory standards;
- Improvement in the maintenance and integrity of critical controls;
- Greater understanding of the concepts of "P events", with a focus on preventive action;
- Dissemination of additional practices and tools, such as the Pre-Startup Safety Review (PSSR).

In 2024, we revised the criteria for classifying "P events," reflecting our evolution in understanding and maturity about what defines a process safety event in mining. In this context, the figures for 2021, 2022 and 2023, presented in the 2023 Integrated Report, were based on the previous criteria. To ensure a consistent comparison between 2024 and the previous year, the 2023 figures were recalculated based on the new criteria and are illustrated in the graph above. GRI 2-4

P1+P2 events at Vale¹



¹ The P1+P2 event data does not consider Vale Base Metals.

In 2024, we reinforced our initiatives with an educational awareness campaign aimed at employees, emphasizing the importance of recording and monitoring incidents. This initiative sought to strengthen our safety culture in all our operations, promoting greater engagement and vigilance in managing operational risks.

Over the course of 2024, we faced some significant challenges, including an operational process event that resulted in one fatality and three occupational safety events that led to three fatalities. Notwithstanding these tragic events, our safety initiatives continue to reflect a declining number of process safety events (P1 and P2). We aim to learn from each incident and to continuously strengthen our safety practices to protect our workers. See more information on this topic [here](#).

 **FIND OUT MORE ABOUT VALE'S RISK MANAGEMENT APPROACH**



Alexandre Souza, electromechanics technician at the Horizontes Mine, Minas Gerais, Brazil

Photo: Nilmar Lage



Researcher André Cid using a Hololens for augmented reality at the Vale Institute of Technology (ITV) | UFOP - Control and Robotics Laboratory.

Emerging risks

Emerging risks are generally influenced by external factors and are therefore difficult to predict due to the high degree of uncertainty regarding their severity and the likelihood of occurrence.

Every year we update our prioritized list of potential emerging risks, with the involvement of a multidisciplinary team and based on various sources of information, such as market research, benchmarking, specialized reports and our strategic planning. In addition, we strive to identify risk indicators for each emerging risk, with the aim of contributing to the monitoring process.

Examples of emerging risks for Vale's business:

- Intensification of extreme weather conditions, impacting operating sites, the production chain and communities: The physical risks resulting from climate change can be classified as acute weather events or long-term chronic changes in weather patterns. Both have significant implications for Vale, due to the potential impact on neighboring communities, loss of biodiversity, reduction in production and damage to assets. These risks are especially worrying when different scenarios occur concurrently or sequentially, such as droughts followed by severe rainfall that can cause heavy flooding. These extreme weather events can also affect our value chain, disrupting the supply chain, outbound logistics and clients' assets. We have now mapped the potential impacts arising from extreme weather events across 100% of our operations, which allows us to better prepare for and respond to these challenges.

- Growing use of artificial intelligence (AI), which could increase disinformation and negatively impact internal decision-making: The use of biased information in the training of AI systems or the generation of manipulated information (fake news and deepfakes) can generate disinformation about Vale and negatively influence public opinion. The increased use of AI tools internally at Vale increases the risk of creating AI systems with unexpected behavior, due to their training method, the information used in their training or the use of an inappropriate algorithm, which could lead to erroneous internal decision-making by leaders.

Ethics & Compliance

GRI 205-1 GRI 205-2

Vale's Ethics & Compliance Program is structured to help prevent, detect and correct misconduct. The program has seven elements: (1) Governance; (2) Guidelines; (3) Communication and Training; (4) Risk Analysis; (5) Monitoring and Control; (6) the Whistleblower Channel; and (7) Consequence Management.

The Audit and Compliance Department is responsible for Vale's Ethics & Compliance Program. Reporting directly to the Board of Directors, the department is overseen by the Statutory Audit and Risks Committee and works in partnership with the Conduct and Integrity Committee. This structure reflects our ongoing commitment to the highest ethical and corporate governance practices.



Our integrated Audit and Compliance model brings together the Internal Audit, Whistleblower Channel and Corporate Integrity areas, using Data Intelligence as a lever in pursuit of the same goal: strengthening risk management, promoting a culture of ethics and compliance with laws, regulations, and external and internal standards."

DENIS CUENCA,
Chief Audit and Compliance Officer

Highlights of Ethics and Compliance Program in 2024

Commitment to ethics and integrity is non-negotiable for Vale. In 2024, all our employees throughout our operations and administrative areas were invited to reaffirm their commitment to ethics by revisiting our Code of Conduct and Global Anti-Corruption Policy through a new and mandatory Anti-Corruption Course.

The new version of the course, launched in 2024, tells the story of a fictional character inspired by a Vale employee who is facing a series of ethical dilemmas and needs to make some important decisions. The course was completed by more than 61,000 people (95% of all employees) in 2024.

In addition to the Anti-Corruption Course, all Vale employees must complete the Ethics & Compliance Course. These mandatory global courses are updated every two years and must be completed by all employees whenever there is an update. Participation is monitored continuously.

With a specific focus on preventing cases of corruption, we carry out customized training for employees in the areas most exposed to risks. Last year, more than 2,000 employees took part in anti-corruption training sessions for priority groups, with content tailored to their functions.

We also share our ethical principles with suppliers and third parties who work in partnership with Vale. Accordingly, in 2024 we began a journey to train contractors on the topics of ethics and compliance and anti-corruption, with customized content for this audience. More than 15,000 people took part in online

courses on these subjects. In addition, ethics and compliance issues were constantly on the Company's agenda throughout the year.

Risk analysis is an ongoing activity in the Ethics & Compliance Program. Every year, we put into practice our methodology of continuous risk assessment regarding corruption of public officials to identify the areas most exposed to risk, which are then prioritized for customized actions.

On a daily basis, our regional Corporate Integrity teams carry out customized analyses and provide information to guide and support decision making in our different business areas. More than 8,000 risk analyses were conducted in 2024. These analyses include evaluating suppliers and third parties (due diligence), conflicts of interest, gifts and hospitality, and external expenditures such as donations and sponsorship.

Through tests² and continuous monitoring and control actions, we closely monitor the adherence of our Company's processes to the Program's guidelines. We have 15 controls that form part of our control map and enable us to manage the risk of corruption, and five of these controls are considered key. These key controls are related to external socioenvironmental and institutional expenditures, suppliers, hiring public officials for internal positions, and the Program's training initiatives. In 2024, 96% of tested transactions complied with the Program's rules. All identified non-compliances were addressed, and there was no materialization of risk. [GRI 205-1](#)

Whistleblower Channel

[GRI 2-16](#) [GRI 2-25](#) [GRI 2-26](#) [GRI 406-1](#)

Vale's Whistleblower Channel may be used by anyone, inside or outside the Company, who wants to report a suspected violation of our Code of Conduct. Allegations are recorded by an independent company and forwarded to the internal team responsible for investigating them.

Our company's employees and contractors in Brazil and Canada can also use the Respect Channel, operated by a specialized and independent team, to report cases of sexual harassment, and other types of harassment or discrimination. This channel offers empathetic and supportive support to those experiencing this type of situation.

Information received through these channels is treated with the utmost confidentiality. Under no circumstances will there be intimidation or retaliation against whistleblowers.

Over the last few years, the number of allegations received by our Whistleblower Channel has grown, as has the confirmation rate for investigated allegations. This growth, as well as demonstrating increased trust in the channel, may be linked to actions taken to raise awareness about undesirable conduct at our company and the ongoing guidance given to employees on how to act in the event of a breach of our guidelines and ethical principles.

 [CLICK HERE TO ACCESS THE WHISTLEBLOWER CHANNEL](#)

¹ This annual assessment covers all of Vale's operations and administrative areas, allowing us to implement customized communication, training, monitoring, and control actions, taking into account the different levels of exposure to corruption risk. For example, training mapping for priority groups is carried out during this process.

² Tests are conducted in annual cycles, distributed throughout the year.

Key figures for the Whistleblower Channel in 2024

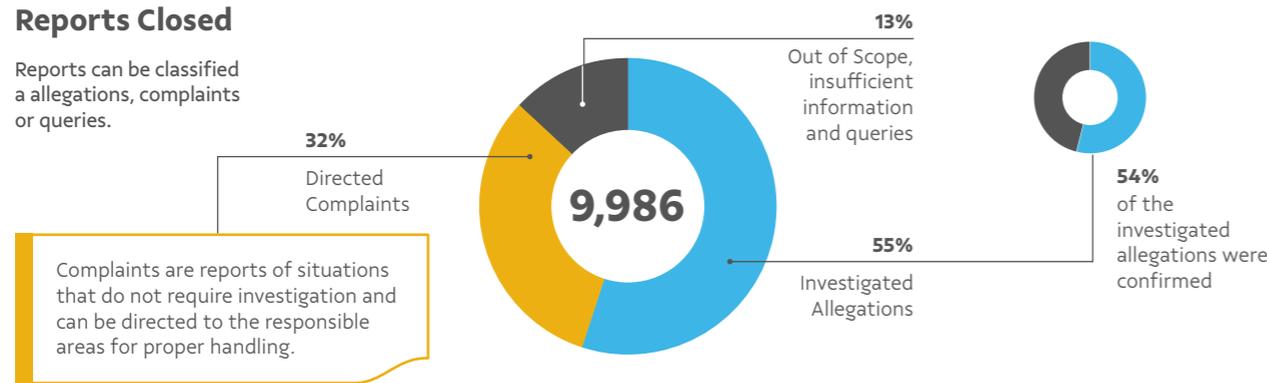
In 2024, we received 10,281 reports and closed 9,986 reports, of which 55% were investigated allegations. The number of allegations received increased by approximately 19% compared to 2023.

In 2024, as in the previous year, 64% of the allegations investigated and confirmed by the Whistleblower Channel were related to interpersonal relationships. This category includes allegations about sexual harassment, other kinds of harassment, discrimination, inappropriate management and inappropriate behaviour. The latter two subcategories accounted for the bulk of cases.

The Whistleblower Channel's data helps us monitor progress and identify areas for improvement, which are continuously incorporated into our inclusion and cultural initiatives, as well as our Ethics & Compliance Program.

Reports Closed

Reports can be classified a allegations, complaints or queries.



Consequences of confirmed allegations

When misconduct is confirmed, we act in accordance with our **Misconduct Management Policy**.

All allegations confirmed by the Whistleblower Channel in 2024 triggered corrective plans. In all, 3,978 corrective actions and disciplinary measures were instituted, including 298 dismissal processes and a range of other measures, such as the demobilization of contractors, feedback, warnings, suspensions and process reviews.

Misconduct can also be identified by leaders on a day-to-day basis, through audit processes, by regulatory bodies or through other means. In all these cases, leaders play a central role in applying consequences.

For further information, **consult our Ethics & Compliance Program's Annual Report**.

Compliance with laws and regulations

GRI 2-27

In 2024, Vale received 112 fines, and three non-monetary penalties related to significant cases of noncompliance with laws and regulations. During the year, the company paid 77 fines related to noncompliance with laws and regulations, totaling around USD 1.1 million, as detailed in the following tables and in the **ESG Databook**.

Non-monetary penalties and fines related to significant cases² in 2024

Region	Environment		Society		Mining regulations		Labor		Other ²	
	Non-monetary penalties	Fines	Non-monetary penalties	Fines	Non-monetary penalties	Fines	Non-monetary penalties	Fines	Non-monetary penalties	Fines
South America	3	5	0	0	0	107 ³	0	0	0	0
North America	0	0	0	0	0	0	0	0	0	0
Europe	0	0	0	0	0	0	0	0	0	0
Asia	0	0	0	0	0	0	0	0	0	0

Fines paid in 2024

Total monetary value of fines paid in 2024 (USD)

Region	Fines paid in 2024					Total monetary value of fines paid in 2024 (USD)				
	Environment	Society	Mining regulations	Labor	Other ²	Environment	Society	Mining regulations	Labor	Other ²
South America	5	19	6	44	3	187,560.5	80,500.7	5,862.8	777,300.63	19,427.9
North America	0	0	0	0	0	0	0	0	0	0
Europe	0	0	0	0	0	0	0	0	0	0
Asia	0	0	0	0	0	0	0	0	0	0

¹ Reports received by the Whistleblower Channel may be closed in a year other than the year in which they were received, due to the date the report was received or the complexity of the investigation process.

² For information on the criteria used to determine the cases considered "significant", as well as the other thematic areas covered by the indicator (considered in the "Other" column), see the ESG Databook, under the "Glossary - Premises Base" tab

³ These correspond to 107 infraction notices for noncompliance with regulatory standards issued between 2021 and 2022. At the time the infraction notices were issued, requests for reconsideration were filed with the National Mining Agency (ANM) and, in 2024, decisions were published rejecting the requests for reconsideration and imposing the fines. Of these 107 infraction notices, new appeals were filed for 101. The Company paid the fines for the other six in 2024.

Human rights

Respect for human rights is non-negotiable and the fundamental basis for our work. There is a work group dedicated to human rights training and content dissemination, which includes ongoing initiatives to raise awareness among our workforce. Our human rights training is mandatory during the onboarding process for employees and contractors.



In 2024, 95% of our employees were trained on human rights.

During 2024, our employees also undertook training on our Human Rights Policy, which underwent its third revision in 2023. We also carry out specific training for areas considered more critical. In the Corporate Security area, for example, we offer training featuring content aligned with the Voluntary Principles on Security and Human Rights (VPSHR), to which Vale is a signatory. By the end of 2024, 98.3% of employees and 99.8% of employees of companies contracted by Corporate Security in the Iron Ore Solutions segment had been trained in the subject. In the Metals for Energy Transition¹ segment, 100% of employees and contractors hired by Corporate Security were trained in the subject.

GRI 410-1

Critical human rights updates are disseminated continuously to our employees, suppliers, joint ventures, and clients via email, booklets, bulletin boards and TV Vale. These stakeholders also participate in webinars and in-person meetings on the culture and reality of Indigenous People, inclusive treatment, forced and child labor, sexual exploitation of children and adolescents, collective bargaining, freedom of association, and inclusion.

In line with our human rights commitments, we have a Listening and Response Mechanism for receiving allegations, questions, and complaints, which can be accessed by anyone. We have a global Whistleblower Channel and a Respect Channel, focused on receiving reports of harassment, sexual harassment and discrimination in Brazil and Canada. Vale seeks to respond to 100% of allegations submitted by the Business & Human Rights Resource Center (BHRR). In 2024, four allegations were received and clarified on this platform. Two of them were related to resettlement and deforestation in Indonesia. Another concerned Vale's inclusion on the Brazilian Labor Ministry's "Dirty List," and a fourth allegation involving social and environmental compensation related to the Mineração Paragominas project in Brazil, which was sold by Vale in 2011.

Labor conditions "Dirty List"

In June 2024, Vale was added to the Brazilian Labor and Employment Ministry's Registry of Employers That Have Subjected Workers to Forced Labor, commonly known as the "Lista Suja" or "Dirty List." This stemmed from an infraction notice received in 2015, following an inspection that found a Vale goods transportation service provider to be noncompliant with labor obligations regarding working conditions. In October 2024, higher court decisions finalized a ruling declaring the infraction notice null and void, confirming Vale's removal from the registry.

Vale has been striving to strengthen its commitment to respecting and promoting human rights in its value chain, engaging employees, contractors, and suppliers in training and awareness-raising events. Partnerships to address salient human rights issues in the value chain include collaboration with non-governmental organizations such as the Institute for the National Pact to Eradicate Slave Labor (InPACTO) and Childhood Brasil², as well as ongoing engagement with different areas of the company, namely the Whistleblower Channel, Procurement, Health and Safety, Environment and Human Resources.



SEE MORE ABOUT CONTROVERSIES ON THE ESG PORTAL



Vale has been a member of InPACTO since 2019 and is a signatory to the pact's commitments. Since it joined, Vale has engaged in our activities, such as meetings, working groups and events, running workshops and communication campaigns throughout its supply chain, which we have supported with a strategic vision. We expect that this dialogue will lead to the development of an in-depth plan in partnership between Vale and InPACTO, aimed at improving human rights practices and policies in the Company's value chain."

MARINA FERRO,
executive director, InPACTO



Read more about this

¹ The information presented for the Energy Transition Metals segment refers only to corporate security employees and contractors in operations in the Northern Hemisphere. Corporate security employees in Brazil provide services to both segments and 100% of them have been trained in human rights. These employees are included in the information for the Iron Ore Solutions segment, which is the segment that provides this service.

² Childhood Brasil is a non-governmental organization that is part of the World Childhood Foundation, founded in 1999 by Queen Silvia of Sweden. Childhood Brasil's mission is to protect children and ensure that all of them can live in a safe environment, free from sexual abuse and exploitation.

In 2024, several coordinated actions were carried out at our operations in Pará and Maranhão on the National Day to Combat Abuse and Sexual Abuse and Sexual Exploitation of Children and Adolescents on May 18 to raise awareness of and prevent sexual exploitation of children and adolescents among the workforce (employees and contractors), suppliers, surrounding communities, and truck drivers. Some of the activities were in partnership with the Secretariat for Social Development of Canaã dos Carajás (SEMDES) and the Reference and Social Assistance Center of Canaã dos Carajás (CREAS). With an estimated participation of 1,000 people, the campaign involved exhibitions and dialogues at plants and construction sites, distribution of educational material in parking lots and gatehouses, pit stops in canteens, discussion groups at tire shops, restaurants, and campaigns in schools.

To encourage transport companies to also engage in prevention initiatives, Childhood Brasil, a Vale partner since 2020, spoke at a Transport Management event for more than 120 participants, including representatives from 26 freight transport companies.

In 2024, we received recognition from Childhood Brasil as a supporting company for the campaign, meeting the commitments of the corporate pact. The Global Child Forum Children's Rights and Business Benchmark (2024) ranked Vale 2nd in Brazil, 5th in the mining and metals sector, and in the top 10 in the raw materials segment in their evaluation of companies' actions and their impacts on children's rights.



FIND OUT MORE ABOUT
HUMAN RIGHTS AT VALE

Decent Work Caravan

Degrading, forced labor or modern slavery, as well as child labor, are risks present in Vale's value chain. To alert suppliers to these risks and promote decent working conditions, Vale holds "Decent Work Caravan" sessions in partnership with regional labor superintendent offices in Brazil. During each meeting, real-world risk scenarios involving forced labor and child labor are presented and discussions are held about their causes, ways of detecting them and measures to prevent them, thereby promoting respect for human rights and labor legislation.

In 2024, Decent Work Caravan sessions held in the states of Minas Gerais (Brumadinho and Nova Lima), Pará (Carajás, Canaã and Ourilândia) and Maranhão (Açailândia) reached an audience of 149 suppliers, 407 contract managers, and 403 Vale contract managers and inspectors. Also in 2024, Vale took part in the Decent and Sustainable Work Forum, held by the Maranhão Regional Labor Superintendent's Office and including the participation of unions, federations, judicial bodies, local companies and a trade association. At that time a delegation of representatives from the regional labor superintendent offices of Minas Gerais, Espírito Santo, Pará and Maranhão, spoke to workers from Vale's Carajás and Salobo operations and met with a local union.

"We visited various sectors of Vale's operation in Carajás, Pará. We observed good initiatives and practices, especially to meet the needs of the mining company's employees. However, we saw the need for this policy to be extended to the workers of companies that provide services. The visit was important, as it allowed us to engage in dialogue with respect for differences and a plurality of ideas, exchanging experiences and knowledge. Above all, it was an opportunity to exercise democracy."

Nivaldo Araujo, Maranhão regional labor superintendent,
Brazilian Labor and Employment Ministry

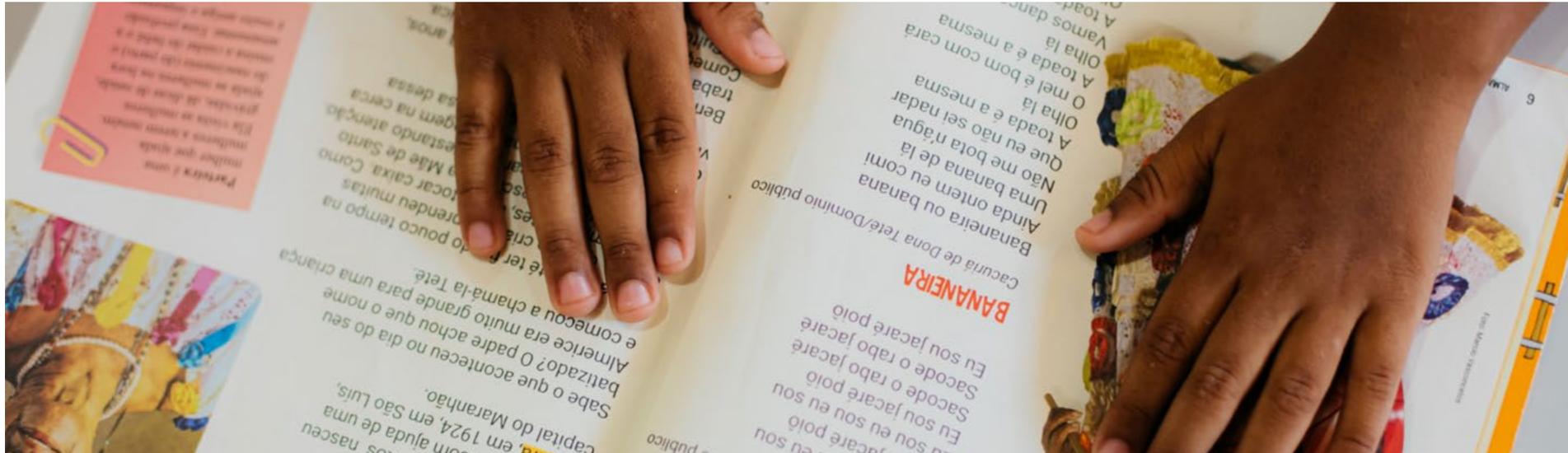
Due diligence in human rights

Vale's due diligence process seeks to consider the management of human rights violation risks and the independent human rights due diligence (HRDD) process. Vale's operations assess and record risks of human rights violations in the Company's risk management system. The HRDD is carried out at all operations by a specialized third party consulting firm. The process includes document analysis, inspections and field interviews. Between 2019 and 2023, the first independent HRDD cycle was completed at 100% of our operations in Brazil and in our iron ore operations in Oman and Malaysia.

In 2024, the second cycle of HRDD considered our Oman operations and five operations in our Northern Brazil System (Serra Norte, Serra Sul (S11D), Serra Leste, Manganês do Azul and Carajás Railroad operations). In Oman, this process revealed, among other things, that we have endeavored to enhance worker safety by providing a "right to refuse unsafe work" channel. We have also made progress in terms of training regarding an inclusive work place, while improving trust through the Whistleblower Channel and community relations activities. We still have challenges related to the availability and condition of facilities and infrastructure for workers, as well as working relations and conditions for migrant workers.

In Brazil, the main challenges that were identified relate to the working conditions of contractors, infrastructure, management of operational services, property security, sexual harassment and other forms of harassment and discrimination.

Photo: Isaque Junior



Literacy Tracks. Santa Rita de Cássia School. Santa Rita, Maranhão, Brazil.

After receiving reports and recommendations from the independent HRDD process, our operations are working to develop action plans with the technical support of the Human Rights area.

“Following the 2019 Human Rights Due Diligence assessment, we improved our safety protocols, training and contract management, reducing incidents and promoting trust. Workers’ accommodation was revamped to offer better housing conditions. We are focused on strengthening support systems to ensure that all workers feel respected and included.”

NASSER AZRI,
CEO Vale Oman

Human rights management at suppliers

Our suppliers undergo a human rights due diligence process, and preventive and mitigating measures have been applied to help manage these risks and impacts since 2020. **For more information about the 2024 outcomes see the section on Responsible Purchasing.**

Responsible Purchasing

Documentary and field inspections, as well as inspections of suppliers' accommodation in Brazil and Oman, generated recommendations for vulnerabilities related to excessive working hours; weaknesses in the recruitment process; discounts on benefits; absence of measures to prevent child sexual exploitation; absence or weaknesses in communication and reporting channels; harassment and/or discrimination; conditions of general and sanitary facilities; and accommodation. The suppliers with the most serious impacts were asked to submit an action plan for Vale to follow up.

Child labor, forced or compulsory labor

GRI 408-1 GRI 409-1

The significant risk¹ related to the possibility of child labor and young workers exposed to hazardous work has been mapped in the Iron Ore Solutions segment in operations and projects in Brazil; and among Brazilian and international suppliers, with emphasis on the following countries where Vale has operations and projects: Chile, China, UAE, Malaysia, Oman, and Peru. In the Energy Transition Metals segment, significant risks of child labor have been mapped in operations and projects in Brazil. The significant risk related to the possibility of forced or compulsory labor has been mapped in the Iron Ore Solutions segment in operations in Brazil and Oman; in projects in Brazil; and among Brazilian and international suppliers. In the Energy Transition Metals segment, it has been mapped among suppliers in Brazil.

In 2024, no cases of child labor, young people exposed to hazardous work or forced or slave-like labor were confirmed at Vale’s operations.

However, considering the risk of child labor present in the regions where Vale operates, a working group was established, involving internal areas such as Legal, Labor Relations, HR, Human Rights, Community Relations, the Vale Foundation, Procurement, and operational and project areas. The goal is to strengthen synergies between different Company initiatives in these locations, seeking to collaborate with the child and adolescent protection network, contribute to opportunities for training and apprenticeships, raise awareness and engage suppliers.

¹ Residual risk from the risk assessment of the operation or project that remains “high” and “very high” criticality, even after the application of preventive and mitigating controls.

People

In 2024, we carried out Vale’s second Cultural Diagnosis (the first was in 2020) and a new cycle of our Engagement Survey¹. The Culture Diagnosis was carried out between January and May 2024, 261 participants took part in 26 focus groups, and 60 Company executives and board members were interviewed. The results show that support for our Company’s transformation is genuine and significant progress has been made. Our main achievements in this area include:

- **Improvements in safety:** We have made progress in establishing processes to improve safety and operational discipline
- **Progression in all our key behaviors,** especially Obsession with safety and risk management
- **How we make things happen matters:** We are committed to delivering results and to the way they are achieved, especially considering safety and respect for others
- **We are proud of and committed to our change:** We know, understand and engage with the culture we have established. We are committed to moving in the right direction.

To continue our evolution, we have mapped out our main opportunities:

- **Expand dialogue** to improve results, innovation and learning in an environment of **psychological safety**, in which everyone has a **sense of ownership**

¹ The Cultural Diagnosis and Engagement Survey do not consider Vale Base Metals’ business.

- **Enhance processes** to make them more **fluid, efficient and less bureaucratic**, enabling empowerment
- **Evolve from individual achievements to genuine collaboration** and integration to deliver our Company’s results.

“Our employees know and understand our transformation and are committed to it. Their drive, combined with their ability to achieve our goals, and in the right way, will take us to the next stage of change.”

NATÁLIA CARVALHO,
culture and talent acquisition manager, Vale

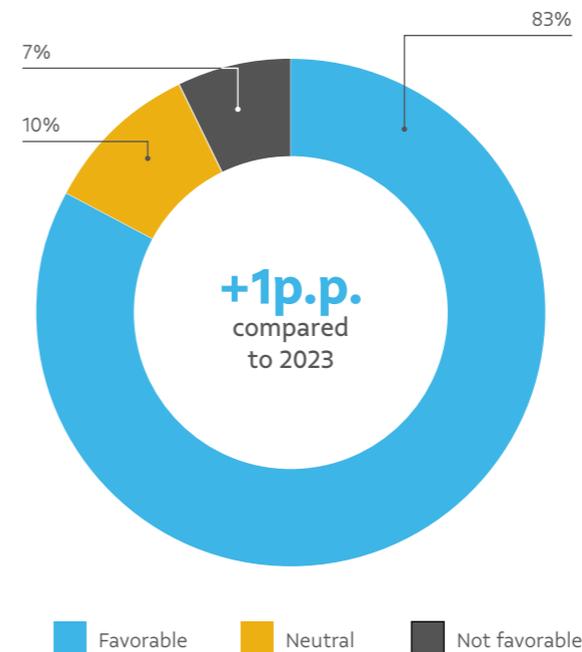
Our journey of cultural transformation still has some aspects that need to be worked on to allow us to move from a process-oriented Company to a values-oriented Company. We continue to prioritize dialogue, active listening, genuine collaboration with each other and process simplification.

“What we saw in our second assessment in 2024 was the result of the commitment and ability of each of our thousands of employees to make things happen. The focus was on safety. Our main achievements in the last five years include a greater understanding that nobody does anything alone, that raising your hand and reporting problems is part of the process of learning together and that how we do things matters.”

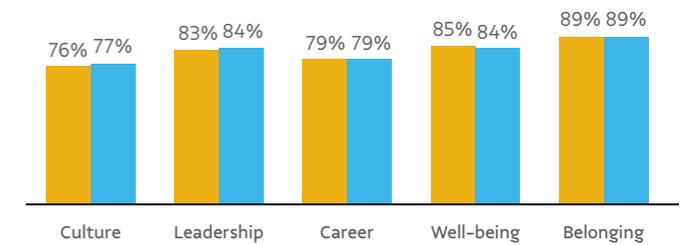
GENILDA SAJI,
senior client partner, Walking The Talk, who was responsible for the assessment

Also in 2024, we carried out a new cycle of our Engagement Survey, with 82% of employees contributing their opinions on what is going well and bringing up what is going well and what needs to be improved in the areas of Culture, Leadership and Careers. We reached the 83% favorability mark (+1 percentage points – p.p. compared to 2023). This shows us that we are moving in the right direction in transforming Vale into a more sustainable, efficient and innovative Company.

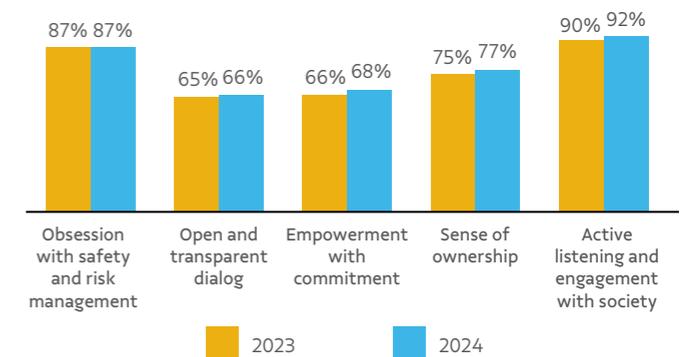
Vale's favorability



Favorability by pillar



Culture (key behaviors)



Workforce

At the end of 2024, we had:



64,610
employees



109,506
contractors

Country	Employees	Contractors
Brazil	55,663	100,601
Canada	7,262	1,879
Indonesia	92	0
Malaysia	394	2,338
Oman	598	4,688
Other	601	Not informed
Total	64,610	109,506

The number of contractors reported in 2023 was revised, as it was the total number of contractors mobilised (people able to provide services). As of April 2024, the company adjusted the assumption to reflect the criterion of contractors with access to Vale sites and other operations. Therefore, the number of contractors on 31/12/2023 was 106,533 in Brazil – with no data available at the time for international areas. The new criterion is available on the ‘Glossary | Premises Base’ tab.

Inclusion and belonging

We are striving to be an inclusive Company that, through open and transparent dialogue, promotes an environment of respect and psychological safety, with equal opportunities for growth and development for all people. We believe that a diversity of talents is essential for building a more sustainable mining industry.

Our role, as a multinational Company, is to direct our efforts towards making our work environments more diverse and inclusive, while respecting the culture and specificities of the countries where we operate.

We work to combat sexual harassment by raising awareness and through consequence management, building a respectful and safe environment where employees can thrive at Vale.

We seek to build a fair, talent-oriented company with opportunities for all people. We are consolidating a transformative legacy in a sector marked globally by low female representation. We have been influencing the entire production chain and inspiring a broad cultural transformation, including through our Vocational Training Program open to all applicants. Today we have about 8,000 more female employees and their presence is now more commonplace in traditional male roles such as mechanic, operator, welder and electrician.

Employees by type of employment contract and gender

	Men	Women	Total
Permanent	47,370 (73.6%)	16,974 (26.4%)	64,344
Temporary	130 (48.9%)	136 (51.1%)	266
Total	47,500 (73.5%)	17,110 (26.5%)	64,610

Number of employees self-identifying as black or mixed-race

Functional category	
Directors	28
General managers	54
Managers	320
Supervisors	994
Coordinators	500
Technical specialists	30
Administrative staff	480
Operational staff	31,320
Professional technicians	3,381
Total	37,107



Mariam Al Bloshi, Muzna Al-Jufaili, Mariam Al Maqqale and Noora Al Maqqale, from Vale Oman.

Enhancing our workplace culture



We want to continue to build an environment at Vale free of ethnic or racial discrimination, that does not tolerate any form of prejudice. In 2024, black representation in leadership positions increased by 8.8% from 28.9% to 37.7%.

People with disabilities

We seek to promote an equitable work experience by investing in accessibility, promoting career development and combating ableism – the type of discrimination that can affect people with disabilities. In 2024, 5.5% of our employees in Brazil were people with disabilities, amounting to around 3,000 professionals in a wide variety of roles.

LGBTI+

Our Company values diversity and promotes respect and inclusion. In 2024, our actions were recognized by the market. We received the

maximum possible score in the HRC Brazilian Equity Survey, which identifies the organizations with the most advanced diversity and LGBTI+ inclusion practices in Brazil. This survey was carried out by the Human Rights Campaign Foundation.

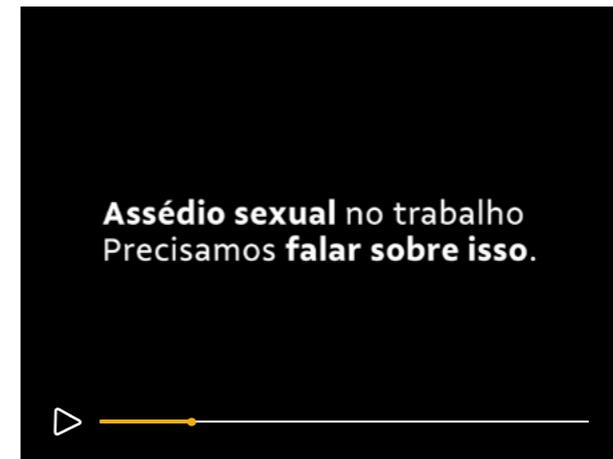


Since 2021, Vale has also held the “Vale LGBTI+ Pride Celebration” in June, which brings together leaders and employees from all over Brazil to remember this group’s history of struggle and resistance and to contribute to building a culture of respect equal opportunities for development.

Combating harassment, discrimination and prejudice

At Vale, we do not tolerate any kind of harassment, discrimination or prejudice. We work to prevent and combat sexual harassment through clear internal guidelines and policies and through consequence management, training, and internal and external communication campaigns. The

Company encourages open and transparent dialogue between employees and management and has a Whistleblower Channel that impartially investigates cases of suspected violations of our Code of Conduct. Vale also offers the Respect Channel, operated by a specialized and independent team, available for employees and contractors to report situations of moral harassment, sexual harassment or discrimination in Brazil and Canada.



Since 2023, in compliance with Brazilian Federal Law 14,457/2022, we have offered mandatory training on measures to combat sexual harassment in the workplace to all Vale employees in Brazil. We have also carried out communication campaigns in all the regions where we operate, reinforcing our position of not tolerating harassment of any kind.



Photo: Léo Lopes

Employees Margarida Costa, Dinalva Moreira and Rayner Dias at the Timbopeba Mine, Ouro Preto, Minas Gerais, Brazil

Coalition

Building an inclusive Company, is a shared responsibility, and we seek to integrate this principle across the organization and in our processes. To promote this, we created the Coalition, a forum of directors representing key functional areas, including Information Technology, Operations, Projects, Human Rights, Infrastructure, Health and Safety, Human Resources, Communication and Procurement. Among other things, this group is responsible for co-creating solutions to implement practices and procedures that incorporate the principles of inclusion to become a truly inclusive Company.

“Through the Coalition, we have been able to share and discuss inclusion issues in a structured way and integrated these within Vale’s strategy. The discussions are always geared toward practical applications, co-creating with diverse colleagues, listening to difficulties, taking responsibility and testing the implementation of broader and genuine practices in various areas, especially operational ones. Everyone’s commitment and the clearer, more focused approach to addressing issues, many of which have arisen from local aspects of our operations, have been notable. I can see genuine progress that goes beyond statistics and graphs, reflecting more of the realities and transformation required at our Company.”

DIOGO COSTA,
director of Novo Carajá project

Talent attraction and development

GRI 2-24 GRI 404-1

Vale’s talent attraction strategy is designed to contribute to the Company’s ambition of becoming a talent-driven organization and to enable Vale’s objectives of being a more sustainable, efficient and innovative Company. In addition, it prepares Vale to address the talent shortage challenge by making it a more attractive and desirable Company for the younger generations.

Talent attraction is one of the fundamental pillars of Vale’s commitment to the development of the communities in which it operates, particularly in the Brazilian states of Pará and Maranhão. For the second time running, our Trainee Program has been designed and implemented to cater for the development of local professionals in these regions. In addition, in 2024, Vale

designed an attractiveness plan that includes, market intelligence and proactive mapping of regional talent to facilitate the hiring of local professionals for the opportunities generated by the business.

To promote community development, we ran the “Stand Out” program in 2024, both in person and online. The program provided around 2,000 people with tips on resume writing and participating in selection processes.

In 2024, we hired more than 2.600 new female employees in Brazil. Taking into account the Entry Gate Programs, approximately 4,000 vacancies were filled with women, through our merit-based talent acquisition processes. Overall, we had 8,586 vacancies for people at secondary, technical and higher education levels in 54 municipalities in 9 Brazilian states.

We believe that internal opportunities enable our employees to develop and grow. In 2024, around 1,500 vacancies were filled by internal candidates and 611 of these individuals had the opportunity to take up their first leadership position, reflecting our commitment to becoming a talent-driven Company.

Vale’s gateway programs are also worth highlighting. The Vocational Training Program was attended by more than 110,000 people, 372 of whom took part. The Young Apprentice Program¹, meanwhile, received approximately 61,000 applicants, of whom 1,182 joined the program last year, with 16.75% of the vacancies going to people in situations of social vulnerability², including, for the first time, prisoners.

Our selection processes benefited thousands of people, including around 24,000 who had the opportunity to take part in initiatives such as Journey to the Future, conversation groups, talks and workshops aimed at sharing best practices in selection processes, with the aims of preparing local people for the job market, helping reduce inequalities and boosting economic growth in the communities where we operate.

Valer learning ecosystem

For Vale, continuous learning is a competitive advantage. A learning journey is offered to employees from when they are hired, through our Vocational Training Program, Young Apprentice Program, Job Market Preparation Program, Internship Program and Trainee Program. The Trainee Program, created to develop a pipeline of potential leaders, was repositioned in 2024 to leverage talent from Pará and Maranhão, in line with our strategy across Brazil to boost local development. The program included recent graduates from Pará, Maranhão and other states in the Brazilian Northeast. In addition, 59% of the participants were women and 64% self-identified as black. They participated in a comprehensive learning journey, combining theory and practice, in a hybrid format integrated into their routine activities.

¹ The figures for the Young Apprentice Program do not include base metals for the second half of 2024

² Involving extreme poverty, child labor or time spent at youth detention centers – including closed-regime centers for youths, for the first time.

Photo: José Palma



Employee João Augusto Pereira at the Ilha Guaíba Terminal (TIG), Rio de Janeiro, Brazil where vessels carrying dock.

Regarding Vale’s other gateway programs, in 2024 the Vocational Training Program trained 1,030 people, approximately 81% of whom were subsequently hired to fill technical and operational vacancies, up over 1.5% from the previous year.

Finally, in 2024 our Internship Program took on an additional 1,200 interns throughout Brazil, and the proportion of participants who were subsequently hired rose by 22% compared to 2023.

In addition to these programs, the Job Market Preparation Program, aimed at promoting vocational qualifications in communities, trained 498 people through a variety of short courses. A survey of program graduates found that 36% were working in the mining sector, while 25% said the program had helped them get their current job. These findings illustrate Vale’s dedication to fostering talent development within local communities.

Our aim of mitigating risks has driven Vale’s education arm, Valer, to invest significantly in employee training in recent years. Good progress has been made in implementing our Integrated Technical Training Model, which organizes integrated development tracks for operational and technical professionals. We currently have approximately 280 integrated development tracks, covering 75% of the target employees, estimated at around 34,000. In 2024, approximately 15,000 employees in high-priority functions for the business

(mechanics, operators, vulcanizers, electricians and welders) participated in training. This resulted in the elimination of technical training gaps for the prioritized employees and contributed significantly to reducing accidents in operations. One example is the positive impact among mechanics. Since the Integrated Technical Training Model training plan was first implemented three years ago there has been a 45% reduction in accidents in this role compared to the previous three-year period.

The Technical Expertise Program, piloted in 2024, aims to boost the technical development of mining technicians who have a higher education degree. In 2024, there were 148 participants, of whom 51% were women, 40% were black and 1% were people with disabilities.

The focus was on processes involving mine and plant operations, mine planning, mineral processing, geosciences and technical mining services. In all, there were 89 learning actions and 10,346 hours of development. As part of a learning strategy, the participants developed 38 projects that had a measured impact on the business, including potential gains, avoided losses and avoided costs. This model has already been replicated in other areas, such as Pelletizing and Projects, and it will be expanded in 2025 to Railroads and Ports. Vale also offers a broad portfolio of learning solutions for different audiences and their different needs. These include graduate

courses, language training, leadership development solutions, cultural programmes, coaching and mentoring. All Vale employees can access the Valer learning experience platform, where they can find content to help develop various skills.

Training Hours

GRI 404-1

Functional category	Average training hours in 2024
Directors	6.0
General Managers	13.3
Managers	21.3
Coordinators	34.5
Supervisors	46.7
Technical specialists	22.0
Administrative staff	28.0
Operational staff	64.3
Professional technicians	25.4
Total average	52.8



Photo: Jeferson Capela

Employee Daniel da Costa and the Truckless system at Serra Sul mine, Canaã dos Carajás, Pará, Brazil.

Remuneration

GRI 202-1

Vale is guided by the local minimum wage or salary defined by law and its recent analysis did not identify a significant difference¹ in remuneration between women and men who perform the same functions, in line with our Human Resources Policy. Any differences in compensation relate to employees' varying seniority levels and maturity in their positions. [GRI 405-2](#)

All Vale employees receive a living wage,² – a statement that has been verified through an external assessment carried out by Business for Social Responsibility (BSR), finalized in January 2025. This analysis used the Wage Indicator Benchmark, based on the remuneration practiced by Vale in 2024 and in line with the principles

of the UN Global Compact's Ambition 2030 and Decent Wage Movement. Pay deductions or restrictions that could result in employees owing money to the Company are prohibited.

As a global Company, Vale has a compensation policy for our top management in line with established practices, including the linking of ESG metrics to the remuneration of Executive Committee members.

Our remuneration practices also reflect the complexity and size of our operations, which require our managers to have in-depth knowledge of the business and the market commensurate with their responsibilities.

 **FIND OUT MORE ABOUT EXECUTIVE PAY**

Union relations

Vale endeavors to maintain good relations with labor unions in all the countries where we operate and seeks to resolve any conflicts through regular meetings with union representatives.

We respect freedom of association, and we base our actions on Vale's Code of Conduct, local labor laws, the eight Fundamental Conventions of the International Labor Organization (ILO) and the guidelines of the Organization for Economic Cooperation and Development (OECD). When local legislation imposes restrictions on freedom of association, we strive to work with equivalent labor organizations.

Collective bargaining

Collective bargaining is practiced in most of the countries where we operate and 94% of our employees are covered by collective bargaining agreements. In Brazil, 100% of our employees are covered by collective bargaining, involving 12 unions, and over 15,000 are voluntarily affiliated with the union organizations that represent them. [GRI 2-30](#) [GRI 407-1](#)

There have been no strikes by our employees in Brazil since 1989. In 2024, we continued to focus on negotiating and resolving collective conflicts through dialogue with unions and on training Company leaders in labor relations issues. The number of conflicts has fallen, as has the number of lawsuits involving the Company and unions. [GRI MM4](#)

¹ The current overall pay gap is four percentage points.

² Paying a living wage means offering the amount necessary to provide a decent standard of living for workers and their families, taking into account the circumstances of each country and calculated on the work done during regular working hours

Health and safety

One of the biggest challenges for companies today is the mental health of their employees. A study conducted by the Pan American Health Organization showed that four out of 10 Brazilians have experienced anxiety-related problems. The international statistics are also worrying: work-related stress is the second most frequent health problem in Europe¹. According to data from the World Health Organization, around one billion people around the world – one in eight – have at least one mental health concern². At Vale, 18.8% of sick leave cases in 2024 were due to mental and behavioral disorders.

To address this issue, Vale supports our employees through the Mines for Minds program, established in 2020. This program is made up of global and local initiatives, underpinned by five pillars: Map, Interact, Naturalize, Anchor and Sustain. Through a management strategy, governance, psychoeducation literacy actions, care initiatives and individual and collective interventions, we offer active and genuine support to our employees.

¹“Saúde Mental no Brasil e o Impacto para as Empresas,” (“Mental Health in Brazil and the Impact on Companies”), available [here](#).
²“World Mental Health Report: Transforming Mental Health for All,” available [here](#).

At Vale, the mental health guideline establish:



Mines for Minds has provided psychosocial support to 5,472 employees since inception, including 1,445 in 2024. This total does not include assistance provided through the Company's health insurance plan, our occupational health discipline and our Support Program, which enables employees to obtain advice from social workers via a toll-free helpline. A total of 28,723 self-assessments have been carried out since the program began, including 8,590 in 2024. In addition, 25,457 employees have done mental health training, including 5,367 in 2024.

“After many visits to the doctor, I was diagnosed with burnout. I started to take psychiatric medications and went on sick leave. Although it was a very difficult time, I had the full support of Vale’s occupational medicine team. Today, I still have difficult days, but I’ve learned to deal better with my mental health, and I recognize this is the first step toward creating an environment where we can support each other.”

JOSÉ DE RIBAMAR BATISTA JUNIOR,
an employee who has benefited from the Mines for Minds program

[Find out more about how Vale promotes health and well-being](#)

Health and safety culture

At Vale we aim to surpass regulatory compliance. By seeking to foster a health and safety culture, we not only protect our most valuable asset – our people – but also strengthen our position as a Company with the ambition to be a benchmark in safety.

Our health and safety strategy are based on the Vale Production System (VPS), our management model, whose overriding principle is to protect the lives of our employees and the people impacted by our operations. This strategy is supported by one of Vale's five values, “Life matters most.”

Our commitment to health and safety aligns with the guidelines established by the International Council on Mining and Metals (ICMM) and the Company's Sustainability Policy, Human Rights Policy and Code of Conduct, which help that our practices comply with ethical and legal standards. Our strategy is based on three pillars: prevention of injuries and chronic diseases, prevention of fatalities, and prevention of catastrophic accidents.

To promote a safer and healthier environment at all levels, Vale has developed a Behavioral Development Strategy, which encompasses the Leading with Safety Program, among other initiatives. This program aims to train leaders to act more assertively and carefully, incorporating accident prevention into the daily decision-making. Between November 2022 and December 2024, around 2,600 leaders underwent training (70% of the target group), including the senior leaders of contractors, representing approximately 25,000 people in Vale's operations.

When it comes to managing health and safety risks, one of our main pillars is Critical Activities Requirements, which establishes mandatory guidelines applicable to all organizational areas and processes, covering both Vale employees and contractors. The Critical Activities Requirements were developed to help mitigate specific and critical risks that may occur in the Company's operations and value chain. This promotes a standardized approach to risk mitigation, aligned with the Company's global strategy.

Photo: Washington Alves



Health and safety talk for employees at the Mar Azul mine, Minas Gerais, Brazil.

Health and safety goals

Health and safety goal	Performance in 2024
I. Zero fatalities	In 2024 we recorded four fatalities. We continue to pursue our goal of zero fatalities
II. Reduce the number of N1 and N2 events compared to the previous year's closing result	An increase of 19% compared to 2023 results
III. Reduce the number of exposures to major health risks by 50% compared to 2019 by 2025	Goal achieved in 2023. In 2024, the reduction was 60% compared to the 2019 baseline.
IV. Eliminate all risk situations classified as "very high" for health, safety, the environment and communities	57% reduction in risk situations classified as "very high", from 2023 to 2024

The main occupational safety risks in our operations are related to the following Critical Activities Requirements:

- 1. Working at heights:** This type of work involves a high risk of falls, which can result in serious or fatal accidents.
- 2. Light motor vehicles:** Light vehicle movements on operating sites are a constant source of risk, due to the potential for collisions and pedestrian accidents.
- 3. Operating mobile equipment:** The handling of large mobile equipment, such as excavators and trucks, poses significant risks.
- 4. Lockout and tagout:** Work on energized systems, including maintenance, requires blocking energy sources to prevent electric shocks, burns or explosions.
- 5. Cargo handling:** Lifting heavy loads poses the risk of falling materials, which can lead to serious accidents.
- 6. Confined spaces:** Working in confined spaces, such as tanks or pipes, poses a high risk of asphyxiation or exposure to toxic gases.
- 7. Machinery protection:** Unprotected machines can cause serious injuries, such as crush injuries.
- 8. Groundworks:** Working in areas with geotechnical risks, such as excavation sites, can result in landslides or cave-ins.
- 9. Blasting:** The handling of explosives, common in mining activities, requires strict controls to avoid unplanned explosions.
- 10. Working with electricity:** Activities involving electricity present risks of electric shock and fire.
- 11. Molten metals:** Handling liquid metals at high temperatures poses a risk of serious burns.
- 12. Hot work:** Work involving welding or cutting metal increases the risk of fire.
- 13. Line and equipment opening:** Opening pressurized lines and equipment or devices containing hazardous materials can lead to explosions or toxic leaks.

Accidents and fatalities

GRI 403-9 GRI 403-10

In 2024, we faced the loss of four colleagues in our operations, a fact that brought us deep sadness and underscored the importance of continually working to improve our safety practices. We offered our full support to the families of the victims, reaffirming our commitment to care and respect at such times. More information on the four fatalities can be found below.

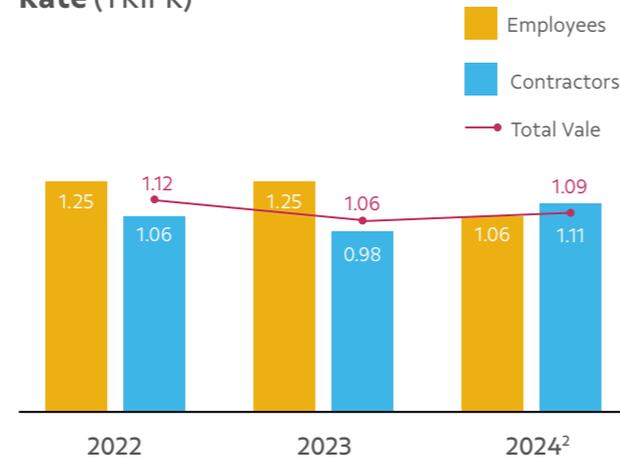
- On January 15, a contractor employee died in a traffic accident when he collided with a truck belonging to Ápia, on the way from Vila Sansão to Salobo Mine in Parauapebas, Pará.
- On February 9, a contractor employee died in an accident while operating equipment in our Gelado Project operations in Parauapebas, Pará.
- On November 1, a contractor employee died after falling from a height of 4 m on October 28, while adjusting scaffolding to access the work platform in the milling facility of Plant 2 at Itabira Complex, Minas Gerais.
- On November 2, an equipment operator died when the vehicle he was in overturned while he was transporting ore from the mine to the railroad reverse loop at Serra Leste in Curionópolis, Pará.

In our continuous pursuit of an accident-free environment, we hold Global Safety Stand-Downs with the participation of our employees and leaders. During these meetings, we discuss incidents in detail, share the results of investigations and reinforce our commitment to putting life first.

In addition, we conduct detailed analyses and thorough investigations to identify the root causes and contributing factors of each incident. Based on these investigations, we implement actions that aim to prevent recurrences and building an even stronger safety culture.

We also invest in training, behavioral development of leaders, and in technology and innovation to reinforce a preventive approach, with the aim of anticipating risks and ensuring that each person who joins our operations returns home safely. We believe that only through collective and continuous effort we can achieve our goal of zero fatal accidents and create a safer working environment for everyone.

Total Recordable Injury Frequency Rate (TRIFR)¹



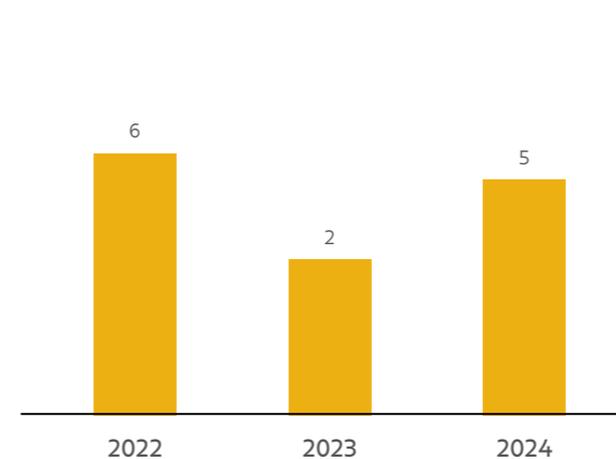
¹ Total number of occupational injuries per million hours of exposure. This figure includes occupational injuries to employees and contractors in controlled activities that result in fatalities, leave of absence, work restrictions or medical treatments. First aid cases are not included.

Safety is and always will be one of Vale's core values. This means that, Vale considers safety in all its decisions and behaviors, permeating all areas and levels of the Company.

We have made progress over the last few years in improving our safety performance, but we acknowledge that there remains much to be done. We have reduced our total recordable injury frequency rate (TRIFR) since 2018, maintaining stability over the past three years.

Historically, accidents that result from mobile equipment operations, working at heights, machine guarding, electrical work and light motor vehicle incidents have been the main sources of high-

N1 - Fatality and life-changing injuries³

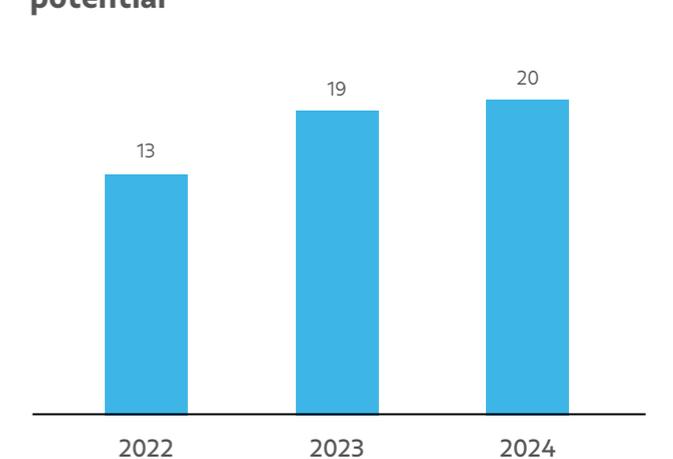


² PTVI operations are being considered until July/2024.

potential events. These events include fatalities and life-changing injuries (known as N1 events) and high-potential recordable injuries (known as N2 events), all associated with Critical Activities Requirements.

Reaching zero fatalities is our priority. We recognize that this is one of our biggest challenges, but we are working hard and showing signs of progress. In 2024, we achieved a 61% reduction in events resulting in high-potential injuries, absences from work, restrictions or medical treatments (N2 events), compared to the 2019 baseline (51). Based on the lessons learned, we have set new, more realistic and challenging targets for 2030. The Company strives to reduce the number of N1 and N2 events compared to the previous year's total.

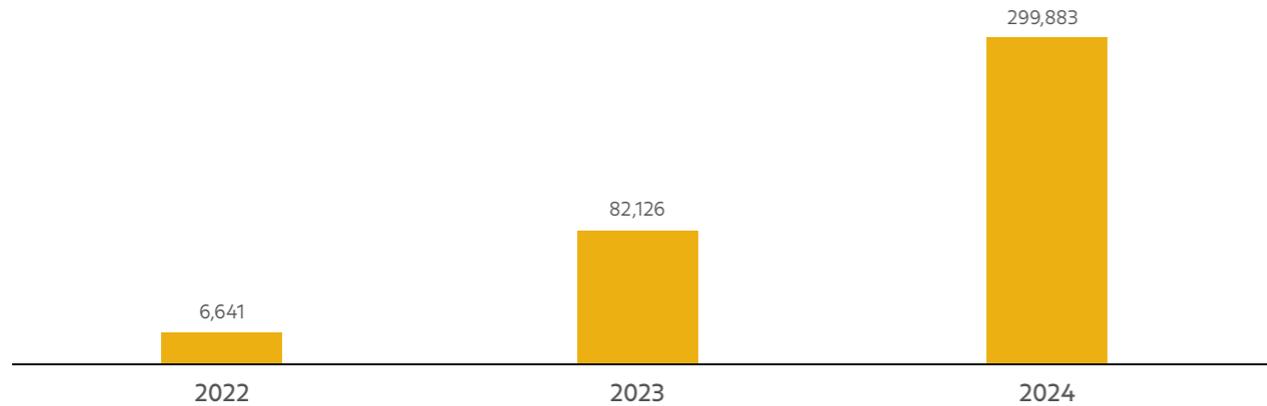
N2 - Recordable injuries with high potential³



³ Due to the change in concept - now considered an event rather than injuries - historical data has been recalculated.

GRI 2-4

N3 – First aid and other high potential events



Effects of our cultural transformation

One of the most evident effects of Vale’s cultural transformation has been the increased reporting of incidents without any injuries and/or involving first aid, but with a high severity potential (known as N3 events). The engagement of our employees in pointing out N3 cases has deepened our understanding of the root causes of potentially fatal events and thus address them before they materialize.

In 2024, we recorded 299,000 N3 event reports, a significant increase compared to the 447 recorded in 2019 – representing a 653-fold increase in five years. Considering the accumulated headcount in each period, the rate of N3 event records for every thousand employees went from 3 in 2019 to 1,428 in 2024. These results reflect cultural and a greater perception of risk on the part of our employees.

Applying the VPS, our management model, helps us create and promote a culture of discipline, and helps us ensure that all areas analyze processes and indicators on an ongoing basis, report problems, align priorities and take the necessary measures to obtain results. We map critical risk scenarios or material unwanted events by applying HIRA, a methodology to evaluate high-severity or very high-magnitude operational safety risks across Vale’s operations. [Read more in Risk Management.](#)



Find out more about our health and safety initiatives

“When I visit our operations, I want to recognize people who stopped production because of a safety requirement. In some people’s minds, it still seems shocking to see a vice president recognize and congratulate an employee who has stopped production. But this gesture helps encourage our workers to continue in this virtuous cycle that we are experiencing at the Company, brought about by the journey of cultural transformation, enhancing our safety and operational results.”

CARLOS MEDEIROS,
executive vice president for operations, Vale



In 2024, we reduced the number of employee exposures to the 10 main harmful agents **by 60%.**

Regardless of progress made, we recognise that the risk of serious accidents remains and that we must not be complacent. We strive to act for life and spread the message – and the attitude – that without safety, we cannot produce. In this way, we will continue to pursue our goal of zero fatalities.

Community safety

GRI 203-1 GRI 413-1 GRI 413-2 MM5

Throughout our journey of cultural transformation, one of Vale’s main objectives has been to reduce risks to communities posed by our operations in different regions. Community safety is aligned with our “Life matters most” value, in which we seek to prioritize people’s safety and act with respect, care and integrity. [Read more in the dam tailings safety and management section.](#)

The treatment of safety incidents involving injuries to community members received corporate backing in 2022, when Vale established a commitment to reduce accidents involving community members by 40% by 2027. In 2024, 98 accidents involving community members were recorded, up 3% from 2023. Most of these events involved the Company’s suppliers. Of this total, tragically 12 were fatalities. It is important to note that these are not occupational accidents, and we do not intend to address the culpability or responsibility of the people who caused these accidents¹. One example is injuries caused by employee transportation buses and community vehicles. These heavy vehicles traveling through urban centers increase the risk of accidents. Most of these incidents involve collisions between vehicles on public roads (80%). The remaining cases are pedestrian accidents, primarily on railroad tracks (9%) or with other causes, such as improper access to operating sites (11%). Our greatest challenge is to work together with the public authorities and society to raise awareness among communities and suppliers about this issue. We know that the issue of community safety is

a challenge not just for Vale, and we are actively seeking to address this. We are aware of the critical nature of the situation and are evaluating the root causes and identifying which reduction measures have been successful in order to strengthen and replicate them. We aim to join forces with the public authorities, and we are striving to mobilize partners and suppliers to take effective action to reduce these events.

In 2024, we continued to implement and/or revise a series of Integrated Community Safety Plans, which provide for preventive actions. Multidisciplinary investigations were carried out and corrective action plans were defined based on accidents that had occurred. We implemented a predictive analysis methodology, which helps us to identify gaps and potential improvements. We also began dialogues with partner companies to work together in local communities to reduce the number of incidents.

Records of safety incidents in communities

	2022	2023	2024	% change (2023/2024)
Fatal injuries	16	10	12	20%
Total events with injuries to community members	82	95	98	3%

GRI 2-4 The data presented in the table above has been revised, taking into account Vale’s divestment of a stake in Indonesian Company PTVI. Furthermore, the figures do not include suicide-related events.



A theater group formed by young and adult quilombolas during the campaign in the Canta Galo quilombo, Itapecuru Mirim, Maranhão

Photo: 2024 INSPOSUMA Archive

Community relations along our railroads

One example of actions with positive results in reducing accidents involving community members can be found in Maranhão, where Vale has been working with quilombos (settlements of descendants of runaway slaves) near the Carajás Railroad to tackle issues related to mobility and safety. We have been conducting awareness campaigns in these communities since 2014. In 2024, 15 communities² took part in a new initiative: touring theater groups focused on traffic and railroad safety. These plays featured young people and adults from these communities and were part of the quilombo component of the Carajás Railroad’s Basic Environmental Management Plan, in partnership with the Sustainable Policies Institute of Maranhão (INSPOSUMA).

The results of these safety campaigns is evident: since 2020, no accidents involving members of the 15 communities have been recorded.

¹ Events arising from suicide and non-controlled activities (those for which Vale does not have the formal right and responsibility to ensure that its health, safety and environmental requirements are implemented and complied with) are not included in this total.

² Ribeiro, Monge Belo, Ponta Grossa, Santa Helena, Jussara, Jaibara dos Rodrigues, Jaibara dos Nogueiras, Oiteiro dos Nogueiras, Canta Galo, Pedrinhas Clube de Mãe, Pedrinhas, Queluz, Carro Quebrado, Vila Fé em Deus and Cariongo.

Dam and tailings safety and management

“I have a great sense of accomplishment. I was involved in the decharacterization of the B3/B4 dam from the start and we embraced it as a mission.” This was stated by Marcel Pacheco, an engineer and Vale’s general manager for the implementation of dam decharacterization projects. Pacheco was in charge of Vale’s most challenging project to date, which involved removing its upstream dams in an effort to eliminate the risks associated with them. Located at Mar Azul Mine, near the community of São Sebastião das Águas Claras (also known as Macacos) in Nova Lima, Minas Gerais State, B3/B4 was the first dam at emergency level 3 to be decharacterized by the Company. Level 3¹ is the highest emergency category attributed by Brazil’s National Mining Agency (ANM).

 Learn more about dams and tailings.

Dam decharacterization

In 2024, the B3/B4 dam in Nova Lima (MG), the 1A and 1B dike, Minas Gerais, and Area IX Dam in Ouro Preto, also in Minas Gerais, were decharacterized. As a result, 17 of the 30 upstream dams (57%) we planned to remove by 2035 had been eliminated. These upstream dams share the same construction method as the B1

dam in Brumadinho, which collapsed in 2019. Since then, we have invested more than USD 2.1 billion in our dam decharacterization program. Another advance in 2024 was the reduction in the emergency level of Sul Superior Dam at Gongo Soco Mine in Barão de Cocais, Minas Gerais, from level 3 to 2.

This reduction was possible due to new geotechnical trials, the increase of monitoring instruments and the evolution of stability studies, which have provided greater knowledge of the dam’s actual stability conditions. Decharacterization activities also contributed to improved safety rating: by the end of December, more than 1.2 million cubic meters of material had been removed from the site, corresponding to around 18% of the total of 6.9 million cubic meters to be removed.

Despite our efforts, Forquilha III Dam in Ouro Preto, Minas Gerais, remains at emergency level 3. In 2024, an accumulation of sedimented material was identified at the drainage outlet, which was duly reported and monitored by the authorities. By the end of 2025, Vale aims to have no dams at emergency level 3. Studies are currently under way to update the safety classification of the Forquilha III Dam. These new studies are based on investigation campaigns that have been conducted, enabling a more accurate assessment of the structure’s actual safety condition.

Also in 2024, Campo Grande Dam, an upstream structure in the municipality of Mariana, Minas Gerais, is no longer classified as being at an emergency. Similarly, Peneirinha Dam, 5–Mutuca Dam and Dike B, all in Nova Lima, Minas Gerais, and Pedra Dike in Ouro Preto, Minas Gerais, which have different construction methods that are considered safer (downstream, centerline or single stage), are no longer classified under emergency levels by the National Mining Agency (ANM). All received positive Stability Condition Declarations (DCE in portuguese acronym), attesting to the safety of these dams.

Ahead of schedule

The project to decharacterize the B3/B4 dam was completed in May 2024, well ahead of the original target date of 2027. In all, 3.7 million cubic meters of tailings were removed from the structure and safely stored in Pit 7, an unused area at Mar Azul Mine, Nova Lima, Minas Gerais. The work began in 2020, after the construction of a downstream containment structure, designed to prevent tailings from reaching the municipality of São Sebastião das Águas Claras (also known as Macacos) in the event of a dam failure during the decharacterization process.

The material was removed from the structure using unmanned equipment controlled from an operations center in Belo Horizonte, Minas Gerais, around 15 km from the dam. The Company invested more than USD 14.8 million in the development of technologies to ensure that the work was undertaken with maximum safety for people and the environment. In addition, there are no longer any communities living downstream of the dams that are at emergency levels 2 or 3, minimizing risks to the lives of people near these structures.



Photo: Daniel Martins

Remote Operation Room of the Integrated Operations Center. São Luís, Maranhão, Brazil.

¹Emergency levels are categorized as 1, 2 or 3, as determined by ANM Resolution 95 of 2022, to classify potential emergency situations that could harm the safety of a dam. Emergency level 3 represents the highest level of this classification.

After completing the decharacterization of the B3/B4 dam, Vale began activities to remove the downstream containment structure and restore the site as much as possible to its original topography. This work was completed in November 2024. We have worked hard to repair and compensate for the impacts caused. In addition to the decharacterization of the dam, in December 2022 we signed an agreement worth USD 92.8 million to carry out reparation in the region, focusing on income transfers, improvements to commerce and tourism, strengthening of municipal public services and other demands made by the affected communities. The agreement was signed at the Minas Gerais State Court of Appeals, involving the State Public Prosecutors' Office, State Public Defender's Office, municipal government of Nova Lima and Federal Public Prosecutors' Office.



“ I think life is getting back to normal in Macacos. The bars and guesthouses are full, and several improvements have been made. The school where I work had to move because we were in the Self-Evacuation Zone. Today, we're on higher ground, in a four-story building, with a 400-seat sports hall and a soccer field for our students to play on. We are safer and have proper facilities for our children.”

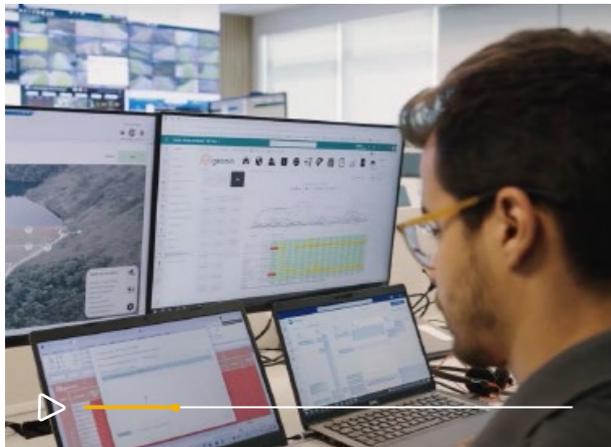
FERNANDO JOSÉ SANTOS,
employee of Rubem Costa Lima Municipal School in Macacos

Program to decharacterize upstream dams¹



~USD 2.1 billion² invested in the program since 2019

Complete In progress



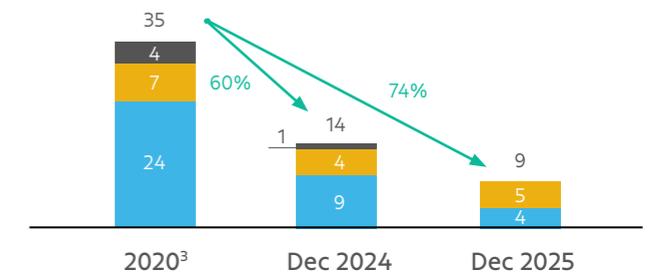
FIND OUT MORE ABOUT VALE'S DAM DECHARACTERIZATION PROGRAM



“ In relation to the B3/B4 dam, we are very relieved that they have been decharacterized. We were very stressed about it. If Vale had been better organized from the start, things would have been different. But we have to learn in order to continue. We learned that you can't completely trust such a big Company.”

VILMA CERQUEIRA,
craftswoman and community leader in Macacos

Dams at emergency level



No dams at level 3 by 2025

Level 1 Level 2 Level 3

¹Consider dams, dikes and drainage piles.

² Referring to December 2024.

³ Considering the largest number of structures at emergency level in 2020.

Tailings disposal

One of our ongoing initiatives concerns the sustainable disposal and reuse of tailings removed from dams undergoing decharacterization. Each structure has its own decharacterization solutions and specific projects that provide for different uses for the removed tailings, such as disposal in piles, temporary disposal in pits or, in some cases, reuse of part of the removed material, which requires appropriate licensing by environmental agencies.

Since 2022, more than 6 Mt of tailings removed from the Vargem Grande, Fernandinho and B3/B4 dams have been sustainably disposed of. This was achieved through reprocessing in plants or mineral partnerships, reducing the amount of tailings temporarily stored in pits (which will eventually need to be removed) and minimizing the need for new sites for tailings piles.

Dam management

We have been working hard to improve the management and safety of our dams. The Company currently has 198 mining dams around the world (including tailings, sediment and water dams), 131 of which are in Brazil. VBM is responsible for 89 dams: 22 in Brazil and 67 in Canada. Ninety-five of the 131 structures located in Brazil meet the criteria of the National Dam Safety Policy, as determined by Federal Law 12,334/2020. In the case of these dams, the Company complies with various obligations, including submitting a Regular Safety Inspection Report every six months and having a stability condition declaration.

In recent years, we have invested further in our dam management and monitoring, including the implementation of three geotechnical monitoring centers, which allow us to monitor our structures 24/7. We strive for alignment with international management best practices, having adopted the Global Industry Standard on Tailings Management (GISTM), launched in 2020.

By 2024, Vale had already applied GISTM to 48 of its 50 TSFs, regardless of consequence classification, including 35 in its Iron Ore Solutions unit in Brazil and 13 in Vale Base Metals (11 in Canada and two in Brazil). Another two Iron Ore Solutions structures in Brazil – Torto Dam and Pedra Dike – should be in compliance with the standard by August 2025.

Our current approach to tailings governance adopts several layers of protection, which improves our ability to prevent accidents

First line of defense	Second line of defense	Third line of defense
Operational Geotechnical Area	Geotechnical Department	Audit and Compliance Department
External sentinels		
Record Engineer Dam safety inspections and performance assessments	Independent Tailings Review Board (ITRB): Committee made up of external experts.	Dam Safety Review Periodic technical reviews by an external engineering Company

Risk assessment and monitoring

Goals	Status in 2024
100% of tailings storage facilities operating with 'Very High' and 'Extreme' potential consequences be GISTM compliant by 2023.	Compliance maintained through continuous improvement actions for the 48 EARs that have had GISTM implemented.
100% of tailings storage facilities (TSF or EARs¹) GISTM compliant by 2025.	GISTM will be implemented for two more EARs by 2025. Completing 100% of EARs in compliance with the Standard.
Dam decharacterization plan: 60% of Vale's upstream dams in Brazil decharacterized by 2025, 90% by 2029 and 100% by 2035.	57% (17 out of 30) of upstream-raised structures in Brazil decommissioned by year-end 2024.



Decharacterized B3/B4 dam in Nova Lima, Minas Gerais, Brazil

Photo: Vale Archives

What is a dam?

It is a barrier for containment of liquid or a mixture of liquids and solids, forming a reservoir. The reservoir consists of at least one main dam (also known as a departure dike) and, if present, also internal dikes and saddle dikes (accessory dikes). This set is known as the dam system. It can be used to store water,

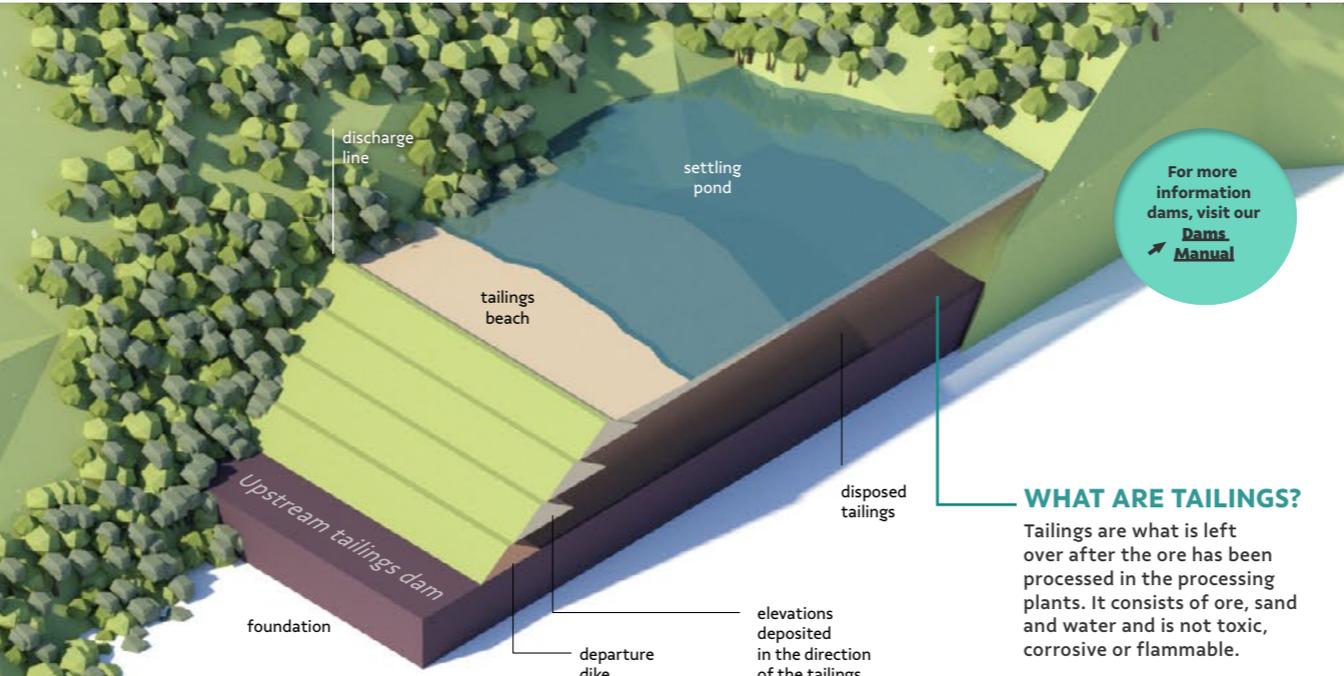
sediment, mining tailings or to generate energy. Dams that store tailings, sediment or water in a mining environment can also be generically called "mining dams". Structures such as dams, drainage piles, saddle dikes or internal dikes with the main purpose of containing tailings can be generically referred to as tailings storage facilities (TSFs).

EMERGENCY DAMS LEVEL

There are 14 dams at emergency level located in the state of Minas Gerais



Municipality	Number of dams	Dams	Emergency level
Nova lima	3	6 7A Vargem Grande	01 01 01
Ouro preto	5	Doutor Grupo Forquilha I Forquilha II Forquilha III	01 01 02 02 03
Mariana	2	Dicção Leste Xingu	01 02
Barão de Cocais	2	Norte/Laranjeiras Sul Superior	01 02
Itabira	1	Sistema Pontal	01
Itabirito	1	Maravilhas II	01



For more information dams, visit our [Dams Manual](#)

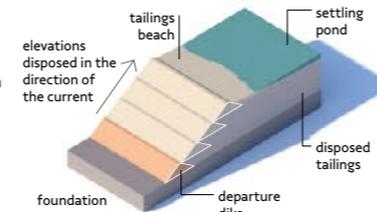
WHAT ARE TAILINGS?

Tailings are what is left over after the ore has been processed in the processing plants. It consists of ore, sand and water and is not toxic, corrosive or flammable.

DAM CONSTRUCTION AND TYPES

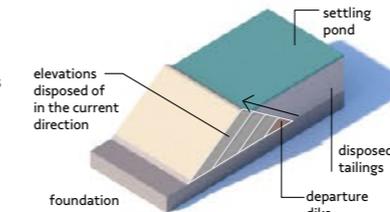
Upstream

The lifting massifs are supported by the tailings or sediment previously deposited in the direction of the tailings. This category is also those formed on existing reservoirs.



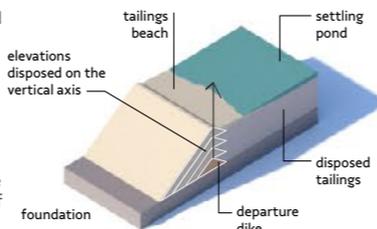
Downstream/conventional

Located downstream of the departure dike. The massifs are built with material or with the tailings.



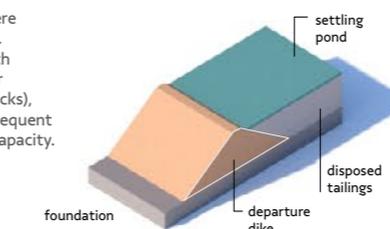
Center line

The elevations are disposed in such a way that the axis of the dam remains aligned with the axis of the starting dike, due to the arrangement of the construction material, part downstream and part upstream, in relation to the upstream structure crest of the previous stage.



Single stage

In this model, there are no elevations. A dam is built with compacted soil or rockfill (stone blocks), without the subsequent construction of capacity.

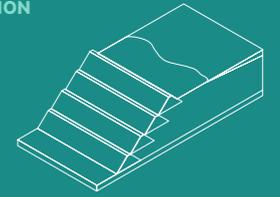


WHAT IS DAM DECHARACTERIZATION?

This is the process in which the structure no longer performs the function of containing tailings, sediment or water. Its aim is to eliminate the risk associated with the structure, increasing the safety of people and the environment. By 2035, 30 structures will be decommissioned.

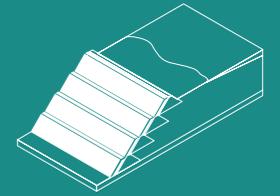
1 DAM DECHARACTERIZATION

The decharacterization of upstream structures, which are built on tailings, is a commitment made by Vale that has become a legal obligation.



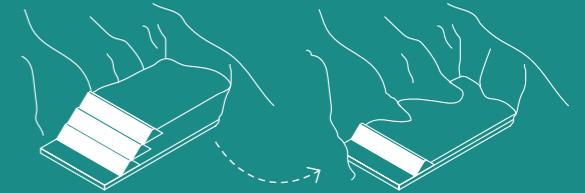
2 REINFORCING THE STRUCTURE

Construction work is complex and each project has its own characteristics and challenges. In some cases, for example, it may be necessary to build a reinforcement to improve the stability of the structure in order to carry out the works.



3 TAILINGS REMOVAL

The removal of tailings is totally or partially done so that the dam loses its storage function.



4 ENVIRONMENTAL REGENERATION

The final stage of the work is revegetation to reintegrate the area into the local environment. So far, Vale has decharacterized 17 upstream structures.



Communities impacted by dams in emergency situation

GRI G4 MM9

On November 29th, 2024, an agreement was signed between Vale and the Minas Gerais State Public Prosecutors’ Office, involving the municipal governments of Ouro Preto, Rio Acima, Itabirito and Nova Lima, to compensate for the socio-environmental and socioeconomic damage resulting from the emergency evacuations that occurred in 2019 and 2020. These evacuations were as a result of the raising of emergency levels of the Forquilha I, Forquilha II, Forquilha III, Forquilha IV and Grupo dams at Fábrica Mine, as well as Vargem Grande Dam at Abóboras Mine. Under the agreement, Vale will provide USD 22.3 million, to be used by the respective municipal governments to formulate and execute reparation and comprehensive compensation plans and to carry out social and environmental projects.

In the municipalities of Nova Lima, Itabirito, Ouro Preto and Barão de Cocais, where dam decharacterization projects are taking place, 43 families out of a total of 205 have received final compensation. Another 162 families are receiving provisional support and are awaiting final settlements.

In August 2023, we signed an agreement worth USD 108 million in Barão de Cocais for reparation in the municipality, focusing on the Barão de Cocais Compensation and Development Plan, which is now underway. The agreement encompasses income transfer, support for tourism, culture and security, and measures to strengthen municipal public

services, among other demands from the affected communities. The agreement was signed at the Minas Gerais State Court of Appeals’ Judicial Center for Conflict Resolution and Citizenship, involving the State Public Prosecutors’ Office, State Public Defender’s Office, municipal government of Barão de Cocais and Federal Public Prosecutors’ Office.

In 2024, progress was made in concluding negotiation processes and providing assistance to families. A total of 43 families received definitive assistance, reducing the number of families receiving provisional assistance from 198 in 2023 to 162 in 2024. This includes eight families that were involuntarily resettled in Ouro Preto and Itabirito.

Negotiation processes completed

Cities	2022 ¹	2023	2024
Ouro Preto	171	38	25
Barão de Cocais	105	27	7
Nova Lima	82	22	10
Itabirito	16	2	1
Total	374	89	43

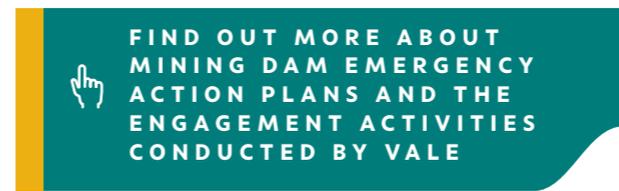
¹The figures for 2022 are the sum of provisional and definitive care. From 2023 onwards, the figures only include definitive care.

Mining dam emergency action plans: more than just a legal obligation

GRI 203-1

The term meaningful engagement refers to a process of mutual dialogue and decision-making through which an operation consults stakeholders and integrates their perspectives into their decisions. At Vale, we have sought to apply this concept to various divisions, including dam safety, in conjunction with Community Relations teams.

Legislation requires the formulation of Mining Dam Emergency Action Plans for all mining dams. One of our obligations is to carry out preparation and awareness-raising to promote a culture of harm prevention, especially among children and young people living in municipalities located in self-evacuation zones. These are areas with the greatest potential for impact in the event of a structural failure, in accordance with National Mining Agency (ANM) resolutions 95 of 2022 and 83 of 2024.



Accordingly, we have been carrying out educational activities together with schools, including theater performances, robotics workshops, teacher training, visits to dams, drills, siren tests

and orientation seminars, involving municipal government and civil defense organization representatives. In 2024, around 10,000 people took part in 217 such events organized by Vale.

Vale’s initiatives in this area seek to follow the United Nations Environment Program’s Awareness and Preparedness for Emergencies at Local Level (APELL) parameters, taking into account social issues, human rights, continuing education and emergency response, in line with GISTM guidelines.

Vale has formed partnerships with other companies to carry out joint prevention actions. One example is our partnership with the Minas Gerais state power utility, CEMIG, in São Gonçalo do Rio Abaixo, where CEMIG operates a dam. This partnership has made it possible to conduct a single annual emergency drill, which works to reduce the impact and stress generated in the community.

Since 2020, Vale has produced Emergency Action Plans for Drinking Water Supply, as part of its dam breach emergency planning. These plans are currently under review by the respective water utilities and Minas Gerais state regulatory bodies. These studies aim to support municipal governments in preparing for potential emergencies.

Furthermore, we have endeavored to go beyond our legal responsibilities, partnering with

civil defense organizations to help develop municipal contingency plans. These plans map various risks, such as flooding, landslides, fires and dam-related incidents, to promote a culture of prevention, raise awareness of possible emergencies and build resilience among communities. To date, Vale has helped construct 26 contingency plans, enabling them to access public funds for prevention efforts.

As part of our commitment to promoting a culture of prevention, we contributed to the implementation of the Civil Defense in Schools project, made possible with Brumadinho reparation resources. Developed by the Minas Gerais Civil Defense Organization and based on a curriculum created by UNICEF, the project aims to educate and equip children and young people with knowledge about risk prevention and disaster management.

In 2024, the project reached 24 municipalities in Minas Gerais, directly benefiting 16,000 people, including students and teachers. This initiative is a milestone in training future generations to be more resilient and prepared to deal with emergency situations, promoting community safety and strengthening a prevention culture in the state.

In 2022, the Company partnered with municipal civil defense bodies to encourage the creation of Civil Protection and Defense Centers. These centers are made up of residents of high-risk areas, who are trained to act as volunteers in disaster prevention and community protection. In 2024, we supported the implementation of five such centers in the state of Minas Gerais, two in Mariana and three in Nova Lima.

“ We want to contribute to training volunteer residents, who will help identify risks in the area where they live in collaboration with the local civil defense body.”

MARCELO CABRAL,
socioeconomic manager, Vale

28,776 people took part in actions linked to the PAEBM

80,749 buildings visited with the aim of mobilising residents to take part in prevention actions

22 municipalities with engagement actions carried out

239 activities in schools, with a total of around 16,000 participants, including students and teachers

35 orientation seminars and public meetings held

41 visits by communities to dams and/or other technical areas
Vale

468 events held

23 external drills



Dona Sirene Program at Jaime Avelar Lima Municipal School in Santa Luzia, Minas Gerais, Brazil. Emergency plan related to the Galego Dam, in Santa Luzia, Brazil.

Photo: Washington Alves



Circular mining initiatives are contributing to the progressive closure of the Serrinha mine, in Serra da Moeda, Minas Gerais, Brazil.

Mining of the future

Building the mining of the future is a key part of Vale's strategy for more integrated and efficient mining, with sustainability as a core principle. This concept is structured around five broad strategic themes, which encompass advanced operations, value sharing, minimally invasive mining, zero tailings, waste management, becoming carbon neutral and developing the workforce of the future.

Waste to Value: circularity in mining

The Waste to Value program aims to reduce the impact of the Company's operations by making better use of natural resources,

either by reintroducing waste into the production cycle or by using it as an input for coproducts. In 2024, Vale recovered more than 12.7 million tonnes of iron ore by reusing tailings and waste rock. The program's goal is to obtain around 10% of Vale's production in a circular manner by 2030. Through the Waste to Value program's initiatives, Vale aims to avoid 1.9 million tonnes of carbon dioxide emissions by 2035. This is equivalent to the annual emissions of 1.2 million small cars.

This initiative's main challenges are linked to innovation, research and the development of new technologies aimed at ensuring even greater reuse of our

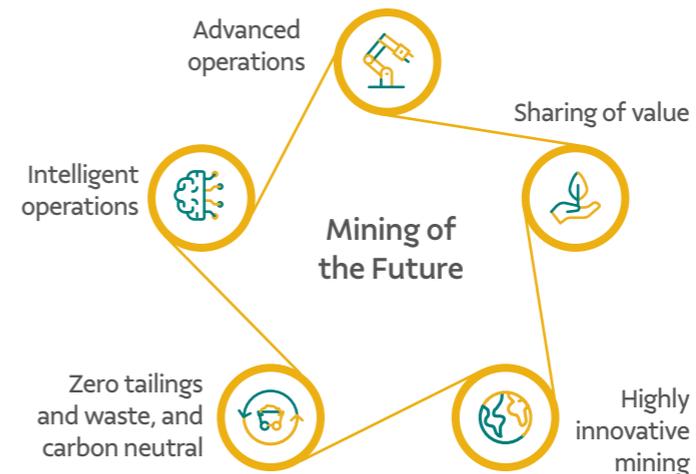
waste rock and tailings, whether involving iron ore or coproducts. The company is focused on building innovative solutions, through partnerships and new business models that seeks to allow the program to evolve.

As part of this effort, Vale has established partnerships with universities, research centers and other stakeholders, focusing on the circular economy. Based on initiatives that demonstrated technical and economic viability, Vale has implemented various innovative projects, including one to make sustainable sand, as well as institutional initiatives, such as a block and paving plant.

Vale 100 Drivers

- Low-carbon footprint mining
- Waste management
- Metal recycling
- Data-driven mining
- Autonomous mining
- Selective mining
- Shared value
- New technologies

Key Elements of the Mining of the Future



Ambitions

- Safer operations
- More sustainable mining
- Greater value creation and sharing
- Optimization of assets and reserves
- Greater reliability and assertiveness
- Greater efficiency and control



“ In 2025, we plan to expand our efforts even further, aiming to produce a record 2.4 Mt of sustainable projects, reaffirming our role as leaders in promoting environmentally responsible practices. Finally, the publication of our Environmental Product Declaration reflects our commitment to transparency and the positive impact of our activities.”

FÁBIO DUARTE,
CEO of Agera

Agera

The development and marketing of coproducts is also part of Vale’s circular economy initiatives. In 2024, 1.4 million tonnes of sustainable sand were sold by Agera, a company created by Vale dedicated to developing and marketing this coproduct. Produced from ore tailings, the product is used as an alternative to sand extracted from the environment for use in the construction sector, such as in the composition of concrete, mortar and paving.¹

Following seven years of research, Vale began producing sand from tailings in 2021. By 2022, production had amounted to 800,000 t. After Agera began operating in 2023, the initiative gained scale. In 2024, Agera sold an average of 115,000 t per month, and it has sold 1.9 Mt since its creation. Its annual production capacity is projected to exceed 2 Mt in 2025.

Waste to value 2024 results



Circular Mining is a reality at Vale, and we have already reached **12,7 million** tonnes of circular iron ore!



Total CO₂ emissions avoided **23 kt CO₂e**

Equivalent to the emissions of **14 thousand cars¹**

¹ Based on 16.2 metric tons of CO₂ emitted by a passenger car per 15,000 km traveled.

Total mining and metallurgical waste

GRI G4 MM3

Million tonnes

Iron ore – waste rock	207.7
Iron ore – tailings	54.8
Base Metals – waste rock	79.7
Iron ore	46.2
Base Metals – tailings	1.0
General Total	389.4

Serrinha Mine

In Minas Gerais, circular mining initiatives are contributing to the Progressive Closure of the Serrinha mine. The project included the decharacterization of a High Potential Associated Dam (Serrinha) and the rehabilitation of the pit slopes. In addition, the stockpiles are being decharacterized through the reuse of waste rock. The material is transported to the Mutuca plant in Nova Lima, where it is reprocessed. In 2024, approximately 500,000 tonnes were removed and reused and the forecast is to produce 2.8 million tonnes of iron ore by 2026. As the area is part of the Serra da Moeda and is of interest for environmental conservation and cycling, obtaining the social license was a major challenge. However, getting closer to the community made it possible to demonstrate that removing the piles results in gains in safety, air quality and quality of life, as it eliminates geotechnical risks and reduces particulate emissions.

In addition, the decharacterization of the structures results in significant savings in maintenance costs and ensures the stability of the piles, eliminates risks of landslides, erosion and reduces dust and particulate matter in the areas adjacent to the roads, improving the quality of air and life in the surrounding communities.



Find out more about our circularity initiatives

direct jobs (employees and contractors), as well as an estimated 2,100 indirect jobs. Priority will be given to the local workforce, with working conditions and opportunities intended to support an inclusive environment and broad pool of potential talent.

Once the project is operational, it is estimated that around USD 25.6 million in employment earnings will be generated annually, plus USD 28 million in mining royalties.



“ This is a mining project that has been completely redesigned to meet society's demands for zero tailings and greater resource savings. The New Apolo Project has been designed to ensure that it runs in a sustainable and responsible manner, from the opening of the mine to its closure.”

RAQUEL BASTOS,
project director, Vale

A new concept in mining

The New Apolo Project, currently in the licensing phase and straddling the municipalities of Caeté and Santa Bárbara in Minas Gerais, was revised in 2020. It will consist of open-pit iron ore mining, ore treatment without the use of water (dry stacking), waste rock piles and a railroad branch line to connect with the Vitória-Minas Railroad. Due to the project's simplified operations, involving fewer production stages and less equipment, carbon emissions will be reduced by 50% and new water abstraction will be 95% lower compared to the original design. It is also important to

note that the New Apolo Project aims not to generate any waste and will not have a dam or any other waste disposal structure.

The Apolo Project lies outside Gandarela Hills National Park, a conservation area, which was created in 2014 with Vale's involvement. The project will therefore not interfere with the park's boundaries and waterfalls.

The project is expected to generate around 2,600 temporary jobs during peak construction. In the operational phase, there will be approximately 740



Industrial complex for production of 14 million tonnes of Sinter Feed at Natural Humidity, between Caeté and Santa Bárbara, in the Serra Gandarela National Park.



Integration of adjacent areas community;
- Vale's Mine of the Future model: sustainable, safe, connected, with generation and focused on optimizing mineral resources.

Public hearings

Public hearings on the environmental licensing of the Apolo Project were held in Caeté and Santa Bárbara in May 2024. Ana Eliza Gomes Silva, an engineer and mine operations supervisor at Vale, and a Caeté native, was among the speakers. [Watch her testify here.](#)



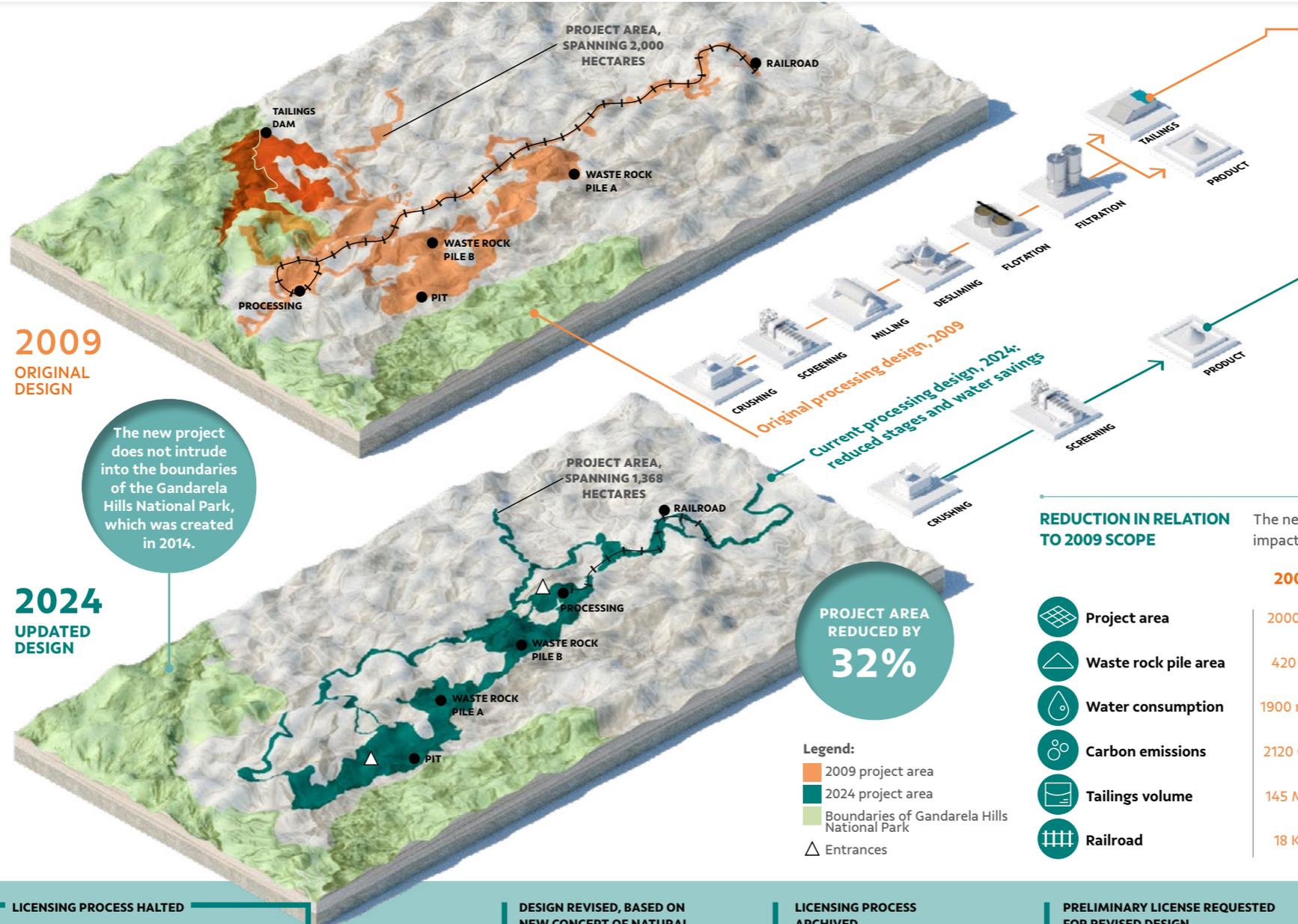
FIND OUT MORE ABOUT
THE NEW APOLO PROJECT

Evolution of Apolo Project

The new Apolo Project has undergone significant changes since its original design in 2009, including the decharacterization of dams and a reduction in their size. Since then, Vale has participated in public hearings, listened to the requests of civil society and sought the best solutions in technology, planning and sustainability to reduce its environmental footprint, GHG emissions and water use.

LOCATION

The project will be located in the Iron Quadrangle region of Minas Gerais State, straddling the municipalities of Caeté and Santa Bárbara.



2009 ORIGINAL DESIGN

2024 UPDATED DESIGN

PROJECT AREA REDUCED BY **32%**

Legend:
■ 2009 project area
■ 2024 project area
 Boundaries of Gandarela Hills National Park
△ Entrances

DIFFERENCES IN PROCESSING ARRANGEMENTS

The **95%** reduction in water use is due to new processing technologies, which eliminate stages in the original design, **generate no tailings** and dispense with the need for tailings dams.

The new complex will produce **14 million** metric tons of sinter feed using the ore's **natural moisture**.



Vale's future mine model:
Sustainable, safe, connected, with minimal waste generation and focused on optimizing mineral resources



Integration of adjacent areas to benefit the community

REDUCTION IN RELATION TO 2009 SCOPE

The new design has a significantly smaller environmental impact, compared to the original one.

	2009	2024	reduction in %
Project area	2000 ha	1368 ha	- 32%
Waste rock pile area	420 ha	268 ha	- 36%
Water consumption	1900 m ³ /h	100 m ³ /h	- 95%
Carbon emissions	2120 GgC	1220 GgC	- 42%
Tailings volume	145 Mm ³	0 Mm ³	- 100%
Railroad	18 Km	8.2 KM	- 54.44%

equivalent to 890 soccer fields (632 ha)
 volume saved is equivalent to the consumption of a city with 200,000 residents
 roughly equivalent to the annual emissions of 1,431 small cars

LICENSING HISTORY

PRELIMINARY LICENSE REQUESTED FOR ORIGINAL DESIGN

- Production capacity of 24 Mtpa
- Wet processing
- Need for tailings dam

LICENSING PROCESS HALTED

- Licensing temporarily stopped in region

- Creation of Gandarela Hills National Park

- Official resumption of licensing

DESIGN REVISED, BASED ON NEW CONCEPT OF NATURAL MOISTURE PROCESSING

- Production revised to 14 Mtpa
- Elimination of wet processing and tailings dam
- Reduction in impacted area

LICENSING PROCESS ARCHIVED

- Licensing process archived by High-Priority Projects Department (SUPPRI) of Minas Gerais State Environment Secretariat

PRELIMINARY LICENSE REQUESTED FOR REVISED DESIGN

- September: formal submission of new environmental impact assessment for Apolo Project, this time based on natural moisture processing

REQUEST FOR ENVIRONMENTAL LICENSE FOR DRILLING

- October: formal submission of environmental impact assessment to clear vegetation and carry out drilling; economic exploration plan approved by National Mining Agency

PUBLIC HEARINGS

Mine closure and future use

GRI 3-3 G4 MM10

Accordingly, Vale endeavors to take a proactive approach, carrying out progressive activities to stabilize the physical, chemical and biological environments throughout each mine’s life cycle, until its partial closure by sector or its total closure. The main objectives of our efforts are to reduce liabilities and risks, and to identify opportunities for the sustainable use of former mining sites.

The company’s commitment to this issue is reflected in our investments. In 2024, Vale invested around USD 218 million in mine closure activities, excluding the decharacterization of upstream dams, demonstrating our serious intent to mitigate the risks associated with our activities and the safety of nearby communities. With efficiency and transparency in mind, closure actions and the progressive rehabilitation of sites are constantly monitored and followed up, guaranteeing the appropriate use of resources.

In 2024, we began negotiations with the Minas Gerais State Environment Foundation (FEAM), following the filing of the Mine Closure Environmental Plan for Águas Claras Mine in Nova Lima, Minas Gerais. This project reflects the company’s commitment to the physical stabilization of geotechnical structures, environmental rehabilitation and sustainable practices that benefit society and the environment in the long term.

Águas Claras Mine future use project

To support ongoing engagement and active listening with the stakeholders involved in the Águas Claras Mine project, various initiatives are taking place. In 2024, two events held with Vale’s internal stakeholders were attended by more than a thousand people. These actions allowed us to gather feedback and assess opportunities for

Photo: Vale Archives



Future Use House

improvements and possible impacts, considering the prospect of the site being opened for public use in the future.

These events helped to reinforce our understanding of how to use the site safely and responsibly. The goal is to continue this strategy to keep the

“ The closure of a mine is a process that encompasses the entire life cycle, from the economic feasibility study to the final handover of the site, including rehabilitation and decommissioning. Vale has contributed a lot of ideas and proposals to improve the current regulations, because in addition to the need to protect the environment and guarantee the health and safety of the site and the people living around decommissioned mines, we need to establish consistent conditions for their future use.”

ROGER ROMÃO CABRAL,
director, National Mining Agency
(ANM)

community actively involved in the process of co-creating the future use of the Águas Claras Mine site.



**CLICK HERE TO LEARN MORE
ABOUT ESG, MINE CLOSURE
AND FUTURE LAND USE**

Green Cubes Project

The Green Cubes Project is being piloted at Águas Claras Mine, serving as a case study for the application of Green Cubes technology,

in collaboration with R-evolution, Hexagon’s green tech subsidiary.

The aim is to develop a multidimensional model of the mine’s environmental assets,

facilitating a better understanding of opportunities related to natural capital.

The project will assess data collection and generation through the combination of

various technologies, the integration of key indicators, compliance with international standards and the feasibility of a digital asset sponsorship model for generating resources through environmental conservation.

Innovation

GRI 3-3

Future Use House

The Future Use House is a physical space located at Águas Claras Mine, occupying an area of 320 m², intended for structured listening to stakeholders.

The aim is for the house to become a space for genuine, continuous, participatory and broad engagement, contributing to the reframing of Águas Claras Mine.

The Future Use House serves as a platform to preserve and share stories, supporting the mine closure process while exploring opportunities for implementation across various regions to foster co-creation of future land use. Inspired by international best practices in engagement and activation, the space integrates both physical and digital resources. Its primary purpose is to function as a dynamic, living environment that encourages stakeholder involvement through organized visits, discussions and workshops.

Innovation is deeply embedded throughout Vale and has been essential in transforming mining into an increasingly efficient, sustainable and safe activity. Approximately 800 employees in Brazil are dedicated to this work with 365 projects in our research, development and innovation portfolio (RD&I).

We also operate six dedicated research centers responsible for developing and applying new technologies and sustainable solutions. These centers explore mechanisms to preserve Brazilian biodiversity and conduct studies focused on protected and agroforestry areas. To align our innovation strategy with on-the-ground operations, we maintain 11 innovation hubs, which provide an environment for talent development, problem-solving studies related to Vale's business, and the testing of prototypes and scalable solutions.

Innovation is one of the key drivers for building a more sustainable Vale, underpinned by the Company's cultural transformation process.

In 2024, the Company was recognized with 15 awards, emphasizing its leadership in innovation, technology and sustainability. The highlights

included the 2024 Valor Innovation Award as the most innovative company in Brazil's mining, metallurgy and steel sector; prizes in the 2024 LAC Innovation Tournament, at both Brazilian and Latin American levels, for an AI initiative to automate decision making; fifth place in the mining and metals sector in the 100 Open Startups ranking; and third place in the Brazilian Quality Union (UBQ) Agile Methods Awards for Vale's "Reducing the Impact of Fog" initiative.

“ This recognition is confirmation that we are heading in the right direction, with innovation in the DNA of our entire production chain, promoting more sustainable mining. Innovation is also a fundamental part of maintaining our competitiveness, as well as generating shared value with the communities in the regions where we operate.”

RAFAEL BITTAR,
Vale's technical executive vice president, on the 2024 Valor Innovation Award

Research, Development and Innovation Summit

In August 2024, we brought together more than 400 people at the Estação das Docas ("Dock Station") venue in Belém, Pará, for Vale's third Research, Development and Innovation Summit. The theme was "Connecting ideas, transforming tomorrow" and the focus was on sustainability. Over the course of three days, the summit allowed employees, specialists and representatives of partner institutions, such as startups and universities in Pará, to exchange experiences in research, development and innovation, focused on safety and sustainability inside and outside the mining sector. The event was also attended by more than 3,000 employees who watched the activities online.

The summit received 233 entries from employees, of which 34 employee-developed initiatives were selected and presented to the public.

 **FIND OUT MORE ABOUT INNOVATION AT VALE**

Artificial intelligence

We have been investing in AI since 2016 and already have around 40 AI products and 1,500 models deployed in 80 projects. We have used this technology to help optimize asset maintenance, enhance process management at ore processing plants and improve environmental, health, safety and corporate integrity controls. We have expanded our coverage of products using advanced AI techniques, contributing to more stable, reliable and productive processes.

One of the techniques most widely used at Vale to identify operational or process risks is video analytics. A key application is the detection of standing water in railcars – an important tool for controlling the moisture levels of transported ore. Another significant example is the detection of dirt on the edges of railcars and off-center loads. Once an alert has been generated for either of these situations, our teams take action to correct the loading process.

We also use AI models help to identify the most efficient way of operating our off-highway trucks in each segment of our mines. Using telemetry data from these trucks, our AI models, developed through machine learning, determine the most efficient speed in each segment of the mine, for each type of truck and for each type of load. These models reduce diesel consumption and consequently CO2 emissions. [See more here.](#)

By applying AI, we have been able to solve some major problems in our operations, such as moisture control during ship loading. By analyzing historical data from thousands of shipments made by the company, we were able to identify which variables have an impact on ore moisture. The resulting model predicts moisture levels in each ship hold prior to embarkation, enabling adjustments to the loading plan and preventing loading disruptions.

We also use an AI model to help control risks related to particulate matter emissions. This is part of a major investment by Vale in particulate matter containment, which includes engineering equipment operating in a closed circuit. When the AI model identifies a risk of particulate matter being released from ore stockpiles, it sends a signal to activate mist cannons. These cannons wet the piles, preventing the emissions.

Generative AI is already integrated into our ecosystem. It is applied to employee services through our virtual assistant, Mina. Thousands of employees use Mina to access information on benefits and HR processes, among other things, which, through this generative AI model, provides accurate responses to user inquiries. We have also implemented generative AI models that assist engineers in preparing designs by enabling them to consult Vale’s technical standards in a much more direct and efficient way.

At Vale, we seek to use AI as a tool to make our processes more efficient, safe and sustainable.

Carbon capture

In 2024, Vale Ventures, Vale’s corporate venture capital initiative, announced an investment in Mantel, a startup based in Boston, which has developed an innovative carbon capture technology. The aim is to closely monitor and support the development of this startup, whose technology has the potential to contribute to the decarbonization of heavy industry, including the mining and steel sectors.

Vale Ventures acquired a minority stake during the startup’s Series A funding round, which raised USD 30 million. This was the third investment announced by Vale Ventures, which in 2022 committed USD 100 million in capital to be invested in the development of disruptive solutions for the mining and metals supply chain.

Eco-efficiency

GRI 3-3

Water

GRI 303-1

GRI 303-3

GRI 303-4

GRI 303-5

Water is a fundamental input, present at every stage of the mining process. Aware of our impacts and in line with the UN Sustainable Development Goals, we have updated our water target and are working to achieve an average 27% reduction in freshwater use by 2030, compared to our 2017 baseline, prioritizing regions with the highest water stress¹.

In 2024, we reduced our operations’ new water use by 31% compared to the 2017 baseline. However, Vale’s Production and Sales Report forecasts increased production going forward, which may lead to a relative rise in water consumption. Our projections, accounting for new water consumption reduction initiatives to be implemented by 2030, indicate we will meet our target by the end of this period. Below are some of the initiatives we implemented in 2024, focused on using sustainable water sources and improving water management and monitoring.

On the Vitória-Minas Railroad, which connects the metropolitan region of Belo Horizonte to our iron ore mines in Minas Gerais and the Port of Tubarão in Vitória, Espírito Santo, rainwater

Innovation for safety – Fog Predictor

In 2024, our innovation hubs tested 15 viable products, developed to tackle strategic challenges related to safety, efficiency and environmental impact. These initiatives included an innovative Fog Predictor and Impact Reducer, applied at our Vargem Grande Complex in Minas Gerais.

This technology was developed to predict the incidence of fog through AI, allowing for greater predictability in operations and mitigating impacts caused by stoppages. During the tests, the model showed a good level of accuracy, helping with decision-making and contributing to the continuity of operations.

¹ In order to define the level of water stress in the regions where we operate, we have adopted UN Indicator 6.4.2, which takes into account withdrawals from the river basin, water availability and ecological flow. See water stress map.

harvesting tanks were installed to reduce the use of new water for yard cleaning, road sprinkling and irrigation of green areas. By 2024, we will have reused 31.6 million liters of water in this way.

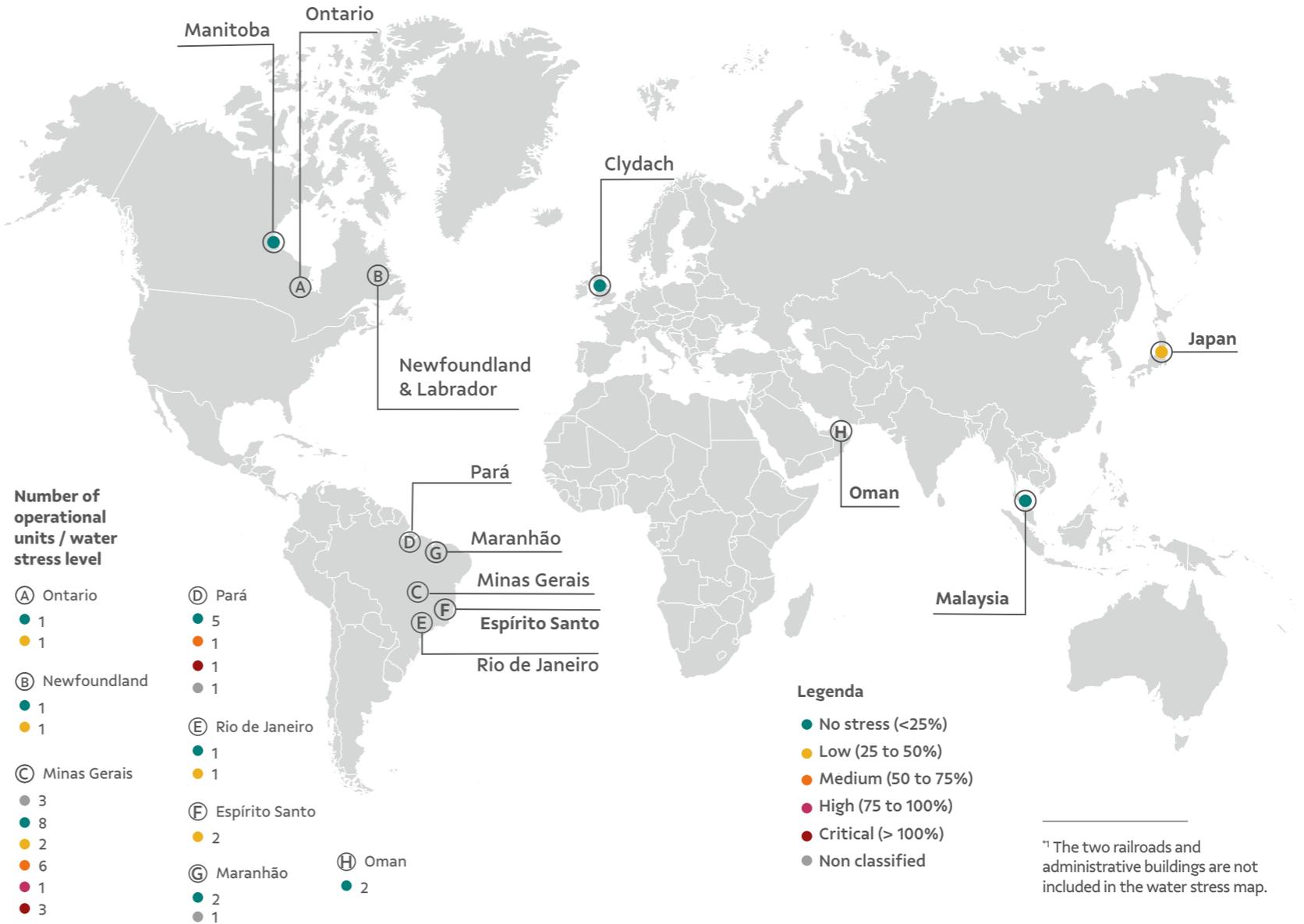
At our Onça Puma site, located in Ourilândia do Norte, Pará, we invested in upgrading the capacity of the plant's dam catchment system, which receives industrial wastewater and treated effluents. Thanks to this initiative, 97.8% of the site's water demand was met by reuse practices in 2024.

In our Environmental Control Centers, present in our operational corridors, we continuously monitor the environmental parameters of operational processes and set alert limits. This allows us to identify deviations, mitigate risks and optimize processes. We also deployed predictive models to facilitate proactive interventions.

At Ponta da Madeira Maritime Terminal in São Luís, Maranhão, we implemented a sedimentation basin management system to optimize the use of rainwater and process water. In 2024, this system allowed 81% of total water demand to be met by recirculation solutions, totaling 1.8 million m³ of reused water.

In addition to these initiatives, we are currently implementing a Water Sustainability Project at our Tubarão site in Espírito Santo.

Number of operational units in relation to the water stress level



We reduced the specific use of new water in our operations for industrial purposes by 22% per year compared to 2017, by implementing solutions that have increased the use of sustainable sources and the reuse of treated liquid effluents. In 2024, the site achieved a reuse rate of 80.2%. The operation has tanks for storing reused water for use in the industrial process and is investing in expanding this capacity to further expand reuse and reduce dependence on new water. In 2018, when its Environmental Master Plan was launched, the complex had a reuse water

storage capacity of 60,000 m³. In 2026, with the installation of the last large tanks under the Environmental Master Plan, this capacity will grow 200%, to 180,000 m³.

At the same time, a groundwater potential study is under way to determine sustainable aquifer use limits. The idea is to optimize well operations, reduce extraction costs and manage risks to groundwater quality, such as marine and continental saline intrusion and anthropogenic contamination.

Our water performance

River basins are a shared asset. We actively participate in seven river basin committees in Brazil. In addition, we are members of the water resources technical groups of the main mining industry associations (ICMM and IBRAM), helping shape sector guidelines for the responsible management of water resources and effluents.

To ensure greater operational efficiency and sustainable growth, we invest in water

monitoring and in storing information in an integrated data management system, which is audited annually. We optimize our uses and discharges, implement circularity projects, create water and effluent control and treatment systems, and consider alternative water sources where feasible, which increases the availability and quality of water resources in the river basins where we operate.

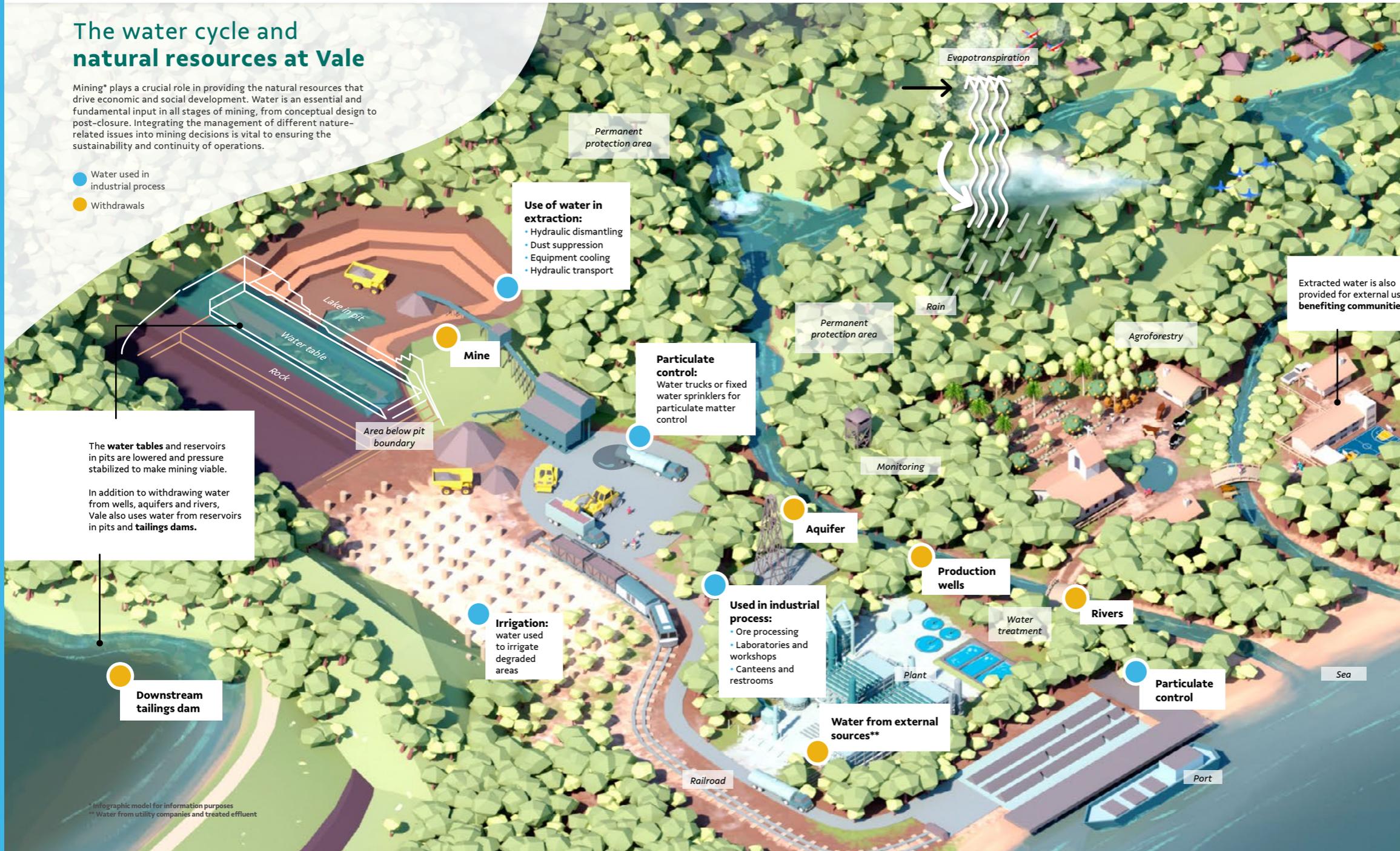


Aerial view of the Tubarão port, featuring the stockyard, pier and plant.

The water cycle and natural resources at Vale

Mining* plays a crucial role in providing the natural resources that drive economic and social development. Water is an essential and fundamental input in all stages of mining, from conceptual design to post-closure. Integrating the management of different nature-related issues into mining decisions is vital to ensuring the sustainability and continuity of operations.

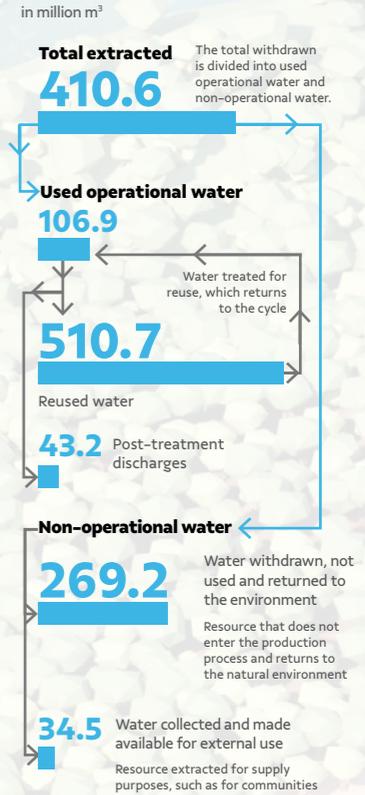
- Water used in industrial process
- Withdrawals



The **water tables** and reservoirs in pits are lowered and pressure stabilized to make mining viable.

In addition to withdrawing water from wells, aquifers and rivers, Vale also uses water from reservoirs in pits and **tailings dams**.

Water balance



Of the 410.6 million m³ withdrawn in 2024:

65.6% was returned directly to nature, without being used

8.4% was allocated externally to communities, through partnerships with institutions and utility companies, guaranteeing safe and high-quality water treatment and distribution

26% used for productive purposes

2024 data

* Infographic model for information purposes
** Water from utility companies and treated effluent

Air emissions

GRI 2-4 GRI 305-7

Mining activities generate emissions of particulate matter, sulfur oxides and nitrogen oxides, which can affect air quality and the ecosystems around our operations. These air pollutants are released from the stacks of pelletizing and briquetting plants, from nickel smelting and refining processes, and from the consumption of fuels in vehicles and equipment. Particulate matter emissions are associated with our extraction, transportation, handling and storage processes.

We are aiming to not just adopting more efficient practices but also to mitigate the impacts on communities near our operations. To this end, we seek to enhance and expand our continuous monitoring, using the data collected to direct our management strategies and improve environmental controls.

Emissions are managed by means of a source inventory, atmospheric dispersion studies, emission control systems and atmospheric monitoring, with the aim of eliminating or, where this is not possible, mitigating environmental

Global emissions reduction goals to be achieved by 2030

16% for particulate matter

16% for sulfur oxides

10% for nitrogen oxides

impacts. In our main operations in Brazil, we have Environmental Control Centers (CCA) that operate 24 hours a day collecting various environmental monitoring data and in direct connection with the Operational Control Centers, allowing us to evaluate our emissions performance, identify weaknesses and act on process improvements.

The goals are absolute. Although the results for 2024 were below target, our emissions are projected to increase in the coming years, as production grows. We have the following initiatives in place to reduce emissions:

- (i) Harnessing synergies between particulate matter, nitrogen oxide and sulfur oxide reduction projects through low-carbon strategic planning
- (ii) Encouraging the development of specific technologies that contribute to reducing these emissions
- (iii) Use of biofuels
- (iv) Increasing operational efficiency.

The reductions in air emissions of 2023 to 2024 are directly related to the reduction in our stake in PTVI in Indonesia. The efficiency of our operations with respect to particulate matter emissions has remained stable.

The emissions from the Fertilizer, New Caledonia, Manganese, Pelletizing Plant, Coal and PTVI units have been removed from the target baseline, due to divestments and closures of operations. In 2024, Vale incorporated emissions from leased ships under its operational control, from the 2018 baseline onward.

Particulate matter²

	GRI 305-7		
	2022	2023	2024
Thousand tonnes			
Nickel	2.6	4.7	0.8
Pelletizing	1.6	1.9	2.1
Total	4.2	6.6	2.9

Sulfur oxides

	Thousand tonnes		
	2022	2023	2024
Nickel	66.5	71.4	20.6
Logistics	1.9	1.9	2.0
Pelletizing	7.1	8.1	9.8
Other businesses	1.1	0.8	0.9
Total	76.6	82.2	33.4

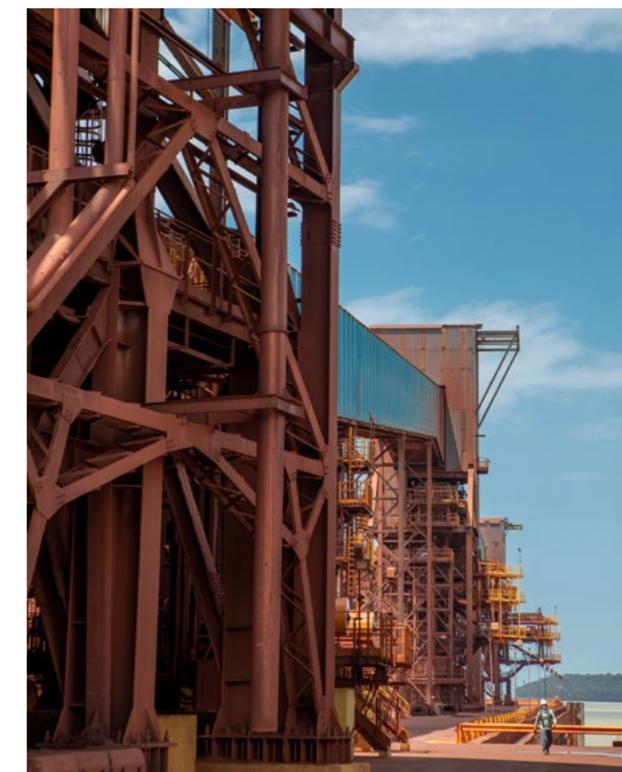
Nitrogen oxides

	Thousand tonnes		
	2022	2023	2024
Logistics	15.6	16.1	16.4
Pelletizing	19.8	17	16.8
Iron ore	2.8	3.0	3.1
Nickel	5.6	8.2	4.7
Other businesses	8.7	6.0	8.3
Total	52.7	55.1	49.4

²This indicator does not include data on diffuse emissions or air quality.

Planned investments in existing controls at our Tubarão and São Luís pelletizing plants over the next three years are expected to reduce emissions despite increased production.

For sulfur oxides, a reduction is expected for the Pelletizing business due to the energy transition at the São Luis Plant and for Iron Ore due to the replacement of S500 diesel with S10 diesel. In the case of nitrogen oxides, we expect the emissions to remain stable compared to 2023, as we proceed with reduction initiatives related to energy efficiency and decarbonization.



Ore yard, Ponta da Madeira Maritime Terminal, São Luís, Maranhão

Briquettes

The iron ore briquettes developed by Vale help to reduce fuel consumption and emissions of sulfur oxides, nitrogen oxides and particulate matter, helping improve air quality and mitigating environmental impacts.

 **FIND OUT MORE ABOUT
ECO-EFFICIENCY AT VALE**

Photo: Congpeng Zhand



Vale-CSU laboratory for Low Carbon and Hydrogen Metallurgy, Changsha, Hunan, China

Vale Base Metals eliminates smokestacks at Copper Cliff

As part of efforts to modernize its operations and reduce its environmental emissions, particularly of sulfur dioxide, Vale Base Metals (VBM) removed the flue that fed the Copperstack at Copper Cliff Complex in Sudbury, Canada in March 2024. The other chimney, called Superstack, has been inactive since 2020 and is being prepared for dismantling. The decommissioning of the structures was made possible thanks to the Clean Atmospheric Emissions Reduction (Clean AER) project, which reduced sulfur dioxide emissions by more than 85%, eliminating around 100,000 metric tons per year.

Dust suppressant made from plastic bottles

In 2024, Vale tested a dust suppressant made from recycled plastic bottles, developed in partnership with Espírito Santo Federal University, on mining roads. This innovation, previously applied to stockpiles and railcars, helps reduce air emissions and promotes the circular economy. At the same time, a recycling project that supports waste pickers and strengthens recycling continued its activities, allowing 1.8 million liters of polyethylene terephthalate (PET) – equivalent to around 5.2 million plastic bottles – to be recycled and reused in 17 operations.



Environmental incidents

Compared to the previous year, in 2024 we achieved a 47% reduction in environmental incidents and did not record any critical or very critical events. This is a reflection of our progress in managing environmental control and prevention systems.

Environmental incidents are handled in accordance with our global management guidelines, which provide for the following steps:

- Initial communication (internal and external)
- Adoption of immediate and control actions
- Investigation of causes and implementation of corrective actions
- Analysis of Scope and preventive actions
- Recording of lessons learned and internal dissemination

Total Environmental Incidents¹

	2022	2023	2024
Total incidents	24	17	9
Critical and very critical incidents	0	1	0

Environmental Incidents and Impacts in 2024²

País	Incidents	Environmental Impacts
Brazil	3	Change in water quality
	1	Change in water and soil quality
	2	Change in air quality and reduction in biodiversity
	2	Change in soil quality
	1	Change in soil quality and reduction in biodiversity

¹ In 2024, only the cases reported by the Iron Ore Solutions segment were considered.
² Only events with actual significant, critical and very critical impact are counted.

Nature

GRI 3-3 GRI 304-3 GRI G4 MM2

In managing biodiversity impacts and risks, our main long-term objective is to achieve no net loss of biodiversity. To this end, we use the Impact Mitigation Hierarchy approach, and we have a specific procedure for carrying out biodiversity risk analyses in each project and operation. The results form the basis for programs and plans for biodiversity action and/or management.

Of the 47 operating sites assessed in 2024, 44 needed to draw up biodiversity management plans. Of these, 95% now have management plans in place, while the remaining sites are either implementing or developing their plans. [GRI G4 MM2](#)

Our preventive measures in this area mainly involve defining the scale and layout of projects, as well as using new technologies to reduce consumption and impacts on natural resources.

Rehabilitating impacted sites and restoring habitats are key components of these plans and programs. To enhance the technical efficiency of the recovery process, we revised our main procedure for restoring degraded areas in 2024. Over the course of the year, we restored approximately 988 ha within our operations, 362 ha temporarily and 626 hectares permanently.

These plans also include measures focused on monitoring impacts and projects designed to increase knowledge of biodiversity.

Biodiversity Management Plans in Minas Gerais

In partnership with the Brazilian environmental protection agency IBAMA, Vale monitors large endangered terrestrial mammals, such as the cougar and maned wolf, in regions close to ten operations in Minas Gerais, including the Brucutu and Itabira mining complexes. Part of a condition associated with our environmental license, this initiative aims to monitor the species and assess and mitigate the impacts caused by mining.

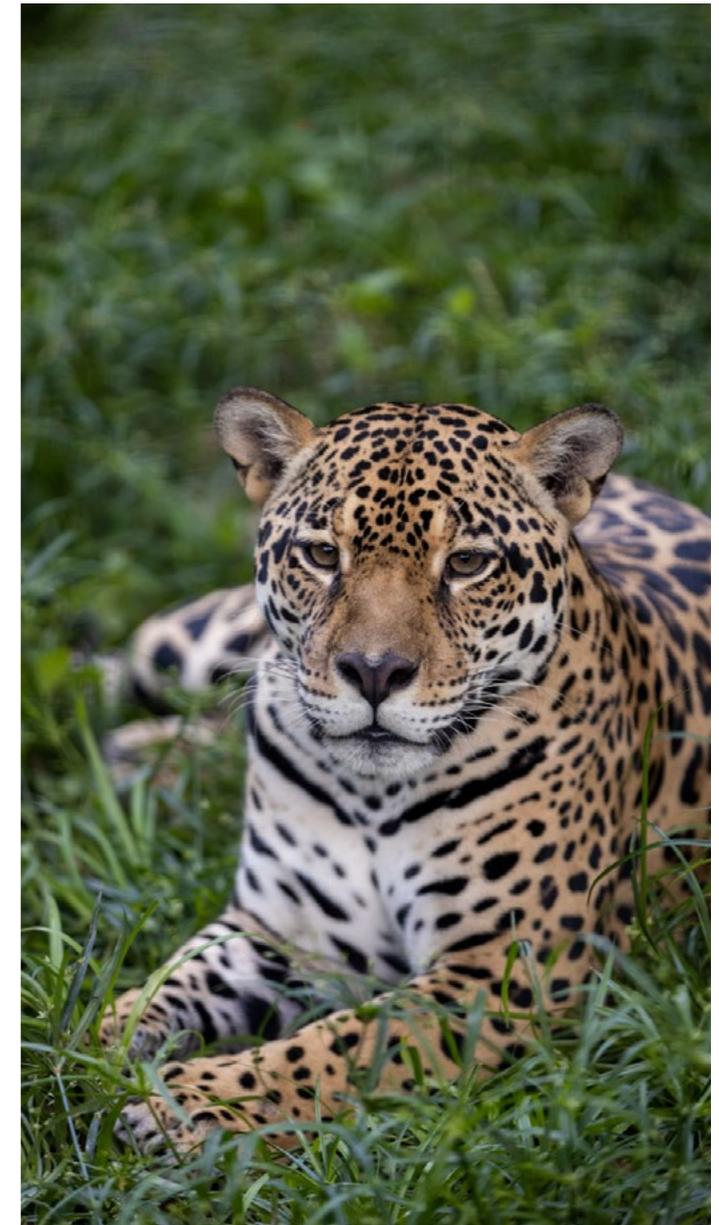
In the 11 years since the project began, 13 cougars (*Puma concolor*) and 11 maned wolves (*Chrysocyon brachyurus*) have been identified and mapped. The initiative involves capturing and assessing the health of the animals, which are tagged with radio collars for satellite monitoring. The aim is to identify the total area used by each species to help define the work needed to protect the country, as well as periodically assessing the quality of their habitat.

It should also be noted that we compensate for residual impacts. Today we protect 975,000 ha worldwide, of which 809,000 ha are mandatory (to comply with licensing conditions) and 166,000 ha are voluntary. For every hectare altered or impacted by our projects and operations, we protect 10 ha in sensitive areas¹, including key biodiversity areas and other regions of high biodiversity value. Forest conservation and restoration are both strategic to Vale's climate agenda, as they help maintain and expand stored carbon stocks.



Find out more about biodiversity risk management at Vale

¹Sensitive areas: key biodiversity areas (KBA), wilderness (Amazon) and hotspots (Atlantic Forest and Sundaland).



Jaguar

Taskforce on Nature-related Financial Disclosures

In 2024, we published our first report in line with the LEAP (Locate, Estimate, Assess and Prepare) approach, proposed by the Taskforce on Nature-related Financial Disclosures (TNFD), relating to our operations in Brazil. We have also started implementing this approach in our operations in other countries. [\(Read the report here\)](#) Our results show that our material dependencies are related to water use and climate regulation, while our impacts are related to greenhouse gas emissions and changes in ecosystems and land use. Associated with these dependencies and impacts, our material nature risks are related to changes in climate regimes, the availability of water

resources and impacts on areas of high biodiversity value. In 2025 we are publishing our information in accordance with the disclosure recommendations in the [ESG databook](#).

We were one of the first mining companies in the world to adopt this framework, disclosing our impacts, dependencies and material risks, as well as our actions to reduce our impact and the opportunities to mitigate our risks. Our goal is to be a TNFD Early Adopter in 2025, in line with the demands from the market and society that will help strengthen the future of businesses that are increasingly integrated with nature.

Together with our value chain, we developed an initial collective pilot scheme as part of Action for Nature, a platform led by the Brazilian Business Council for Sustainable Development

([CEBDS](#)). Based on the prioritization of our suppliers in line with our ESG Criticality Matrix developed in 2022/2023, this pilot project involved working with suppliers identified as critical to biodiversity to conduct the Locate phase of TNFD's LEAP approach. The results will be presented alongside those of other CEBDS members in a document that is due to be published in 2025.

We also report annually on our impacts, risks and opportunities related to biodiversity in our high priority operations, according to location and interface with nature, as well as our management strategies, within the Scope of CDP's Biodiversity module. [GRI 203-1](#) [GRI 304-3](#)

Learn more about our positive impacts on nature [here](#).

Climate

[GRI 3-3](#) [GRI 201-2](#)

Our strategy for reducing greenhouse gas emissions encompasses both our own operations and the value chain. This effort is reflected in our efforts to offer clients a portfolio of high-quality products and less carbon-intensive technological solutions.

Strategy for reducing Scope 1 and 2 emissions

Most 92.3% of Vale's Scope 1 and 2 emissions come from combustion and industrial processes. Consequently, the company has been prioritizing the decarbonization of these sources. This includes implementing operational improvements, enhancing energy efficiency and replacing key greenhouse gas emission sources, such as diesel, natural gas and anthracite coal¹, with less carbon-emitting alternatives.

We have been evaluating the application of biofuels in our mines and locomotives, such as biodiesel and ethanol, as well as bioenergetics biomethane and bio-oil in pellet plants, as well as the consumption of electricity from renewable sources.

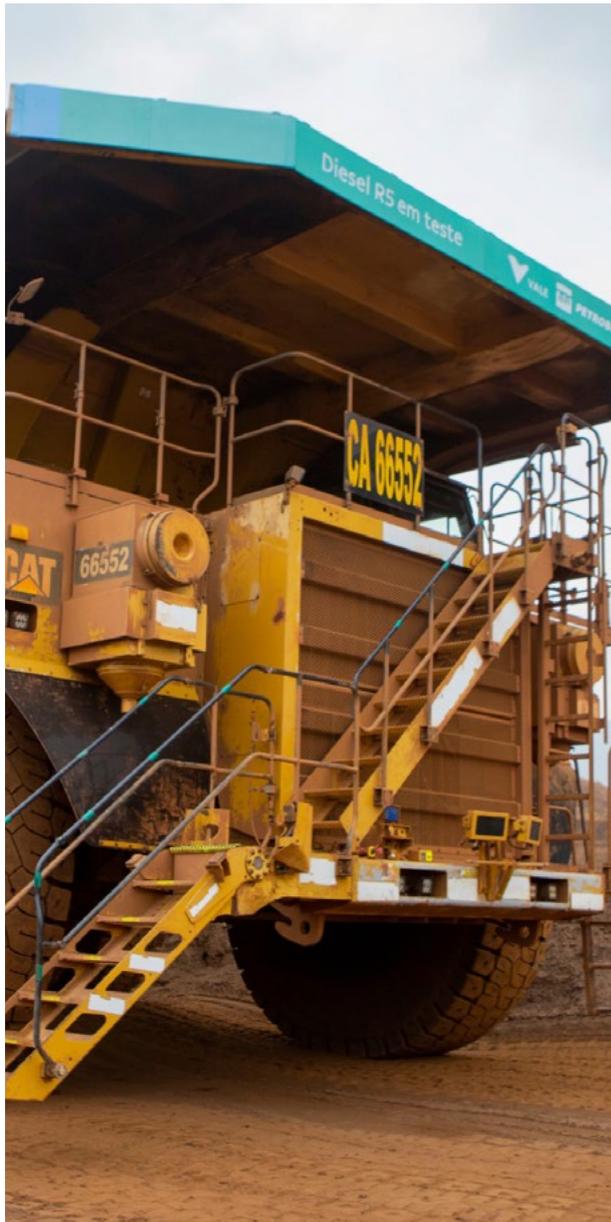
¹Anthracite, also known as black coal, is a compact and hard variety of coal, characterized by its high carbon content (92% to 98%) and low content of volatile substances.

Photo: Ricardo Teles



Iron ore stockpile at the Serra Sul Mine, Canaã dos Carajás, Pará, Brazil

Photo: Nilmar Lage Fonseca and Tomaz



Vale and Petrobras are testing the use of R5 Diesel in off-road trucks.

To support our goal of reducing our Scope 1 and 2 emissions by 33%, we publicly committed to using 100% renewable energy in Brazil by 2025 and globally by 2030.

In 2023, Vale achieved 100% renewable electricity consumption in Brazil, two years ahead of schedule.

In 2024, we maintained this achievement in Brazil. In Malaysia, our participation in the Green Electricity Tariff program, validated by Malaysian Renewable Energy Certificates (mRECs), accounted for 30% of renewable energy consumption for the industrial operations.

2030 Emissions reduction target

Vale has set a target to reduce its absolute Scope 1 and 2 emissions by 33% against a base year of 2017. In 2024, the company achieved a 26.9% reduction, primarily driven by lower production volumes and changes in the production mix of agglomerated products and iron ore. The reduction in Scope 2 emissions in Brazil is also noteworthy, supported by renewable energy certificates obtained through the purchase of electricity from hydroelectric, wind and solar sources.

In 2024, we completed the conversion from 1A and 1B fuel oils to natural gas, a less carbon-intensive fuel, in all our pelletizing facilities. Our plant in São Luís, Maranhão was the final facility to undergo this conversion in 2024. In the coming years, Vale plans to achieve its Scope 1 and 2 emissions reduction targets by increasing our use of renewable energy, replacing fossil fuels and adopting less carbon-intensive processes.



Trucks: ethanol and electric equipment

250+ trucks produced for the of modernization technologies for high-power engines.

After 2030: Development of electric vehicles (BEVs) by manufacturers (OEMs).



Railroads: biodiesel

Pilot tests to increase biodiesel percentage to **25%** by 2028



Innovative processes

Improve the thermal efficiency of our kilns to reduce anthracite use



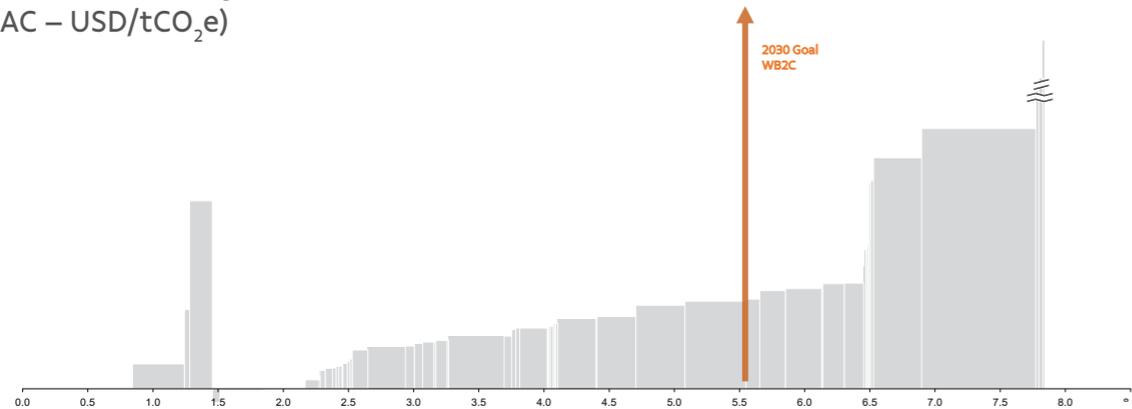
Cumulative spending since 2020:

Expenditures on climate change totaled **USD 1.4 billion** including **USD 257 million in 2024**

Marginal abatement cost curve

Our decarbonization portfolio includes a variety of initiatives, which are prioritized according to their cost competitiveness and potential to contribute to our 2030 emissions target. We have consolidated our portfolio for evaluation and prioritization based on a marginal abatement cost curve (MACC), a tool that helps determine the cost-benefit ratios of different projects. To complement decision making for the decarbonization portfolio, the MACC is subjected to a risk assessment in four key areas – Supply, Impact, Technology and Ability – using a methodology called SITA¹. We also assess external factors that could affect the success of the initiative, such as macroeconomic, political and regulatory factors, among other possible obstacles.

MACC¹ 2024 – Target Scenario – Vale (MAC – USD/tCO₂e)



Vale has publicly committed to sourcing 100% of its global electricity consumption from renewable sources by 2030. For this reason, the projects mapped for Scope 2 are highlighted and prioritized on the left side of the Marginal Abatement Cost Curve.

At the end of 2024, we began to quantitatively analyze the risks using Monte Carlo simulations, to weigh up the marginal cost of abatement and the potential emissions abated against the cost and time risk of the initiatives in terms of our commitments and targets. In addition, our investment decisions are guided by analysis based on regionalized carbon price curves.

Our greenhouse gas emissions reduction trajectory has been shaped by the continuous assessment of our portfolio of initiatives.

The following graph shows the initiatives included in the total potential for reducing emissions by 2030.

¹ The SITA methodology considers qualitative criteria for risk assessment, which are: availability of supply and viable resources (Supply); intensity of emissions reduction (Impact); technological maturity (Technology); and ability to implement the technology in a sustainable manner, on time and taking into account operational risks and necessary adaptations in operations (Ability).

Preferred abatement pathway	Potential abatement contribution for achieving our 2030 target
Low carbon process inputs	56%
Biofuels, natural gas, and other low-carbon fuels	18%
Renewable electricity	7%
Energy efficiency	6%

In 2023 and 2024, we signed agreements with our largest off-highway truck suppliers – Komatsu, Caterpillar and Bosch – to test dual-fuel ethanol solutions. We also have a partnership with Caterpillar to test battery electric vehicles.

With Komatsu, which has a partnership with Cummins, the goal is to develop off-highway trucks that are dual fuel, powered by a mixture of ethanol and diesel. They will be the first trucks of this size in the world (with a capacity of 230 to 290 t) to run on ethanol, based on a joint investment in research and development that underscores the commitment of all three companies to advancing sustainability in the mining industry.

Vale’s partnership with Caterpillar includes testing large battery-electric trucks and energy transfer systems. Additionally, joint tests will be conducted on ethanol-powered trucks. In the coming years, Vale plans to test a truck capable of carrying up to 240 tonnes in its operations.

In the railroad sector, we are moving forward in our partnership with Wabtec to decarbonize our operations. This collaboration includes integrating FLXdrive battery-powered locomotives into Vale’s fleet and developing dual-fuel conversion kits for locomotives.

Adoption of low-carbon technologies

Focus on Scope 1

Pelletizing accounts for approximately 44% of Vale’s Scope 1 emissions. Since 2021, we have been conducting tests to evaluate the feasibility of using biocarbon, biomethane and bio-oil as alternative fuels. We are also making progress in feasibility studies on the use of biomethane to partially substitute the use of natural gas.

Low-emission trucks

One of the major challenges in reducing our direct emissions (Scope 1) is developing viable technologies to replace diesel with renewable fuels in large vehicles, such as our off-highway trucks. Used in mining operations, some of these vehicles can carry up to 400 t of iron ore.

Photo: Zé Palma



Solar energy generation at the Sol do Cerrado unit, Jaíba, Minas Gerais.

Focus on Scope 2

Our global electricity generation portfolio is a competitive advantage on the path to emissions reduction, as it is 97.8% renewable. Vale's installed capacity worldwide in 2024 was 3.3 GW, primarily based on hydroelectric, wind and solar generation assets. These assets are owned both directly and indirectly and are located in Brazil and Canada.

In 2024, we completed the acquisition of the 45% stake held by Cemig GT in our 100% renewable power generation subsidiary, Aliança Geração de

Energia¹, for BRL 2.7 billion (USD 500.9 million), giving us full ownership of the company. We are evaluating the potential sale of a 70% stake in Aliança Energia, including the Sol do Cerrado and Consórcio Candonga energy assets in the company's portfolio, to Global Infrastructure Partners (GIP). We inform you that there is no binding instrument signed regarding the sale and that any decision in this regard will be taken in accordance with the Company's governance policies and rules.

¹ **Relevant Fact – Vale establishes joint venture in Aliança Energia**

Energy efficiency and operational improvements

Vale has invested in technological innovation to improve the energy efficiency of its operations, most notably through the MinAInteligente (Intelligent Mine) project, which uses artificial intelligence to optimize diesel consumption in off-highway trucks. By recommending operational parameters, the project focuses on identifying the ideal truck speed for each section of a mine.

Energy efficiency is one of the levers of our decarbonization strategy, which is why Vale has a public commitment to improve its energy efficiency indicator by 5% by 2030. To achieve this, our plan includes expanding the use of process optimization technologies, particularly automated ones, increasing the electrification of potential assets and continuing to invest in renewable energy sources.

Net-zero target

Vale's goal for 2050 is to achieve net zero emissions, in alignment with the principles of the Paris Agreement. To this end, the company strives to continuously reduce our Scope 1 and 2 operational emissions through new initiatives, technologies and innovative partnerships. Additionally, Vale is investing in nature-based solutions that deliver social and environmental co-benefits, as well as high-integrity carbon credits that ensure additionality, permanence and positive impact. The Forestry Target and the NetZero Target are connected through the implementation of nature-based solutions. Residual emissions will be neutralized through high-integrity measures, reinforcing the company's commitment to social and environmental responsibility.

“The Strategic Alliance Agreement with Vale is an important milestone for Petrobras. Brazil's two largest companies, both deeply aware of their historic and significant role in the country's economy, have joined forces to advance decarbonization efforts and signed an agreement to enable the direct sale of Petrobras Diesel R for testing. This fuel is produced through the co-processing of diesel with renewable raw materials such as vegetable oil and has already been tested in Vale's vehicles. This innovative product aligns with the latest market trends and reflects investments in biorefining technology. This partnership represents another step forward in the joint efforts of Petrobras and Vale to develop new strategies for decarbonizing their operations. Initiatives like this reinforce the contribution of both companies to the country and its journey towards a just energy transition.”

MAGDA CHAMBRIARD,
president of Petrobras

Reducing emissions in the value chain

Vale's Scope 3 target aims to support the decarbonization of the company's value chain. Emissions from our value chain account for 98.4% of Vale's global emissions, making their mitigation a critical component of the company's decarbonization strategy. Vale is committed to

reducing value chain emissions by 15% by 2035, compared to the 2018 baseline. This target was established using a scientific methodology, following the absolute contraction approach and aligned with the context of limiting the global temperature rise to 2°C.

The strategy to achieve this goal includes two main approaches: offering clients a portfolio of low-carbon iron ore products and establishing

structural partnerships across the value chain through memorandums of understanding. Furthermore, Vale is considering the use of high-integrity carbon credits, up to a limit of 20% of the proposed target, to address difficulties in reducing emissions in hard-to-abate sectors. These credits will adhere to strict principles of additionality, permanence and transparency, demonstrating Vale's strategic commitment to its environmental goals.

Strategic fuels

In October 2024, we announced a partnership with Petrobras to supply bio-bunker (a fuel used on ships) and Diesel R5, co-processed diesel with renewable content. Diesel R5, which is 60% less carbon intensive, is being tested on the Vitória-Minas Railroad and at Fábrica Nova mine at Mariana Complex, Minas Gerais.

The agreement also provides for collaboration to develop more competitive models for the supply of natural gas, an essential input for the production of pellets and iron ore briquettes.

 Find out more about our supply of strategic fuels.

“The Jinnan Steel Group is proud to be a global pioneer in establishing a fully integrated, low-carbon industrial chain. Vale is a company with a strong commitment to social responsibility, and its carbon reduction objectives are fully aligned with our development philosophy. Over the years, Vale has proven to be a reliable partner. Its exceptional technological development capabilities (in areas such as iron ore briquettes) and its innovative business models for green development (such as Mega Hubs) offer unique strategic opportunities for our low-carbon initiatives. We are honored to be Vale's strategic partner, both in China and abroad.”

ZHANG TIANFU,
Zhang Tianfu, CEO of Jinnan Steel Group



Photo: Nilmar Laje

Vale and Petrobras Project – R5 Diesel Fuel Test. Fábrica Nova mine, Mariana, Minas Gerais, Brazil.

Green hydrogen

We have established partnerships to study the development of the green hydrogen chain, an important input for decarbonizing the steelmaking process, making green steel viable, as well as advancing the strategy of expanding the production of iron ore briquettes. We have signed an agreement with Stegra to study the development of industrial hubs in Brazil and North America. Stegra intends to manufacture products in the low-carbon steel chain, such as green hydrogen-based hot briquetted iron, using Vale's iron ore briquettes and electricity from renewable sources.

 Find out more here

Similar to the example of Hydnum, we have also formed a partnership with Green Energy Park (GEP) to begin feasibility studies for the installation of a green hydrogen production unit in Brazil. The aim is for this unit to supply a future Mega Hub, an industrial complex designed to manufacture low-carbon steel products in the country.

This partnership may create a platform open to international agreements in which global steel companies could acquire and produce hot-briquetted iron in Brazil and accelerate the decarbonization of the steel industry.

 FIND OUT MORE HERE

Synergy between the companies is in line with Vale's strategic objective of promoting low-carbon solutions for the steel value chain, and contributing to Brazil's reindustrialization and the fight against climate change.

Another important agreement was announced in September, when we renewed our technical cooperation partnership with Midrex Technologies Inc., a company based in the United States, to explore the use of iron ore briquettes in direct reduction plants. This project has the potential to produce high-quality steel with fewer impurities while reducing the need for coke in blast furnace feed, ultimately helping lower carbon emissions.

The initial test results are promising. In 2024, our briquette production technology was selected by the United States Department of Energy for funding under the Bipartisan Infrastructure Law and Inflation Reduction Act, as part of the Industrial Demonstrations Program.

Low-carbon steel

In 2024, we moved forward with our strategy to increase briquette production through partnerships. In February, we signed a memorandum of understanding with Hydnum Steel to develop low-carbon solutions for steel production. The agreement includes a joint assessment of the potential to build an iron ore briquette plant at Hydnum Steel's flagship green steel project in Puertollano, Spain.

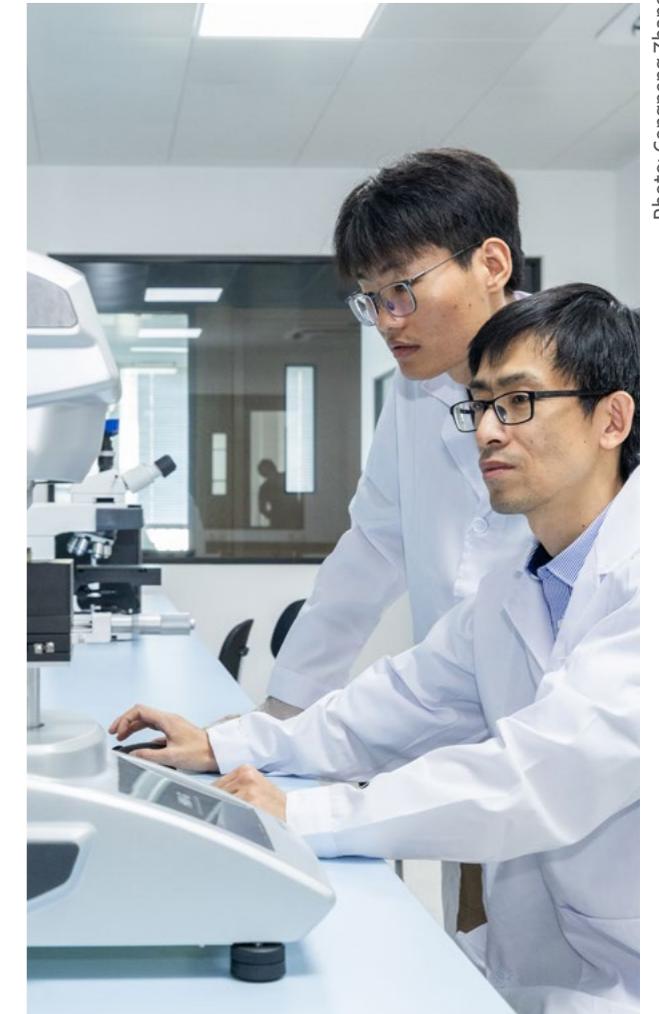
The plant will use state-of-the-art technology designed to replace fossil fuels with green hydrogen, contributing to the decarbonization of the steel sector. Its initial production capacity will be 1.5 Mt of rolled steel in 2026, and the projection is to reach 2.6 Mt a year by 2030.

 It's important to have partners like Vale, who share the same values that drive us to build a new industry, and are committed to a planet free of emissions. Hydnum Steel is contributing to inexorable technological change in the global steel industry. We are demonstrating that the production of high-quality green steel is not only competitive, but also beneficial for the future of our planet."

FERNANDO PESSANHA,
director of strategy, Hydnum Steel

 FIND OUT MORE

Vale's project foresees the development of an innovative iron ore briquetting plant in the United States, which would be the first in the world to apply a patented cold agglomeration process for briquettes based on the direct reduction method.



Hydrogen Laboratory, a partnership between Vale and Central South University (CSU) in Changsha, China, inaugurated in April 2024.

Photo: Congpeng Zhand

Laboratory for Low Carbon and Hydrogen Metallurgy

After more than a year of preparation, the Vale-CSU Joint Laboratory for Low Carbon and Hydrogen Metallurgy, a partnership between Vale and Central South University (CSU), was opened in April 2024 in Changsha, China. Our company donated USD 5.81 million to the project.

Located in the Changsha Yida & CSCEC Intelligent Technology Center, the laboratory covers five floors and 3,000 m², including six functional units and three pilot bases for low-carbon and hydrogen metallurgy processes. At the opening ceremony, Rogerio Carneiro, our Director of Ferrous Products Development and Burden Solutions and Ferrous Technology Center, highlighted the laboratory's importance for the company's leadership in terms of sustainable mining and the goal of reducing Scope 3 emissions. "This opening marks a key moment in Vale's ongoing journey toward leadership in sustainable mining for a decarbonizing world. As China strives to accelerate the formation of new high-quality productive forces, the timing of the launch of this laboratory could not be more opportune," Rogerio Carneiro said.

The laboratory is facilitated with more than 100 sets of world-class instruments and equipment such as pilot sintering and pelletizing, multi-function high temperature furnace and a hydrogen direct reduction shaft furnace, providing robust support for theoretical research and the development of cutting-edge technologies in hydrogen metallurgy.

“The launch of the Joint Laboratory marks a significant milestone in our partnership. Our goal is to build it into a domestically leading and world-class innovation platform, contributing to the green transformation of the iron and steel industry in China and around the world.”

PROF. FU GANGHUA,
Deputy Secretary of CPC Committee of Central South University.

Greenhouse gas inventory¹

GRI 305-1 GRI 305-2 GRI 305-3

In 2024, Vale's Scope 1 and 2 emissions were 7.7 Mt CO₂e, down 26.9% from the 2017 baseline². The company's Scope 3 emissions amounted to 458.5 Mt CO₂e, down 13.2% from the 2018 level³.

GEE Emissions – Scopes 1 e 2⁴

In million metric tons of CO₂e

	2017 (baseline)	2022	2023	2024
Scope 1	9.2	7.1	7.5	7.4
Scope 2	1.3	0,3	0.3	0.3
Total	10.5	7.4	7.9	7.7

GHG Emissions – Scope 3

In million metric tons of CO₂e

	2018 (baseline)	2022	2023	2024
Scope 3	528.4	456.7	450.1	458.5

¹ The results of Vale's 2024 Greenhouse Gas Inventory were assured by a third party.

² Results reported in absolute emissions, not including any type of compensation.

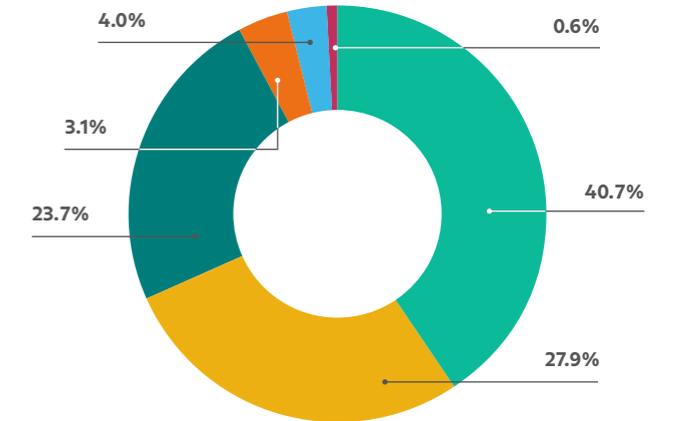
³ Vale's Scope 3 greenhouse gas emissions are expected to increase as its sales grow, due to the prospect of growing demand for the company's products.

⁴ Data from previous years is being restated due to the recalculation of emissions, as detailed on page 63.

GRI 2 - 4

Emissions by source

GRI 305-1 GRI 305-2 GRI 305-3

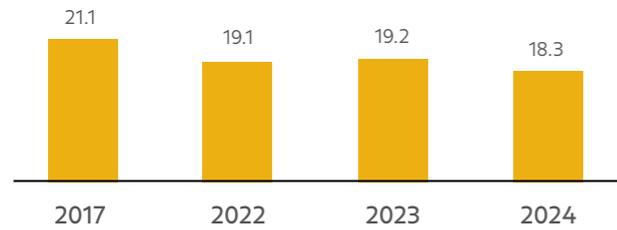


Emissions intensity

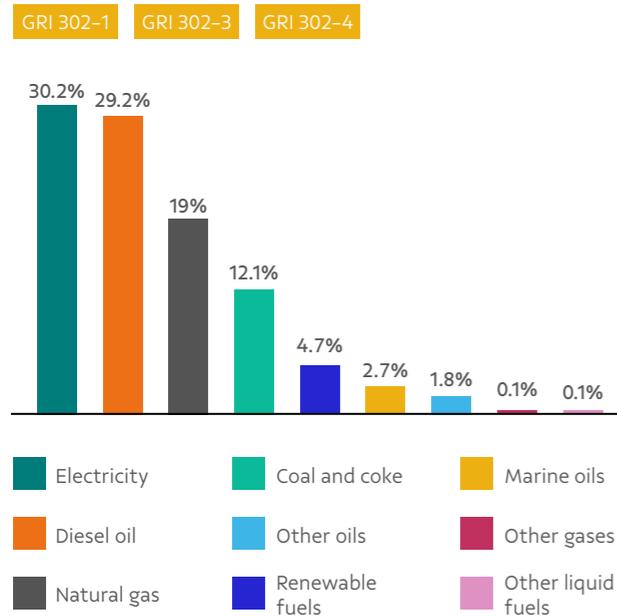
GRI 305-4

In 2024, Vale's Scope 1 and Scope 2 intensity was 18.3 kg CO₂e/t MFe-eq, down by 13% from 21.1 kg CO₂e/t MFe-eq in 2017. This performance is largely a result of the increase in the consumption of renewable electricity in Brazil, supported by 100% renewable energy certificates, reducing our Scope 2 emissions, in addition to our strong operational performance.

Emissions intensity – Scopes 1 and 2 (kg CO2e/t MFe-eq)¹



Energy consumption matrix by source (kg CO2e/t MFe-eq)¹



¹ The production volumes of Vale’s main products, such as pellets, nickel and copper, are converted into tonnes of iron ore equivalent.

Climate risk management

Climate risk management is integrated into the company’s multidisciplinary risk management process, addressing both operational and non-operational business issues. Its governance is aligned with our management model, covering the value chain as well as short, medium and long-term horizons. We periodically reassess the process to ensure alignment with the strategic decisions of the company’s top management.

We carry out resilience analyses based on different climate scenarios, using a risk matrix that considers severity and probability. For climate risks, the company has developed specific methodologies to assess transition and physical impacts, in line with the TCFD and more recently IFRS S2.

Our main risks are regulatory/legal, technological, market, reputational and physical. In our 2024 CDP Report, for example, we highlighted two specific risks: the company’s exposure to the EU’s Carbon Border Adjustment Mechanism (CBAM)² and reputational risks associated with not meeting our carbon targets.

Energy transition challenges

The energy transition is already a global challenge and for Vale it will be no different as adjustments to our operations and our energy consumption matrix will impose higher costs and investment.

Since 2020, Vale has invested approximately USD 1.4 billion in mitigating its Scope 1, 2 and 3 greenhouse gas emissions, including USD 257

million in 2024. Spending on decarbonization projects in 2025 is estimated to reach around USD 137 million. The main solutions evaluated to reduce emissions include USD 75 million of capital expenditure, involving the use of ethanol, electric trucks / dynamic recharging systems and biodiesel to replace diesel in mines; the use of ethanol, BEL³ and biodiesel to replace diesel in railroads; and the use of biomethane to partially replace natural gas in the pelletizing process. In addition, the Company will invest USD 56 million in projects related to Scope 3 emissions and USD 6 million in carbon pricing in the regulated market.

As part of our 2025–2054 Strategic Plan, the Company approved approximately USD 3 billion, net of taxes and adjusted by a discount rate, for carbon pricing and capital allocations for the development and implementation of low-carbon fuels and technologies, using its own resources. Of this amount, around USD 2.5 billion has been earmarked for carbon pricing, and this is projected to have an impact on cash flow in the medium and long term, up to 2054⁴. Securing a premium for low-carbon products depends on market acceptance, clients’ willingness to pay more for sustainable alternatives and competitiveness against less sustainable options. These factors are central to Vale’s decarbonization strategy and reflect the complexity of the transition to a low-carbon economy.

Vale believes that the transition must be just, meaning that financial, material and human resources are directed toward an economy that benefits both people and the planet. In this context, we not only seek to reduce greenhouse

gas emissions across our value chain but also aim to empower our employees with the skills needed for evolving work models and are concerned with supporting local communities – particularly the most vulnerable ones – to build resilience against climate risks and impacts.

Our social model is rooted into the goal of fostering economic development in the regions where we operate. The shift to a low-carbon economy creates opportunities to advance this goal, including expanding clean energy access, generating secure jobs and stimulating knowledge, innovation and investment.

We recognize that there are opportunities to further integrate our social agenda with our climate and environmental management activities. We strive to strength this alignment, ensuring that all our transition plans incorporate a human rights perspective and leave a lasting positive social legacy.

² CBAM is a European Union instrument that aims to apply a price to the carbon emitted in the production of goods imported into the bloc. The Carbon Border Adjustment Mechanism was created by Regulation 2023/956, published in May 2023, and is expected to come into force in 2026.

³ A type of alternative fuel that combines biodiesel with electrification technologies to reduce greenhouse gas emissions and improve the energy efficiency of railroad operations.

⁴ The Company is evaluating the efficiency and capital allocation of these decarbonization projects to promote a more effective allocation of resources in the medium and long term.

A Trusted Partner



Photo: Washington Alves

Employees Douglas Messias, Vladimir Dias, Juscelia Neves and Maria Helena Madeira, at Mar Azul mine, MG, Brazil.

Photo: Washington Alves



A Trusted Partner

The Trusted Partner pillar highlights Vale's actions as an advocate of leaving a positive legacy for society and the environment. Through strategic partnerships, ongoing dialogue with communities and a focus on transparency, we seek to strengthen our social license to operate. Initiatives such as regional development programs and engagement with Indigenous People and traditional communities reflect our commitment to creating shared value and building a more sustainable future.

 [Click here to learn more about the Strategic Pillars](#)

In 2024...



75%
delivery of obligations under the Brumadinho Comprehensive Reparation Agreement



Vale Cultural Institute
is the largest investor in culture in Brazil



Kayapó People Consultation Protocol
and engagement with four other Indigenous communities



51,000 people
engaged by initiatives to combat extreme poverty



Responsible procurement practices,
ensure socio-environmental compliance across the supply chain



Active participation in COP30,
with strategic contributions to energy transition and sustainable development policies

Employees Leonardo Pereira, Tales Santos and Mariza Loschi at Serrinha Mine, MG, Brazil.

Positive results for nature

In northern Tocantins, Zé Neto, an 87-year-old farmer known for his simplicity and wisdom, has a special passion: the babassu palm. This tree, which dominates the landscape of his land, represents life, history and sustenance. “The land provides us with what we need. The babassu palm is generous – it just needs care, like we do,” he says. Over the past 40 years, with the economic decline of Brazilian palm oil, which lost ground to Malaysian palm oil, Zé Neto has seen these trees give way to extensive livestock farming and degraded pastureland across much of the region.

He stood firm while others gave in, cutting down forests to raise cattle, not just in Tocantins, but throughout much of the biome. A study by the NGO MapBiomas shows that between 1985 and 2023, pastureland in the Amazon grew by more than 363%, expanding from approximately 12.7 million hectares to 59 million hectares, about 14% of the Amazon.¹

In 2024, Caaporã, a startup supported by Fundo Vale, leased the Boa Esperança and Apucarana ranches, owned by Zé Neto, to start an innovative project: sustainable livestock farming based on an agroforestry system. This approach combines beef cattle farming with carbon credit generation, while supporting communities of extractive workers. The initiative seeks to create innovative solutions with a positive social and environmental impact. Babassu coconuts are purchased by a local company to produce activated charcoal, a high-quality material used in water filters, guaranteeing a stable source of income for local families.

“To keep the forest standing, you also need to consider the economic side of the bioeconomy, and for that, you need mainstream products that can generate scale. Only then will we move the needle on Amazon conservation. The beef industry is moving that needle – it’s a critical point in the system. Our startup is based on this reasoning: either we address cattle ranching, or there’s no point discussing the climate agenda,” says Luís Fernando Laranja, CEO of Caaporã. With support from Fundo Vale, the company has already restored more than 6,300 ha of degraded pastureland in the states of Mato Grosso, Bahia, Tocantins and São Paulo. Of this total, 1,000 ha are located on Zé Neto’s Boa Esperança and Apucarana ranches in the municipality of São Bento do Tocantins.

As a mining company, we depend on nature and are acutely aware of the impact our operations have on it. We have been operating in the Amazon for nearly 40 years, in a forest region rich in biodiversity, which we actively help conserve. Protecting the biodiversity of the biomes where we operate, especially the Amazon, is a cross-cutting priority for the company. Our work in this area ranges from managing our dependencies and the impacts of our operations on different ecosystems to voluntary initiatives aimed at protecting and restoring forests, as well as fostering production chains involving businesses that generate positive social and environmental impacts, such as Caaporã.

We start with the principle that we need to reverse the current reasoning that puts the environment at the service of the economy. Instead, we must shift to a new perspective where the economy drives environmental protection and recovery. We understand that this

transformation must be collective, fair and inclusive. To achieve this, we act as connectors of ideas, businesses and investments. We don’t act alone. We partner with a wide range of stakeholders, including civil society organizations, established companies, startups, traditional local communities, academic and scientific institutions, public bodies, investors, and bilateral and international cooperation organizations.

Through this ecosystem of partnerships, we invest in the bioeconomy in multiple ways, strengthening various value chains in the Amazon, such as pirarucu fish, Brazil nuts, açai berries, oils, babassu palms and timber forest management. All these initiatives are aligned with our climate agenda (link cap. Clima), as they contribute to maintaining carbon stocks and promoting carbon sequestration. For example, the sustainable livestock farming project under way on ranches in São Bento is in the final stages of validation by an international certification body for the sale of carbon credits, based on a highly productive method with significant ecological benefits.

“Cattle farmers in northern Tocantins typically take an average of four years to fatten their cattle. On Zé Neto’s ranch, this time has been reduced to two years, thanks to a production system that includes rotational pasture management, soil fertilization and a change in the animals’ diet, incorporating tree species, legumes and grasses. By shortening the cattle fattening period, we’ve managed to cut the animals’ carbon footprint in half – and this calculation doesn’t even include the recovery of degraded areas through tree planting,” explains Luís Fernando Laranja.



Zé Neto, an 87-year-old farmer known for his wisdom.

¹ Highlights of “Annual Mapping of Land Cover and Land Use in the Amazon Biome between 1985 and 2023,” published in October 2024. Accessible at https://imazon.org.br/wp-content/uploads/2024/10/Factsheet-Amazonia_C9_01.10_v2_compressed.pdf.

Vale protects or helps protect approximately 1 million hectares of its own land and that of third-party partners, either through voluntary actions or in compliance with legislation. Around 800,000 ha of this protected area are located in the Amazon region. Caaporã is one of three businesses with positive social and environmental impacts supported by Fundo Vale in 2024 as part of Vale's 2030 Forest Goal, which aims to voluntarily protect and restore 500,000 hectares of land by 2030. Fundo Vale is a business development and investment fund supported by Vale, which was created to generate positive social and environmental impact. This initiative aims to voluntarily protect 400,000 ha of habitat and restore 100,000 ha through sustainable management systems and social and environmental impact businesses by 2030. To date, we have already achieved 218.5 thousand (or 200.1 thousand protected and 18.4 restored) of this target.

The Forest Goal is part of Vale's commitment to advancing the habitat protection and recovery agenda through partnerships, as well as a key element of the company's climate strategy to reach net-zero emissions by 2050. This voluntary target was established based on a 2019 baseline, which revealed that over 80% of our impacted sites were associated with forested areas in the Atlantic Forest and Amazon Rainforest biomes. It also highlighted our capacity to act in conservation and restoration efforts. The strategy to achieve this target focuses on building partnerships, inspired by the work of Vale Natural Reserve and Fundo Vale. These collaborations aim to strengthen the management and maintenance of protected and conserved areas while developing businesses centered on the recovery agenda. This approach allows us to expand results beyond legal commitments. Vale's Forest Goal is aligned with the objectives of the Kunming-Montreal Global Biodiversity Framework¹, particularly targets 2, 3 and 10.

“ The great challenge of this decade is to merge the knowledge economy with the Amazon's immense biodiversity, aiming to create positive impacts, both locally and globally. The Amazon has the potential to contribute not only to addressing the climate crisis – through its role in carbon and water cycles – but also to tackling local and global economic and social challenges. This includes generating more jobs and improving access to better food, materials and pharmaceuticals. We are working to ensure that the current generation preserves more of the Amazon for the next generation, and that the Amazon delivers greater prosperity to its people and the world.”

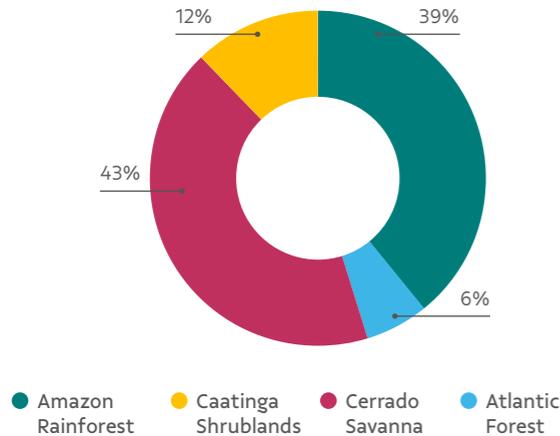
DENIS MINEV,
CEO da Bemol, the largest retail chain in northern Brazil and one of the biggest investors in startups in the state of Amazonas



	2021	2022	2023	2024	Total
Hectares restored across biomes	5,125	1,215	5,221	5,829	17,390
Jobs created	545	383	350	197	1,475

¹ The Kunming-Montreal Global Biodiversity Framework represents a significant step forward in global efforts to reverse biodiversity loss and promote sustainable development. It was adopted at the 15th Conference of the Parties to the UN Convention on Biological Diversity, held in December 2022 in Montreal, Canada. The framework established 22 targets, including restoring 30% of all degraded ecosystems (Target 2), conserving 30% of land, waters and seas (Target 3), and enhancing biodiversity and sustainability in agriculture, aquaculture, fisheries and forestry (Target 10).

Hectares restored in biomes (%)



State	Hectares restored
BA	(17%) 3,060
TO	(18%) 3,241
MS	(27%) 5,000
MG	(8%) 1,540
PA	(15%) 2,803
MT	(6%) 1,114
RR	(4%) 731
SP	(3%) 512
RO	(2%) 443

By accelerating and strengthening the ecosystem of impact businesses focused on habitat restoration, Fundo Vale is aligned with the goals set by the Brazilian government. One such goal is outlined in the National Plan for the Recovery of Native Vegetation (Planaveg), which seeks to restore 12 million hectares of landscapes and forests by 2030. Another is the Low-Carbon Agriculture Plan, which targets 15 million hectares over the same period, including an extra 5 million hectares of integrated crop, livestock and forest systems.

Read an article about our Forest Goal in a special edition of the Stanford Social Innovation Review Brasil, called "Amazon: The Past, Present and Future of the Forest."



As part of the protection component of our Forest Goal, around 200,000 ha of forest have been protected since 2020, by means of partnerships with Conservation Areas (115,000 ha) and through REDD+ projects (85,000 ha).

Strengthening the management and protection of Conservation Areas has been part of the Vale Natural Reserve's ambition for more than 40 years, alongside the conservation of over 23,000 ha of Atlantic Forest on Vale property in the state of Espírito Santo, Brazil, and the pursuit of scientific research. A partner of ICMBio for over 20 years, the Vale Natural Reserve supports

the management and protection of Sooretama Biological Reserve, with which it forms an old-growth forest remnant of around 50,000 ha. The importance of this area for the conservation of the Atlantic Forest is further emphasized by its recognition under multiple designations, including the Advanced Atlantic Forest Biosphere Reserve Area and the Discovery Coast Atlantic Forest Reserves from UNESCO as well as an Important Bird Area and Endemic Bird Area from BirdLife International.

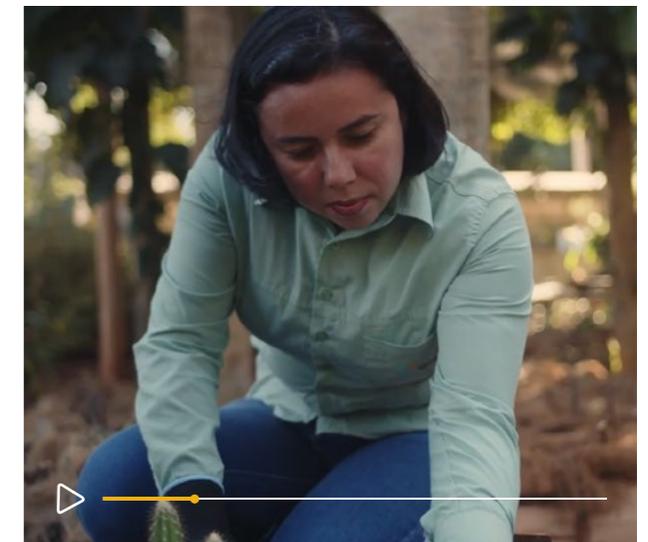
Amazon

The conservation of the Amazon is fundamental to Vale's business strategy, directly connecting our nature, climate and people strategies. This is not only due to its rich biodiversity and its critical role in global climate regulation but also because it is home to our main iron ore and base metals operations. We have been operating for nearly 40 years in the Carajás Mosaic in southeastern Pará, where we have contributed to the protection of around 800,000 ha of forest in partnership with the Chico Mendes Institute for Biodiversity Conservation (ICMBio).

We implement solutions with positive social and environmental impacts that boost the bioeconomy, with the development of scientific research aimed at understanding and conserving local biodiversity. At the same time, we work to promote culture, social development and the fight against extreme poverty. These interlinked actions connect various areas of the company, such as Fundo Vale, the Vale Institute of

Technology, the Vale Natural Reserve, the Vale Cultural Institute and the Vale Foundation.

One example is the partnership between Fundo Vale, Vale and the Sustainable Amazon Foundation to tackle extreme poverty in the Rio Gregório Extractive Reserve in the state of Amazonas, which has benefited around 800 people in 27 communities. Environmental monitoring activities are under way, together with surveys of the local economy, investigations of thermal anomalies and forest fires, and community infrastructure work aimed at improving access to water and healthcare. This initiative is linked to Vale's commitment to help lift 500,000 people out of extreme poverty, which was launched in 2021. [See more in Regions and Communities.](#)



Fundo Vale: Sowing the seeds of the future for 15 years

GRI 203-1

USD 75.1 million
invested

146
initiatives promoted

400
impact enterprises
accelerated

60,000
direct and indirect
beneficiaries (farmers,
extractive producers
and their families)

91
partners

Support for the bioeconomy

Vale’s bioeconomy support activities for the Amazon are implemented through partnerships such as one established with ICMBio. At the end of 2023, Fundo Vale and the environmental agency launched the Sustenta.Bio program, an alliance to boost and support social and biologically diverse economies in protected areas in the Amazon. As of 2024, the program covered 14 Sustainable Use Conservation Areas in the states of Amazonas and Pará, involving an area of almost 10 million hectares of the biome. The four-year initiative involves the participation of six civil society organizations with programmes to strengthen traditional communities in the sustainable use of the forest’s natural resources, such as Brazil nuts, açai berries, pirarucu fish, timber, babassu palm and vegetable oils. More than USD 4.5 million has been invested to support and promote social and biological diversity production chains, which will benefit around 5,000 extractive producers by 2027.

One example involves community-based management of the pirarucu fish production chain and the collection of seeds and forest products in the Médio Juruá and Uacari extractive reserves in Amazonas, led by the Carauari Rural Producers’ Association (Asproc). This project aims to promote the protection and sustainable use of natural resources, through a reduction in deforestation, biodiversity conservation and supporting the well-being of traditional populations with an efficient model of community-based management. The Médio Juruá region is home to around 2,000 people, who make their living from managed pirarucu fishing, family farming and the collection of oilseeds and açai berries, among other extractive activities.

The project seeks to add value to these products by improving hygiene and sanitation, providing training, expanding sales and raising market awareness of the social and environmental value associated with community production. At the same time, the Vale Institute of Technology has contributed to this production chain by carrying out genetic mapping of the pirarucu fish.

Genomics of Brazilian biodiversity

Vale’s partnership with ICMBio encompasses another initiative, the Genomics of Brazilian Biodiversity Project, established by the Vale Institute of Technology, based in Belém. Launched in 2022, this project is conducting molecular studies involving genetic or genomic analysis of fauna and flora species from Conservation Areas across the country. These studies are crucial for generating reference data on species’ genomes and monitoring their genetic health. This data helps track environmental quality, providing insights that can contribute to conserving species and enhancing productivity in bioeconomy initiatives, including those supported by the Sustenta.Bio program, which benefits various production chains.

In two years, the Genomics of Brazilian Biodiversity Project has studied 611 Brazilian fauna and flora species, and 563 of them have had their genomes sequenced. The program involves 99 partners and 267 researchers, as well as 14 ICMBio research centers. It also includes training for ICMBio staff at the Vale Institute of Technology. To date, 135 people have been trained in genetic and genomic mapping tools.

Photo: Mônica Fonseca



Médio Juruá Extractive Reserve in Amazonas, one of the Conservation Areas benefiting from the Sustenta.Bio program. Photo: Mônica Fonseca.

Photo: ITV Archives



White-faced Coati. The white-cheeked spider monkey (*Ateles marginatus*) is a species native to the Amazon Rainforest in the states of Pará and Mato Grosso. It is on the Red List of Threatened Species due to habitat loss. Genomic studies are assessing the genetic diversity of the species and helping generate tools to monitor, conserve and manage it.



CLICK HERE AND LEARN MORE

Founded in 2010, the Vale Institute of Technology is a leader in molecular analysis studies of biodiversity and has already generated 12,000 genetic markers for Amazonian fauna and flora. The institute also offers a Professional Master's Degree in Sustainable Use of Natural Resources in Tropical Regions, which is open to the public. Since 2015, this program has trained 162 professionals working in sustainability, underscoring the institute's commitment to developing skilled professionals for the Amazon region.



Inclusive ecological restoration

The third project developed with ICMBio is called Inclusive Restoration. Launched in 2022 in partnership with Vale Natural Reserve – a protected area maintained by the company in Espírito Santo – the project aims to map opportunities to promote production chains and restoration in Conservation Areas managed by the federal environmental agency. Over the past two years, two demonstration areas have been established in the Amazon Rainforest and Atlantic Forest biomes, in Igarapé Gelado Protection Area in Parauapebas, Pará and in Mata Escura Biological Reserve in Jequitinhonha, Minas Gerais.

“ One of the first expected results is the establishment of this network of researchers. Another is staff training, which goes beyond genomic analysis itself, as it also involves formulating protocols that cover every step of the process, including fieldwork, sample collection and packaging, building technical capacity in methodological design, and devising projects that can effectively utilize these technologies.”

AMELY MARTINS,
technical coordinator of
Genomics of Brazilian
Biodiversity Project at
ICMBio

Photo: Ricardo Telles



Carajás National Forest was created in 1998 and today is part of the Carajás Mosaic of Conservation Areas, which covers 800,000 ha of protected areas in Pará.

Carajás National Forest

Carajás Mine in Parauapebas, southeastern Pará, is the world's largest open-pit iron ore mine. The mineral deposit was discovered in 1967 by geologist Breno Augusto dos Santos, but commercial production only began in 1985, with the opening of the Carajás Railroad, linking the mine to Ponta da Madeira Terminal in São Luís, Maranhão.

To release the funds needed for the project, the World Bank required Vale – then named CVRD and owned by the Brazilian government – to guarantee the creation of indigenous reserves in the region and to present the results of scientific studies and experiments in forest management, as well as inventories of fauna and flora. In 1998, the forest buffer around the iron ore mine became Carajás National Forest, covering 400,000 ha. In 2000, with the establishment of the National System of Nature Conservation Areas, it was reclassified as a Sustainable Use Conservation Area, aiming to balance conservation with the sustainable use of natural resources. Subsequently, five additional Conservation Areas were established in the region: Tapirapé–Aquiri National Forest, Itacaiúnas National Forest, Tapirapé Biological Reserve, Igarapé do Gelado Environmental Protection Area, and Campos Ferruginosos National Park. Together, these areas form the Carajás Mosaic of Conservation Areas, encompassing around 800,000 protected hectares – equivalent to five times the size of the city of São Paulo. Vale's operations currently affect less than 3% of this area. Linked to the Carajás Mosaic is the Xikrin do Cateté Indigenous Territory, home to the Xikrin do Cateté indigenous people. Vale maintains a relationship with this group through initiatives developed as part of the environmental licensing process and on a voluntary basis. These efforts focus on ethno-development, cultural strengthening, memory preservation, institutional capacity-building and territorial protection.

In addition to nature protection actions, the Vale Institute of Technology carries out various research projects in the region in partnership with domestic and international institutions.

COP30: Vale's contribution

COP30 will be a major milestone, as it will be hosted in the Amazon, a region of strategic importance for global discussions on climate, biodiversity and sustainable development models.

In the past, we have actively participated in discussions at UN Climate Conferences (COPs). Leading up to COP30, we aim to reinforce our commitments to global decarbonization and contribute to discussions of sustainable growth models for the region, informed by our more than 40 years of operating in the Amazon, supporting forest conservation and recovery in the region.

With this in mind, and in pursuit of our goal of being increasingly aligned with today's climate challenges, we aim to support dialogues, meetings and immersions in social, environmental and cultural initiatives in the region. For example, we are actively involved in the creation of the Museum of the Amazons, in partnership with the Ministry for Science, Technology and Innovation (MCTI), the Brazilian Development Bank (BNDES), the Development Bank of Latin America (CAF) and the state government of Pará. In partnership with the CEBDS, we are helping organize workshops focused on Brazilian biomes, which will map regional bioeconomy opportunities and challenges. Additionally, we have partnered with the Rock in Rio and The Town music festivals to host an event called "Amazon Forever," a themed event with a global Scope, which will include a USD 371.1 thousand call for proposals for initiatives in defense of the forest. To guarantee a legacy for Belém, which will host

COP30, we have also been working in partnership with the state government on urban improvements. In all, there are 26 major projects that will expand the state's infrastructure and improve the provision of public services in the areas of public security, health, the environment, and culture and tourism, which extend across several municipalities.



Through initiatives such as these, we seek to build a common agenda between governments, civil society and the private sector that will drive the transition to a net-zero economy.

Among the issues that will be discussed are how to finance a just transition to a net-zero economy and, in the case of the Amazon, how to enable access to capital and scale for bioeconomy-based businesses – a critical driver of local development.

“Vale’s largest operation is in the Amazon, a region that accounts for 60% of our production and where we have been operating for nearly 40 years. Over this period, we have come to recognize our responsibility for protecting one of the planet’s most vital ecosystems. COP30 will be an opportunity for Brazil to advance the energy and climate agenda from a natural resources perspective while fostering discussions on economic growth models. Together with our partners, we aim to drive a business agenda that leaves a legacy of resilience, prosperity and hope, not just for the Amazon, but for the world.”

HUGO BARRETO,
climate, nature and cultural investment director, Vale

We intend to advance biofuels as a viable alternative to reducing carbon emissions in the transport and mining sectors. Additionally, we aim to continue developing nature-based solutions that promote

biodiversity and high-integrity carbon credits. We will continue to contribute to discussions on adaptations for extreme climate events.



Ararajuba

Regions and communities

GRI 2-23 GRI 3-3 GRI 413-1 GRI 413-2

Minerals are essential to everyone’s daily lives. However, we recognize that our activities can generate social and environmental impacts over extended periods in the regions where we operate. Our goal is to establish the best possible relationships with the communities surrounding our operations throughout the life cycle of our projects. To achieve this, we manage the risks and impacts of our activities, maintain open and transparent dialogue, and strive to include communities in decision-making processes. This approach is applied in all locations where we operate, in Brazil and globally, with respect for human rights as the foundation of our actions.

In 2024, we implemented 368 community relationship plans, with 351 in Brazil. Additionally, 93.5% of the 169 communities identified as high priority for engagement in Brazil were covered by relationship plans. We strive to have plans for 100% of our high-priority communities by 2026. Find out more about our methodology for **prioritizing communities**.

We strive for an integrated view of our operations across all areas of the Company, encompassing risk and impact management, relationships and dialogue with communities and other stakeholders, and contributions to local development. The goal is to integrate efforts to enhance the Company’s performance in the regions where we operate. In 2023, our pursuit of a systemic approach led to the creation of a regional action model, built on two pillars: regional governance and regional action plans.

This model is based on the principle that the activities of different Company areas have both internal and external repercussions, requiring alignment under a common strategy. Through regional action plans, different areas of the Company collaborate to address mapped risks and impacts, evaluate how we are managing and minimizing them, and implement actions that foster trust, respect and community development. Currently, we have 14 regional action plans in place across Brazil.

We interact with:



1,214
local communities
(89.3% in Brazil)



91 communities
traditional communities in Brazil and Chile, of which 63 within the Scope of exploration operations and projects and 28 communities within the Scope of Brumadinho reparation process



28 Indigenous People
in Brazil, Chile, Peru and Canada, of which 2 are part of the Brumadinho reparations process

Indicator/Country	Brazil			Peru and Chile			Omã			Malaysia			Wales			Indonesia			Canada			Japan			Total		
	2022	2023	2024	2022	2023	2024	2022	2023	2024	2022	2023	2024	2022	2023	2024	2022	2023	2024	2022	2023	2024	2022	2023	2024	2022	2023	2024
Local Communities ¹	1,156	1,106	1,084	52	53	7	28	33	32	6	6	6	2	2	2	206	292	-	82	82	81	-	-	2	1,532	1,574	1,214
Indigenous People	13	13	13	6	7	4	-	-	-	-	-	-	-	-	-	-	-	-	9	10	11	-	-	-	28	30	28
Traditional Communities	47	53	90	47	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	94	53	91
Local Community Engagement Plans	431	385	351	3	5	3	3	3	2	2	12	11	-	-	-	16	46	-	-	1	1	-	-	-	455	452	368

¹The communities involved in the Brumadinho reparations process are not considered

Relationships and dialogue

GRI 2-23 GRI 203-1 GRI 3-3 GRI 413-1 GRI 413-2

Vale operates on the principle of strengthening dialogue with communities, the public authorities, other companies, social institutions and other societal groups, aiming to build and maintain solid, lasting relationships. To achieve this, we implement actions that promote engagement, dialogue and collaboration between the company and these stakeholders, ensuring alignment with local expectations. These efforts focus on creating meaningful connections and fostering effective communication, which are essential for building trust and mutual respect.

Morro do Chapéu

One example of the application of the regional action plan methodology in 2024 was our negotiations with the Morro do Chapéu residential community in Nova Lima, Minas Gerais, where around 1,800 people live. The complex, comprising approximately 600 houses, is located between the Tamanduá and Horizontes mines, which are in the process of expanding their iron ore production.

This project, still in the licensing phase, will use existing structures and is fully integrated into the company's current site. Efforts to engage with residents began in 2023, and all stages of the project have been discussed with the community, taking into account their concerns and the potential impacts of the work, such as increased noise and dust. As part of the negotiations, we agreed to invest in environmental controls and provide funding for infrastructure improvements in the housing complex. We are currently in negotiations with four other residential communities in the region that will also be impacted by the expansion work at the two mines: Vale do Sol, Quintas do Morro, Pasárgada and Miguelão.



Vale's Community Relations analyst, Joanildes Ferreira, during a support visit to Mr. Getulio Balbino Neves in Palmares II, Parauapebas, Pará, Brazil.

Photo: Alexandre Rezende

Support for regional development

GRI 203-1

"Transforming tomorrow today. It's all about Vale." The tagline of our 2024 media advertising campaign reflects what we believe is most important when it comes to contributing to the development of the regions where we operate: people. This means improving healthcare and basic education, promoting culture and sports, enhancing quality of life through income generation, and expanding our network of volunteers. These efforts are central to our integrated strategy for working in each region.

Various areas of the company collaborate on both voluntary and mandatory initiatives. With approximately 100 community relations analysts, the Regional Management Department works to align local projects and programs with Vale's global social action strategy. Community relations agents are supported by employees and partners from the Vale Foundation, the Vale Volunteers Network, the Vale Cultural Institute, the Indigenous People and Traditional Communities area and all teams dedicated to the goal of lifting 500,000 people out of extreme poverty in Brazil.

In addition, we collaborate with Fundo Vale and the Vale Institute of Technology to promote bioeconomy projects and advance scientific knowledge of commercial crops, such as cocoa, thereby connecting social development with forest protection. Learn more in [Positive Results for Nature](#).

Taxes

We recognize the profound social and economic impact of our operations in the regions and communities where we operate. For us, paying taxes is not only a legal obligation but also a vital socioeconomic contribution.

The taxes we pay support the growth of local, national and global economies. As a global company, we are subject to numerous tax obligations.

In 2024, Vale paid USD 5.4 billion in taxes across the jurisdictions where it operates. For more details, please refer to our [Tax Transparency Report](#).

Social and environmental spending

GRI 203-1

In 2024, Vale incurred USD 2.1 billion of social, environmental and institutional spending, including items related to Brumadinho. Of the total, spending on environmental initiatives amounted to USD 1.2 billion, especially environmental liabilities, atmospheric emissions and water resources. Spending on social and institutional initiatives amounted to USD 0.9 billion, especially infrastructure and mobility, social assistance and protection, Traditional Communities and Indigenous People and culture. In terms of our social initiatives, 42% of spending related to voluntary investment, institutional relations and operational impact management (USD 381 million), 25% (USD 228 million) was to meet obligations and 32% (USD 292 million) was tax deductible spending¹.

¹ This amount includes spending under tax incentive laws and the Pará State Public Infrastructure Program for Mining Companies.



Value Generated and Distributed (USD millions)

GRI 201-1

	North America, except Canada	Canada	South America, except Brazil	Brazil	Europe	Africa	Middle East	Asia	Oceania	Total
Revenues	-	1,583.7	-	3,716.5	29,269.9	-	-	3,485.8	-	38,055.9
Direct Economic Value Generated	-	1,583.7	-	3,716.5	29,269.9	-	-	3,485.8	-	38,055.9
Operational costs	-	3,075.2	0.2	12,934.4	5,300.7	-	276.3	761.8	-	22,348.6
Employee salaries and benefits	-	584.6	-	1,636.1	34.9	-	37.6	78.0	-	2,371.2
Research and Development	-	163.1	16.8	510.1	17.9	-	2.4	78.8	1.0	790.1
Payments to capital providers	475.9	32.9	-	4,169.3	123.9	-	-	-	-	4,802.0
Payments to government	1.55	(276)	2.43	5,518	14	-	17.23	137.0	0.07	5,413.8
Environmental Expenditures	-	152.60	0.31	1,065.5	0.01	-	1.30	6.3	-	1,226.0
Social Expenditures	0.45	6.77	0.26	882.9	-	-	-	10.1	-	900.4
Distributed Economic Value	477.9	3,739.2	20.0	26,716.2	5,491.0	-	334.8	1,072.0	1.1	37,573.4
Accumulated Economic Value	(477.90)	(2,155.46)	(20.00)	(22,999.7)	23,778.9	-	(334.83)	2,413.8	(1.07)	482.5

Tax-deductible spending

GRI 203-1

In 2024, Vale allocated BRL 456.2 million (USD 84.6 million) of tax-deductible spending to social rights funds and projects run by civil society organizations. In all, 450 initiatives and funds received resources under tax incentive laws, such as the Federal Sports Tax Incentive Law and Federal Culture Tax Incentive Law. Beneficiaries included the Children and Adolescents' Fund, Elderly Peoples' Fund, National Cancer Care Support Fund (Pronon) and National Program to Support Healthcare for People with Disabilities (Pronas/PCD). The contributions made in 2024 will help fund initiatives and projects as of 2025.

The resources assigned to funds are managed by rights councils, with the goal of strengthening municipal public policies aimed at children, adolescents and the elderly. Transfers made to municipal funds have so far supported more than 978 initiatives and campaigns, which benefited around 313,000 people in 2024 alone, according to information from municipal councils.

FIND OUT MORE ABOUT OUR SPONSORSHIP AND TAX-DEDUCTIBLE SPENDING

Culture

GRI 203-1

In 2024, for the fourth consecutive year, the Vale Cultural Institute was recognized as the largest investor in culture in Brazil. Since the institute was founded in 2020, it has supported more than 830 projects and spent USD 205.4 million, including from its own resources and through tax-deductible spending.

As well as sponsoring cultural initiatives in the areas of dance, music, theater, and both tangible and intangible heritage, the institute serves as a key organizer of major programs in the regions where Vale operates, as well as across Brazil. Its efforts are focused on promoting Brazilian culture, strengthening the creative economy and boosting local production. To achieve these goals, the institute carries out public calls for proposals, offers educational and cultural training courses, and facilitates the regional exchange of cultural events, from northern and northeastern Brazil to the south and southeast, and vice versa.

In 2024, for example, the institute brought the exhibitions "Fruturos – Amazon Times" (organized by Rio de Janeiro's Museum of Tomorrow) and "Nhe he Porã – Memory and Transformation" (organized by the Portuguese Language Museum in São Paulo) to audiences in Pará and Maranhão. Similarly, the Vale Maranhão Cultural Center's exhibition "Zimar" was presented at the National Museum of Brasília and the Rio Art Museum.

The Vale Cultural Institute manages and develops the activities of four cultural spaces: Canaã dos Carajás Cultural Center in Pará, the Vale Maranhão Cultural Center in Maranhão, the Vale Museum in Espírito Santo, and the Vale Minas Gerais Cultural Museum in Minas Gerais. The latter two recently did outreach work during renovations

of their main buildings. In 2024, the centers welcomed over 412,000 visitors, including 44,600 students and teachers. They organized 384 cultural events, conducted 259 training sessions and workshops, and created 5,202 income-generating opportunities. Additionally, the institute's Vale Music Program provided music training to 1,321 students across four states in 2024, offering scholarships, learning opportunities and exchange programs with renowned Brazilian orchestras, such as the Brazilian Symphony Orchestra, the Ouro Preto Orchestra and the New Orchestra.

Last year, Vale and the Vale Cultural Institute announced the expansion of their involvement in the Rouanet Law in the Shanty Towns Program, an initiative led by the Brazilian Culture Ministry in partnership with the Association of Shanty Towns. The program aims to support cultural projects involving historically marginalized groups in Brazil that are often underserved by the country's cultural support tax incentive laws. Through a public contest, USD 927.6 thousand was invested in 26 cultural initiatives in low-income neighborhoods on the outskirts of Belém, Fortaleza, Salvador, São Luís and Goiânia. In 2025, this work will take place in Belo Horizonte, Brasília, Recife, Vitória and Belém. In addition to this government initiative, the Vale Cultural Institute has

launched 12 additional calls for proposals, including one nationwide, to disburse USD 5.6 million in funding.

Promoting Amazonian culture

Culture has been a strategic ally in preserving memories and celebrating culture in the Amazon, through initiatives that create opportunities for artists and culture producers.

Vale, through investments and strategic partnerships, has played a crucial role in this process. Across the region, we supported 130 cultural initiatives in 2024, including support for the launch and touring of the Bial das Amazônia Cultural Center.

Other highlights of Vale's support for Amazonian cultural production in 2024 included a project documenting the festive traditions of the Kayapó people; an exhibition at the Belém Urban Art Museum, showcasing works by 21 visual artists; the Cultural Movement Program, which trained 926 cultural agents; and the Pan-Amazonian Film Festival, featuring six competitive exhibitions and 820 registered films.

"We are building a country in which culture is a right, a tool for emancipation and a source of income, belonging and transformation. The Rouanet Law in the Shanty Towns is more than just a program – it's an invitation for the culture makers of the shanty towns to become the protagonists of their own stories and of our shared culture. Together, we will empower cultural activity in the shanty towns and create a more creative, fairer and more inclusive Brazil."

MARGARETH MENEZES,
Brazil's culture minister

Literary festivals strengthen local development

With the goal of celebrating the intangible heritage of the Portuguese language and stimulating the creative economy in the regions where Vale operates, the Vale Cultural Institute sponsors and organizes literary events. In 2024, the third edition of the Itabira International Literary Festival (Flitabira) attracted over 25,000 attendees and engaged more than 19,000 students from state schools. In the Green Coast region of Rio de Janeiro State, the Paraty International Literary Festival (Flip) welcomed over 27,000 participants. Meanwhile, in the city of Rio de Janeiro, the Literary Festival for Peripheral Communities (Flup) – a celebration of black and peripheral culture – was held, and mobilised 35,000 people.



Cultural initiatives

In alignment with Vale's values, the celebration of diverse culture agenda is integrated into the Vale Cultural Institute's activities. In 2024, the institute carried out more than 40 initiatives specifically focused on this theme, through its own spaces and sponsored projects. The latter included the University of the Quebradas, a social technology laboratory at Rio de Janeiro Federal University. ("Quebradas" is a synonym for shanty towns used in some parts of São Paulo.) During the year, the University of the Quebradas held the Machado Quebradeiro Writers' Training Course, aimed at peripheral artists in Rio de Janeiro, which was later replicated in Pará and Maranhão. Other highlights included the exhibition "African Languages That Make Brazil" at the Portuguese Language Museum in São Paulo and showcases of black artists' work at the Inhotim outdoor art center in Minas Gerais.



LEARN MORE ABOUT OUR INVESTMENT IN CULTURE

“By involving local artists, activists and leaders, the Biennial of the Amazons encourages critical reflection on the region and its environmental and social problems, enabling the Amazonian people themselves to be agents of transformation. In this context, art is a powerful tool for empowering people and educating them about the importance of environmental preservation and social justice.”

LIVIA CONDURU,
cultural producer

Sport

For the past three years, Vale has been recognized for its leadership in allocating funds through Brazil's Federal Sports Tax Incentive Law. In July, Vale and Salobo Metais received the House of Representatives' Sports Promoters Commendation, an honor awarded to companies that invest the most in Brazilian sports via the Sports Tax Incentive Law.

This recognition reflects the company's goal to promote social development in the regions where it operates. This includes supporting social organizations to develop sports projects in communities, especially outside Brazil's major urban centers, benefiting traditional communities, municipalities in northern Brazil and communities close to its operations.

In 2024, more than 450 sports initiatives in 107 municipalities were sponsored by Vale. These initiatives generated nearly 1,200 jobs and benefited around 115,000 people, mainly children and young people who received free soccer, tennis, athletics and gymnastics lessons.

The sponsored initiatives also included judo and meditation classes at the Reaction Institute (the same organization where Olympic medalist Rafaela Silva first stepped onto the mat) for over 300 children in Belo Horizonte; an athletics project for 12 quilombos (settlements of descendants of runaway slaves) in Maranhão; and Paralympic boccia and sitting volleyball workshops in Itaguaí, Rio de Janeiro.

2024 also marked the arrival of the Zico 10 project in the community of Vila Bom Jesus in Canaã dos Carajás, benefiting 200 children. In September, we

announced the expansion of our support for the Brazilian Gymnastics Confederation, increasing the number of supported training centers from 26 to 29 across Brazil.

The formation of athletes is just one outcome of these projects. In fact, their main objectives are to contribute to social inclusion, educational development and the exercise of skills such as teamwork, discipline and self-esteem among children and young people through sport. "With Vale's support, we will carry out a well-structured project to democratize the practice of gymnastics and train new generations of athletes." Ricardo Resende, general director, Brazilian Gymnastics Confederation

“Vale continues to be the country's champion in promoting sports, leading the ranking of our sponsors, based on an extraordinary commitment that goes beyond providing resources. Vale actively selects regions and audiences, monitors projects and beneficiaries, and strives to be a true advocate for sports as a tool for social inclusion, helping to develop well-rounded citizens.”

ISANIA CRUVINEL
SANCHEZ,
the Brazilian government's
director of programs and policies
to encourage sport.

Health, education and income generation

Working in partnership with public authorities is essential to contributing to regional development, and collaboration is central to Vale’s role as an ally in guaranteeing fundamental rights. Through the Vale Foundation, we work to strengthen public policies aimed at improving quality of life and upholding rights such as access to high-quality education and health. The Vale Foundation also focuses on improving extreme poverty indicators, starting from the premise that empowering autonomous communities not only aligns with ethical principles but also benefits Vale’s production chain.

Looking at each region and the public policies that reach communities, the Vale Foundation establishes partnerships with municipal governments and secretariats, prioritizing grassroots actions in health, education and income generation. These local initiatives often create beneficial ripple effects in other areas of government. For example, they can reduce the demand for complex health services through

simpler measures, such as preventive actions carried out by primary healthcare teams, which fall under the responsibility of municipal governments.

In 2024, the Vale Foundation carried out projects in 48 municipalities in five states where Vale operates in Brazil, reaching 2.9 million people.

In the area of health, the Health and Social Protection Cycle Program, implemented in partnership with the NGO Health Promotion Center, the Brazilian Development Bank (BNDES), Wheaton Precious Metals and municipal health secretariats, supported 700 primary healthcare centers and 119 social welfare centers in 2024, through donations and professional training. The program covered 100% of the public health network in the participating municipalities, training around 12,500 professionals. Between 2022 and 2024, 82% of the 40 municipalities benefiting from the program improved their overall score in Prevent Brazil, the Health Ministry’s former primary care funding program, which is currently being reformulated¹. Project data shows that 111,779 individuals in vulnerable groups gained access to primary care in these municipalities in 2024.

In education, initiatives focused on comprehensive literacy and reducing school dropout were developed in 43 Brazilian municipalities. These projects included training educators and technicians, producing and distributing complementary teaching materials, providing technical support for public administrators and mobilizing school communities. In 2024, booklets were launched in Pará and Maranhão to support the creation of a more representative education system that promotes historical justice, equipping teachers to show students how traditional and African cultures are present in various aspects of Brazilian culture and identity. Developed in partnership with educational institutions Fundação Getulio Vargas and Educational Wheel, the projects reached more than 1,600 schools and involved over 124,000 students, covering 100% of the municipal elementary education networks in the targeted municipalities.

In 2024, 18 of the 23 municipalities in Maranhão where the Vale Foundation runs literacy projects saw an increase in their Basic Education Development Index (IDEB) scores. In Pará, six

of the eight municipalities where we operate also recorded improvements in this indicator. Additionally, the 23 municipalities in Maranhão where this work is under way demonstrated greater equality in results in the state’s Reading Fluency Assessment compared to the state average. In SEAMA, another state assessment in Maranhão, none of the 23 municipalities scored “below basic” in average proficiency in mathematics or Portuguese language, and 21 municipalities received a “Gold Seal” in the Digna School Awards.

Finally, in terms of income generation, 21 social businesses were supported in 2024 through five initiatives, including some linked to strengthening production chains and food security. In total, approximately 1,000 people from 14 municipalities in Maranhão and Minas Gerais benefited.

¹Ministry of Health. Health Care Secretariat, Primary Care Department. Primary Care Information System – SIAB (comparative 2Q 2022/ 2Q 2024)

Municipal Level — Focus of Action



Primary healthcare, social protection, and public administration



Basic education, with a focus on literacy and tackling school exclusion



Economic growth and autonomy



Exit from extreme poverty and social vulnerabilities

State and federal levels — Indirect effects

Effectiveness of primary care reduces demand for high-complexity services

Boosts educational progress, benefiting secondary, technical, and higher education

Leave no one behind – a national development project

Knowledge Centers

Located in Arari (Maranhão), Marabá and Tucumã (Pará), Brumadinho (Minas Gerais) and Serra (Espírito Santo), Knowledge Centers focus on activities aimed at the all-round development of individuals. Their goals include fostering creativity and innovation, promoting the unique characteristics of each region and building partnerships between public bodies and civil society. These independent institutions are primarily funded by direct resources from the Vale Foundation, with additional support from tax-deductible contributions from Vale and investments from partner institutions and companies, such as Wheaton Precious Metals, Posco and CXHI.

One of the initiatives hosted by the Knowledge Centers is the Knowledge Center Education Course, designed to help students from state schools, prepare for and pass university entrance exams. In its three years of operation, the course has helped 140 students in Marabá alone gain admission to public and private sector universities.

Extracurricular activities include sports, cultural events, digital inclusion programs and courses aimed at preparing students for the world of work. Knowledge Centers also complement the municipal social care network by offering specialized activities for people with disabilities, as well as psychosocial and health services. These services are provided in dedicated facilities, which have delivered over 4,800 medical and dental services to community members to date. In total, the five Knowledge Centers serve approximately 7,250 people, 70% of whom are children and teenagers.



“Our work aims to create real development opportunities for families, offering tools to help them overcome their vulnerabilities and fully exercise their citizenship.”

AUDILEIDE OLIVEIRA,
director, Marabá
Knowledge Center



LEARN MORE ABOUT THE
VALE FOUNDATION'S WORK

Vale Malaysia's Community Development Plan

Vale Malaysia Minerals Community Development Plan (CDP) 2.0 (2023–2025) aims to drive sustainable development in Manjung through various initiatives focused on poverty alleviation, infrastructure improvements, and education, among others. CDP 2.0 aligns with Vale's global ambitions and the UN Sustainable Development Goals (SDGs), and aims to build strong community relationships, and enhance engagement with the government.

To date, USD 549 thousand has been spent on initiatives such as infrastructure improvements and urban revitalization projects, including the inaugural Manjung Run held in Beruas attracting more than 3,000 participants, as well as urban farming for five communities. Upskilling efforts were focused on the Digital Economy training. Education initiatives include the Teluk Rubiah Scholarship Programme, Tunas Seni art classes, and Minecraft programming.

Volunteering

GRI 203-1

In 2024, we celebrated the 20th anniversary of the Vale Volunteers Network, a community of individuals driven by solidarity. Over the past two decades, the network has carried out 2,755 initiatives, benefiting 1.5 million people. Today, around 8,000 volunteers participate in Vale’s corporate volunteering program, organized into 29 regional committees across six Brazilian states: Pará, Maranhão, Bahia, Espírito Santo, Minas Gerais and Rio de Janeiro. Their activities are diverse, ranging from blood and food drives to school supply donations, visits to rest homes and shelters, and free courses. In 2024, the Vale Volunteers Network conducted more than 280 initiatives, engaging around 5,000 volunteers and benefiting over 220,000 people.



Humanitarian Aid

One notable initiative in 2024 was the emergency campaign led by the Vale Volunteers Network in partnership with the NGO Citizenship Action to support families affected by heavy flooding in Rio Grande do Sul (RS), southern Brazil, in May 2024, considered the worst climate tragedy in the state's history, affecting

471 municipalities and causing the death of 183 people. For every BRL 1 (USD 0.19) donated through the Vale Volunteers Network platform, Vale contributed an additional BRL 10 (USD 1.86). The initial target of BRL 100,000 (USD 18,600) in donations was reached in just four hours, resulting in a total donation of BRL 1.1 million (USD 204,100). Vale then doubled the target to BRL 200,000 (USD 37,100), and within 24 hours, BRL 2.2 million (USD 408,200) in financial aid was raised. These funds were used to purchase 26,000 food packages, 315 washing machines, 265 stoves, 19 microwaves and five fridges, benefiting 105,260 people.

Vale loaned aircraft and supplied basic medicines, medical supplies and equipment to the State Civil Defense Organization. The Company also offered geotechnical and emergency management support, leveraging lessons learned from Brumadinho. Vale loaned rescue equipment to the State Fire Department to assist in the search for victims. In addition to the action carried out in partnership with Ação da Cidadania, Vale also made a donation of BRL 8 million (USD 1.5 million) to the Gerdau Fund, to support humanitarian aid actions.

Commitment to tackling poverty

GRI 203-1

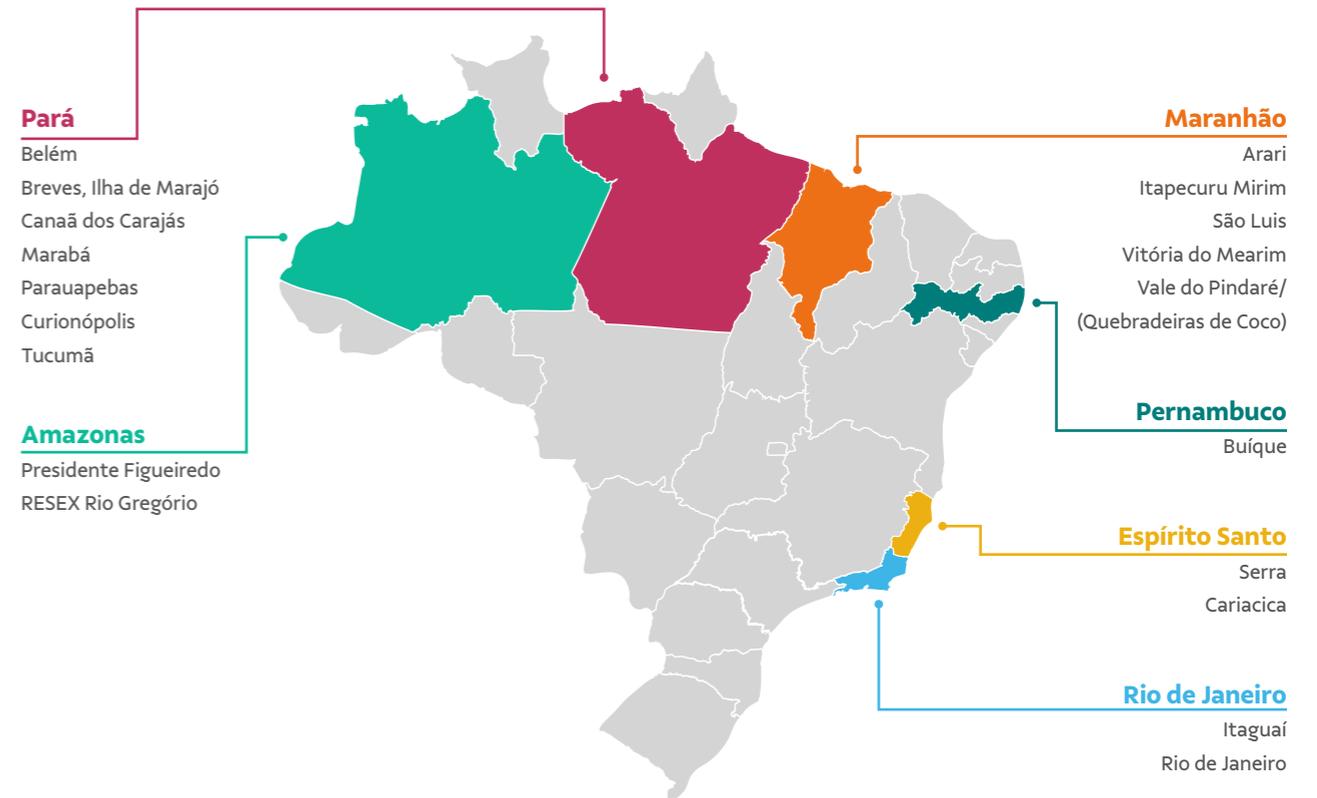
One of the goals of our Social Ambition is to help lift 500,000 people out of extreme poverty by 2030. In 2024, we made progress in the areas of engagement, partnerships and social mobilization. Currently, 20 pilot projects are under way in municipalities in the states of Pará, Amazonas, Maranhão, Espírito Santo, Rio de Janeiro and Pernambuco, involving approximately 51,000 people and partners such as UNICEF, the Sustainable Amazon Foundation, the City Apprentice School and the Health Promotion Center.

This initiative aligns with UN Sustainable Development Goal 1 – No Poverty – and employs the Multidimensional Poverty Index methodology, developed by the University of Oxford, to measure and monitor results. Methodologically, Vale views poverty as a multidimensional phenomenon and thus uses a multidimensional family monitoring approach, encompassing five dimensions: education, income, health, nutrition and infrastructure. The focus is on regional collaboration, particularly with public authorities, to monitor families and connect them with local public policies and social programs, assessing

the impacts on their daily lives and addressing vulnerabilities.

The use of the Multidimensional Poverty Index ensures alignment with globally recognized institutions. The methodology also emphasizes valuing local solutions, considering different contexts such as urban, rural and forest-dwelling populations. Concept testing has demonstrated that family support is proving to be highly effective. The program’s next challenge is to scale up its impact, which will involve targeted actions (such as close family support) and strengthening social welfare centers and Brazil’s National Social Welfare System.

Design testing



“Brazil’s social protection system is widely recognized, both nationally and internationally, for its significant contribution to poverty reduction. In particular, comprehensive family protection and assistance services play a fundamental role in addressing multidimensional child poverty, which extends beyond financial shortages and includes lack of access to essential services such as education, health, water, sanitation and housing. In this context, private social investment plays a crucial role. The United Nations International Children’s Emergency Fund (UNICEF) in Brazil, through partnerships with civil society, companies, foundations and philanthropists, works to combat the multidimensional poverty of children and their families, while helping improve public policies and investments.”

LILIANA CHOPITEA,
head of social policy at UNICEF in Brazil, which has strategic partnerships with the Vale Foundation and Vale focused on tackling poverty

Partnerships for regional development

To implement projects on a large scale while maintaining sensitivity and connection to the needs of each region, Vale has built a network of partnerships with public authorities, civil society organizations, and other companies and institutions. These collaborations help broaden engagement and improve response capacity. The Vale Foundation works with government bodies at different levels and executing partners, such as the City Apprentice School Association, Educational Wheel, the Health Promotion Center, Fundação Getulio Vargas and Mandu Social.

Companies that share Vale’s objectives enable the expansion of social investment and the sharing of technical knowledge, fostering a collaborative environment and enriching the chain of positive impact. In 2024, Vale Foundation programs scaled up through partnerships with the Brazilian Development Bank (BNDES) and other companies in the mining sector, including Wheaton Precious Metals, CXHI, DHHI, GHT, Komatsu, Keda, Posco, Sotreq and U&M.

In the area of tackling extreme poverty, given the significant incidence of food insecurity (affecting more than 50% of families joining the program), Vale has established technical partnerships with the Brazilian government’s agricultural research agency, Embrapa, the NGO Pact Against Hunger. With Embrapa, we signed a technical cooperation agreement to transfer rural technologies for family farming to 1,000 families in the Maracanã district of São Luís and four quilombos (settlements of descendants of runaway slaves) – Jaibara dos Nogueiras, Outeiro dos Nogueiras, Pedrinhas Clube de Mães and Cantagalo – in Maranhão. Through a partnership with the Pact Against Hunger, we formalized technical cooperation with the state governments of Pará and Maranhão to promote the implementation of the National Food Security System in municipalities across both states.

We have also entered into a technical cooperation agreement with the Roberto Marinho Foundation and educational TV channel Canal Futura to expand the reach of information and content on tackling poverty nationwide. This project aims to train and mobilize young people,

document and disseminate content related to poverty reduction, and encourage national debate on the issue by improving the quality of information shared by the media.

[CLICK HERE TO WATCH SOME VIDEOS ON THIS TOPIC.](#)

Our partnerships with BNDES (Brazil’s National Bank for Economic and Social Development), the Banco do Brasil Foundation, Hatch, Sotreq Social Institute, U&M Mineração e Construção and Wheaton Precious Metals and also focus on tackling poverty.

Philanthropic Fund

In 2024, Vale established the Philanthropic Fund to Combat Extreme Poverty, which operates with professional, independent management and adheres to governance best practices. The fund was created to receive resources from other investor partners supporting our program to fight extreme poverty.



In 2024, in Maranhão, 22,500 people were engaged in the pilot tests of the extreme poverty reduction program.

Risk and impact management

Vale’s risk and impact management focuses on implementing control and prevention measures across its operations to minimise the impacts of our operations on communities. This includes initiatives to address complaints received through listening channels, minimize social and environmental impacts, and correct operational deviations that could negatively affect neighboring communities and regions. Our goal is to ensure that Vale’s activities are conducted in a responsible manner.

In 2024, in partnership with the Brazilian government, we constructed 312 houses in the new Pequiá da Conquista neighborhood, Açailândia, meeting a long-standing demand of the local community. The project received USD 8.3 million in investment from Vale, along with institutional support from public bodies at the municipal, state and federal levels.

Vale’s social initiatives in the Pequiá region also include investments in health, education, the environment, employment and income generation. Through the Vale Foundation and other partnerships, we have strengthened public health by donating supplies and equipment to the region’s three primary healthcare centers and its social welfare center, as well as providing training for their professionals. We supported literacy programs for 317 children in the first five years of elementary education at two schools and renovated a third school, benefiting 136 students. Additionally, we have provided support to 35 entrepreneurs who sell their products at the Pequiá street fair and to beekeepers affiliated with the Açailândia Valley Agricultural and Industrial Association.

 FIND OUT MORE ABOUT COMMUNITY SAFETY HERE.

Photo: 9D Studio



“ Today, at this moment, there is only joy, peace and gratitude for the families of Pequiá de Baixo. We had many partners who helped us build the new neighborhood of Pequiá da Conquista, and everyone feels victorious as they receive the keys and move into the homes we have long fought for.”

FRANCISCA SOUSA DA SILVA,
known as Tida, president of the Pequiá Residents' Community Association

Pequiá

Vale supplies iron ore to pig iron producers. While we aim comply with environmental regulations and have consistently addressed the social demands of communities, this has been a contentious subject for the company.

 Find out more about controversial issues involving Vale



Indigenous People and Traditional Communities

GRI G4 MM5

In our work with traditional communities, including Indigenous People and quilombos (settlements of descendants of runaway slaves), we strive to follow the principles of free, prior and informed consultation and consent. We follow internal normative guidelines, such as the Global Human Rights Policy, as well as local legislation and international references, such as ILO Convention 169, which advocates the process of Free, Prior and Informed Consultation.

Currently, we maintain relationships with 28 Indigenous People and 91 traditional communities around the world. Of this total, in Brazil, we engage with 13 Indigenous People – two of whom are part of the Brumadinho reparation process, and 90 traditional communities, 28 of whom are part of the reparation process. These relationships focus on managing the risks and impacts of our activities and fostering positive neighborly relations between our operations and these communities, while respecting their unique cultural characteristics.

We have made significant progress toward our goal of collaborating with Indigenous communities near all of Vale’s operations to develop and implement plans aligned with the rights outlined in the United Nations Declaration on the Rights of Indigenous People (UNDRIP). This commitment is part of our Social Ambition, launched in 2021. In 2024, our key actions in this area in Brazil included the following:

Kayapó People (Kayapó Indigenous Territory, Pará)

A consultation protocol was completed, approved by the community and launched in December 2024. The document was developed in partnership with the Protected Forest Association.

Ka’apor People (Alto Turiaçu Indigenous Territory, Maranhão)

A Life Plan is currently under development. The Ka’apor people expressed interest in Vale’s support to make this instrument for accessing rights a reality during the Course on Indigenous Rights in Brazil, held in the community in 2023. This course was taught by Gersem Baniwa, one of the first indigenous professors at the University of Brasília; Paulo Pankararu, the first indigenous lawyer in Brazil; and indigenous culture specialist Cássio Ingles.

Guajajara People (Rio Pindaré Indigenous Territory, Maranhão)

In August 2024, we facilitated an Extension Course in Indigenous Rights for 55 indigenous participants, who received certification from the Latin American Faculty of Social Sciences.

Tupiniquim People (Comboios Indigenous Territory, Espírito Santo)

In October 2024, we organized an Extension Course in Indigenous Rights for 44 indigenous participants, who were also certified by the Latin American Faculty of Social Sciences. Additionally, workshops on developing a consultation protocol began in the second half of the year.



Indigenous rights course for the Guajajara people (Rio Pindaré Indigenous Territory)

Photo: Genilson Guajajara / Flacso Brasil

Empowering Indigenous students to stay at university

The Indigenous People’s University Retention and Opportunities Program (PIPOU) is a scholarship initiative that we are conducting in partnership with the Institute for Society, Population and Nature – specialists in indigenous higher education and representatives of the indigenous social movement.

In July 2024, we launched a new program, offering 56 scholarships. This was made possible by a contribution of around USD 75,000 through

Vale’s Sharing Program, funded by Double Arrow and CMH. PIPOU1 is now in its third year and 11 indigenous students have graduated with its support. The program currently has 140 students from 47 Indigenous People. Of these scholarship holders, 58 belong to indigenous communities that have a relationship with Vale.

Most of the students are women (65.7%) and approximately 80% of them attend public sector educational institutions. The students are primarily studying course in health and education, with medicine, nursing, social sciences and intercultural studies being the most popular courses.

Agroflorestas

In 2024, in partnership with the Federal Institute of Education, Science and Technology of Pará (IFPA), the National Indigenous People’s Foundation (FUNAI) and environmental consulting firm SETE, we organized a vocational training course for indigenous cocoa farmers about agroforestry systems. The course was developed in response to a request from the leaders of 40 Kayapó villages in the Kayapó Indigenous Territory in Pará. It was part of a series of ethno-development initiatives carried out by Vale under the Indigenous People’s Component of a Basic Environmental Plan.

The course began in October and 40 students took part, including eight women. There were 160 hours of classes (80 theoretical and 80 practical), spread over four modules. To be eligible, the students had to live in an indigenous community, be involved in agricultural production within their community, possess basic literacy skills and be willing to travel. The theoretical sessions were held at the IFPA campus in Conceição do Araguaia, Pará. Travel expenses and all teaching materials were provided by VBM. The final module took place in January 2025.

Hand in hand

In Canada, in 2024, we signed two important agreements with First Nations in the provinces of Ontario and Manitoba, where VBM operates. Both partnerships reflect our goal of aligning with the UN Guiding Principles on Business and Human Rights and the principles of free, prior and informed consultation and consent.

In April, VBM and the Nisichawayasihk Cree Nation (NCN) signed an exploration agreement aimed at creating new opportunities for the NCN to participate in mineral exploration activities conducted by our company in their traditional territory in Manitoba. The partnership includes an intent of have regular meetings, preferential consideration for qualified NCN companies and jobs through the exploration program, an Indigenous-led environmental monitoring program, and a financial commitment. It also paves the way for VBM and NCN to negotiate a comprehensive relationship agreement for the company’s operations in the Indigenous Nation’s territory, including mining, processing and other current and future activities. Chief Angela Levasseur of the Nisichawayasihk Cree Nation said, “The agreement marks a significant step in solidifying our bond with VBM for the well-being of our community and its members. It lays the foundation for broader and more enriching collaboration in the future.”

 Find out more about the agreement between VBM and the Nisichawayasihk Cree Nation

In July, we also celebrated an important partnership with the Atikameksheng Anishnawbek, Wahnapiatae and Sagamok Anishnawbek First Nations to start the Stobie open-pit mining project in Sudbury. VBM included Indigenous People in the evaluation of contractors for project development. The three First Nations selected Thiess, which will invest approximately USD 205 million in the project.

The contractor will work closely with local unions L6500 and L2020, as well as two Indigenous-owned companies, Aki-eh Dibinwewziwin Limited Partnership (ADLP) and Z’Gamok Construction LP (ZCLP), to extract critical minerals from the site. Stobie started up in late 2024 and will have the capacity to produce 300,000 tonnes of nickel and copper annually and employ around 150 people.

 FIND OUT MORE ABOUT VALE’S ACTIVITIES WITH INDIGENOUS PEOPLE AND TRADITIONAL COMMUNITIES

“ Stobie is a great example of acting in line with free, prior and informed consent. For a long time, when talking about indigenous participation here in Canada, people immediately thought of selling a percentage of the business to them, but that’s not what we’re talking about. We’re talking about creating opportunities, jobs and business development in Sudbury Bay in partnership with indigenous people, which will last beyond the lifetime of the mines we operate.”

EMILY OLSON,
sustainability and corporate affairs director, VBM

“ This project represents a great opportunity for our communities to participate in a meaningful way and work as true partners in generating the wealth extracted from our lands. We look forward to working with Vale, Thiess and USW Local 6500 to generate value and jobs for our communities and the Greater Sudbury community.”

**CRAIG NOOTCHTAI, LARRY ROQUE
EANGUS TOULOUSE,**
Gimaas (Chiefs) of the three First Nations in question

Land use conflicts

GRI 203-1 GRI G4 MM6 GRI G4 MM7

Land use conflicts typically stem from the reliance of third parties, Indigenous People and local communities on areas within Vale’s projects and operations for access to natural resources, housing and/or income generation. Vale prioritizes the amicable resolution of conflicts, with dialogue as a guiding principle.

In Brazil, in the state of Pará, we are continuing to negotiate with 569 families occupying a company site designated for the Cristalino Project in Canaã dos Carajás, in accordance with agreements approved by the courts and the State Public Prosecutors’ Office. In 2024, the deadline for families to accept the amicable agreement expired. Approximately 62% of the eligible families accepted the agreement, received payment and vacated the area. For the remaining families, Vale is working with the Land Solutions Commission of the Pará State Court of Appeals to mediate a solution.

At the end of 2024, groups of families from the Landless Workers Movement (Movimento de Trabalhadores Rurais sem Terra – MST) occupied an area owned by Vale in Canaã dos Carajás, Pará, to demand progress in negotiations with the federal government to create new land reform settlements.

In the municipality of Mariana, Minas Gerais, Vale is implementing measures to prevent invasions and unauthorized construction on a company-owned site known as Vale dos Cristais, which has been illegally occupied. These measures include the installation of fencing and signage,

as well as enhanced surveillance. In cases of new invasions, the responsible individuals are notified to vacate the premises. If they refuse, legal action is taken to reclaim the property and enforce court decisions. Vale is taking these steps to avoid an increase in the number of families exposed to risks and social vulnerability, while it evaluates a long-term solution for the area.

Vargem da Lua

In 2024, Vale strengthened its relationship with the community of Vargem da Lua, with which it has had a legal dispute since 2008 over the ownership of an area located at the Brucutu Mine, in São Gonçalo do Rio Abaixo, Minas Gerais. As a result of the open dialogue with the community, which was intensified by the company in contacts, hearings and meetings, a legal agreement was reached between Vale and the residents that regularises another area that was also the subject of dispute, where a water main and transmission line essential to the operation of the Brucutu Complex are installed. The original legal dispute still exists, but negotiations are underway between the parties to try to resolve the issue amicably.

Land use conflicts with Indigenous People

In March 2024, Chief Merong Kamakã passed away. He had led the occupation of Córrego de Areia Farm in Brumadinho, Minas Gerais – a property owned by Vale – by a group of Indigenous People from the Kamakã Mongoió community, originally from southern Bahia. Since 2021, the company has been working to repossess the area, which is earmarked for environmental compensation. The burial of the chief’s body on Córrego de Areia Farm strained relations with the company, which requested that the chief’s relatives reconsider their decision to bury him on the property.

Leaders from Vale’s Sustainability team met with the chief’s family the week after his passing, respecting the most critical period of mourning, to express sympathy and explore a conciliatory solution. “We had a very respectful, gentle and dignified conversation. They were reassured by our commitment that they would not be pressured to leave the land and that no action would be taken regarding the chief’s body. We emphasized the start of a new phase in our relationship, built on open and frequent dialogue. However, we also made it clear that the issues are complex and will require everyone’s efforts to find solutions

that work for all parties,” explained Marcelo Klein, Vale’s director for regional management, following the meeting. As promised to the family during a federal court hearing in September, we managed to ensure that the Kamakã people can remain on the land where the chief is buried. We are currently negotiating the donation of a 20 hectare site, aiming for a reasonable resolution to the case through empathetic and sensitive dialogue.

Elsewhere in the Brumadinho region, Vale is also pursuing legal action to reclaim Bruma Farm, which has been occupied since 2022 by 16 families of the Xukuru-Kariri indigenous people. Like Córrego de Areia Farm, the property was acquired for environmental compensation and compliance with obligations related to the main lagoon on the site, which requires daily maintenance and monitoring by the State Forestry Institute (IEF) and an independent external audit firm, Aecom, as part of the region’s social and environmental recovery process. The legal process is ongoing.

We strongly condemn any form of threat or violence against Indigenous People. We are committed to seeking consensual solutions within the framework of the law, in alignment with our respect for human rights.

Involuntary resettlement

GRI G4 MM9

Vale strives to adhere to international sustainability standards, such as the International Finance Corporation's (IFC) Performance Standard 5, which provides a primary framework for conducting involuntary resettlement. While we strive to avoid such measures, involuntary displacement may occur when potential impacts are anticipated – whether related to access to third-party areas, risks to community safety, or land tenure reform of company properties. In such cases,

displacements are carried out in a planned manner, with the active participation of affected families in decision-making processes. Emergency involuntary resettlement is avoided and are only considered when families face risks to their physical safety.

Prior to any resettlement, thorough surveys are conducted to assess the number of families potentially affected by a project and to identify solutions that avoid or minimize involuntary displacement. When resettlement is necessary, a detailed diagnosis of the situation informs provisional and definitive measures aimed at restoring livelihoods to conditions equal to or better than those prior to displacement. In 2024, 897 families in Brazil were involved in

involuntary resettlement processes. There were no involuntary resettlements in the north of the country. Of these, 545 families are evaluating alternatives to minimize displacement, 241 have received provisional assistance, and 111 have been permanently rehoused.

In Itabira, Minas Gerais, a project adjustment made it possible to reduce the number of families involved in involuntary resettlement from 39 to 27 as part of the Pontal System decharacterization project. Additionally, 14 families are receiving temporary assistance until the absence of risk is confirmed. In the same municipality, eight families in the Penha neighborhood are receiving provisional assistance due to operational impacts, and 27 families in the

Cubango community are being resettled to enable the expansion of the company's operations.

In the municipalities of Nova Lima, Itabirito, Ouro Preto and Barão de Cocais, where dam decharacterization projects are under way, 43 out of 205 families have received definitive assistance. Another 162 families are receiving provisional assistance and will be permanently rehoused following compensation. Once the new Vitória-Minas Railroad right of way has been approved, the number of displacements required to execute projects in the municipalities of Aimorés, Santana do Paraíso and Belo Horizonte – currently estimated at 57 families – will be finalized.

Region	Triggered by	Total	Under assessment	Provisional assistance	Definitive assistance	Description
Minas Gerais, Brazil	Brumadinho dam breach	34	0	26	8	Families involved in forced relocation process due to breach of B1 Dam in Córrego de Feijão.
	Dam decharacterization	249	3	176	70	Dam decharacterization projects require the evacuation of areas downstream of these structures to ensure the safety of families and communities. Out of 249 affected families, 205 are receiving emergency evacuation assistance, while 43 have already been provided with definitive assistance. In Itabira, resettlement to decharacterize dams in the Pontal System required the relocation of 44 families, 27 of whom have received definitive assistance.
	Project impacts	139	73	37	29	Involuntary resettlement due to the installation and adaptation of projects or because of the risk of construction work impacts. Out of 139 affected families, 28 are receiving provisional assistance due to reparation projects in the Paraopeba River channel.
	Structural instability	1	0	0	1	Permanent resettlement of a family occupying an area at risk due to slope instability at Olhos D'Água Terminal in Belo Horizonte, Minas Gerais.
Espírito Santo, Brazil	Land tenure reform	5	0	2	3	Land tenure reform led to the involuntary relocation of five families. Of these, three families have received definitive assistance as part of the regularization of a property in Jeceaba, Minas Gerais.
	Project impacts	469	469	0	0	The estimated number of families affected by the installation of the Anchieta Branch railroad project has been updated from 451 to 469. Vale is actively seeking alternatives to minimize the number of impacted families.
Total		897	545	241	111	

Listening and response

GRI 2-16 GRI 2-25 GRI 2-26

To better engage with communities regarding our regional activities, Vale has implemented a global model for managing complaints and suggestions, known as the Listening and Response Mechanism. This mechanism consists of accessible channels available to any interested party. It is grounded in the UN Guiding Principles on Business and Human Rights, which emphasize that such channels must be legitimate, accessible, predictable, fair and transparent. Through this approach, we aim to address grievances and minimize risks associated with our operations. By actively listening to community feedback, we have integrated improvements into our operational and project routines to prevent recurring complaints and maximize positive impacts.

In 2024, we recorded 9,313 community comments, of which 3,995 were complaints. In all, 54.5% of these complaints related to issues such as improving access, highways and roads dust control, requests for weeding and pruning, damage to homes and other properties, and noise. Of the total complaints, 99% were acknowledged and 82.2% were resolved. The average time to acknowledge a complaint is approximately five days, while the average resolution time is 31 days. Additionally, to ensure the quality of our responses, we conducted a Satisfaction Survey to monitor how communities perceive the resolution of issues addressed through the community relations channel.

Country/ Indicator		Community Demonstration	Humanitarian Assistance Demonstration
Total	2022	11,085	19,786
	2023	9,911	12,132
	2024	9,313	9,394
Brazil	2022	9,779	-
	2023	8,550	-
	2024	9,080	-
Peru and Chile	2022	56	-
	2023	70	-
	2024	67	-
Oman	2022	67	-
	2023	84	-
	2024	24	-
Malaysia	2022	30	-
	2023	33	-
	2024	49	-
Wales	2022	6	-
	2023	7	-
	2024	7	-
Indonesia	2022	975	-
	2023	1,057	-
	2024	-	-
Canada	2022	172	-
	2023	110	-
	2024	86	-

We acknowledge that capturing all stakeholder complaints has been an ongoing journey and we need to make more progress to ensure that our channels are widely known and accessed. This will enable Vale to further evolve in its listening process.

As part of our community relations efforts, we also monitor stoppages of company activities due to social issues, such as disruptions to railroads or access to operations. In 2024, a total of 160.23 hours of stoppages were recorded across 13 incidents. Of these, five were motivated by complaints related to the Fundão Dam failure in Mariana, Minas Gerais; four were linked to demands presented to public authorities; and four were directly tied to Vale's activities.

 Find out more about our Listening and Response Mechanism



Pedro Ribeiro, Community Relations analyst, during a visit to resident Isaura Lousada in Barra do Manhuaçu, near the Vitória-Minas Railroad.

Photo: Alexandre Rezende



Meeting of the management group of the Casa da Horta in the Bairro dos Minérios neighborhood, in the Vila Nova community, Parauapebas, Pará, Brazil.

Community perceptions survey

GRI 3-3 GRI 413-1 GRI 413-2

To continuously assess the level of trust that communities have in Vale, the favorability of its presence in the regions where it operates and perceptions of community quality of life, a new Community Perceptions Survey was conducted in 2024. This survey included local and traditional communities, with whom Vale engages. A total of 6,683 respondents from 221 communities across five Brazilian states (Espírito Santo, Minas Gerais, Rio de Janeiro, Maranhão and Pará) participated in the survey. Of these communities, 168 were local and 53 were traditional, including descendants of runaway slaves, coconut breakers, artisanal fishermen and rural communities in the Cerrado Savanna. In 2024, in general, there was a slight drop in image requirements (Favorability – 2022/65 percentage points to 2024/63p.p., Trust – 2022/81p.p. to 2024/73p.p. and Advocacy – 2022/46p.p. to 2024/42p.p.), however perception maintains high levels of positivity.

Survey's result

- Maranhão and Pará are the states with the most positive view of the company. These states perceive more benefits than harms from the corporation for local and traditional communities.
- Communities prioritize the following activities for local social development: job and income generation, health, and education. Recognizing the existence of actions developed by the company is a relevant attribute for the Trust indicator. Maranhão and Pará were the states where local and traditional communities have the greatest recognition of Vale's social actions.
- Regarding relations with Vale, 54% of local community respondents believe they are "on the right track," while this figure rises to 61% in traditional communities.
- The communities consider the following to be priority issues for local social development: job and income generation, health and education. And recognition of actions developed by the company is a relevant attribute for the Trust indicator.

Maranhão and Pará were the states where local and traditional communities have greater recognition of Vale's social actions;

- Regarding the quality of dialogue – through which Vale informs communities about its activities and listens to their feedback – 58% of local community respondents rated it as good, compared to 68% of traditional community members.

- 73% of local community respondents and 78% of traditional community respondents perceive Vale as a trustworthy company.

- Regarding Vale's communication and relationship channels, 30% of local community respondents and 28% of traditional community respondents know at least one. The most widely recognized channel across both community types is "Alô Vale" ("Hello Vale").



Find out more about Vale's relations with the communities where it operates

Ô de Casa! – Vale as a neighbor

One of Vale’s biggest challenges is to be perceived as a local partner. To foster close dialogue and disseminate the company’s social initiatives in communities, the Vale as a Neighbor project was created in 2024.

This initiative was based on four pillars: strengthening an egalitarian and neighborly relationship; valuing local wisdom and knowledge; positioning people as protagonists; and sharing stories to showcase the relationship and its benefits. The initiative included collaborative video documentaries, workshops, sports practices and events to present results and facilitate knowledge and experience sharing.



More than 1,300 residents from the communities of Gameleira in Bacabeira, Maranhão; São Félix in Marabá, Pará; Argolas in Vila Velha, Espírito Santo; and Mangaratiba, Rio de Janeiro took part in the initiative. After the project, a survey showed that 58% of participants were aware of Vale’s local initiatives, up from 46.7% before. The share of participants with positive perceptions of Vale’s presence also increased, from 41.2% to 56%.

The survey on the perception of Vale’s presence showed the following results for the 4 locations:



“When I arrived in the plaza, I was delighted by how everything looked. I loved the photo panel, the portal, the decorations and above all the well-organized party. The community needed to know about the projects in order to appreciate them and get more involved. It was clear to me that Vale is attentive to inclusion and that the projects are geared toward this reality. The Argolas community had a great day. That’s how you show respect. Thank you all very much.”

CÉLIA MARIA,
resident of Argolas,
Espírito Santo state

Responsible purchasing

GRI 2-6

The impact of our business on the environment, the communities where we operate and the economy is directly linked to how we manage risks and opportunities in the value chain. The practices of our suppliers influence the continuity and competitiveness of our operations. This relationship can also offer opportunities for us to extend benefits to communities, generating employment and income. Our responsible purchasing program includes a key tool: the ESG Criticality Matrix. Its main objective is to analyze purchasing categories from the perspective of environmental, social and governance risks, aligning with the guidelines of ISO 20400 – Sustainable Purchasing. In 2024, the matrix was updated with Vale's new category tree and expanded to other geographies beyond Brazil. All our suppliers underwent social and environmental integrity due diligence during their registration process. This year, 36% of suppliers assessed in the matrix were classified in high or very high ESG risk categories. Of these, 27% required financial, health and safety monitoring or human rights inspections, leading to action plans for 48% of them.

Hiring local suppliers is one of the pillars of our responsible purchasing agenda and a valuable tool for contributing to the development of communities in the regions where the company operates. In 2024, 58% of Vale's purchases

were made from suppliers located in the states where we operate. There were more than 3,650 local suppliers. In total, Vale spent USD 9 billion on local purchases of products and services for the company's operations and projects in Brazil. In addition to purchases, we also provide training. In 2024, we held 30 training sessions with local companies, more than 20 business networking sessions and over 95 meetings with trade federations and associations.

In partnership with our suppliers, we promote actions for socioeconomic development through the Sharing Program, which aims to encourage our supply chain to contribute to social progress in the regions where we operate. In 2024, 1,500 social initiatives were carried out, involving an investment of around USD 7.4 million across Brazil.

Since its launch in 2020, more than USD 14.4 million has been invested through the Sharing Program, encompassing training, apprenticeship programs and input supplies, among other things. The program has also encouraged more than 390 suppliers to carry out social initiatives, which were agreed during or after the procurement processes.

The results achieved by our suppliers that have joined the program reinforce the commitment of Vale and its supply chain to the communities where they operate. In Parauapebas, Pará, U&M Mineração e Construção, in partnership with Kolping Sophie Link Technical School, provided 95 students with training in basic electricity for heavy machinery, administrative assistant duties (focusing on Excel) and Training for Training Multipliers. The courses, which included theory and practice, were for students with a high school diploma or currently attending high school and

from households with a per capita income of up to one and a half times the minimum salary.

Another pillar of the responsible purchasing agenda is the Value Chain Carbon Emissions Monitoring Program. This involves using the CDP supply chain questionnaire on climate change to raise awareness among suppliers and encourage them to improve their greenhouse gas emissions management. For the fifth consecutive year, Vale's suppliers were invited to take this questionnaire. In 2024, we invited 201 suppliers – the ones with the highest criticality in terms of greenhouse gas emissions in our ESG Matrix – to take the CDP questionnaire. We obtained a 96% response rate, equivalent to 193 suppliers. Our goal is to act with greater focus and monitor the evolution of the value chain in terms of best practices on climate change. Of these respondents, 139 (approximately 70%) are recurring participants in the program, which demonstrates our ongoing commitment to managing this issue.

Since 2019, our human rights management has also included our suppliers and more recently we have expanded some human rights risk management measures to locations beyond Brazil. The process begins at the registration stage and continues through to supplier contract management. Monitoring the Brazilian Labor Ministry's "Dirty List," risk assessment, a self-diagnosis questionnaire, training and engagement, document and field inspections, accommodation inspections and monitoring of supplier action plans are some of the practices that have been intensified over the last four years as part of the risk management measures of our responsible purchasing program. In 2024, 490 suppliers in the Iron Ore Solutions segment

in Brazil were classified as high risk in terms of human rights, based on the characteristics of their contract with Vale and their risk classification in the ESG Risk Matrix. Among these suppliers, it was necessary to implement mitigation actions for 353, and human rights inspections were carried out at 72. Another nine suppliers (not included in the 490 high-risk suppliers) were also inspected. The main results of the inspections pointed to the following challenges: tackling the sexual exploitation of children and adolescents, the reliability of reporting channels and improving working relations and conditions.

In Oman, 37 suppliers were classified as high risk in terms of human rights, and it was necessary to implement mitigation actions for 23 of them. Human rights inspections were carried out at 14 of these suppliers, giving rise to recommendations related to issues involving migrant workers, sanitary facilities, food and accommodations. These points are now being addressed through action plans. Another four suppliers (not included among the 37 high-risk suppliers) were also inspected. Our approach to human rights, incorporated into our policies and decision-making processes for critical business functions, considers all areas, including risks, purchasing, corporate security, human resources, facilities, health and safety.

GRI 408-1

GRI 409-1

In addition to these inspections, other mitigation measures were implemented over the course of 2024. Training was provided for 737 suppliers, reaching 1,709 external professionals, including company leaders and contract managers. Furthermore, 399 suppliers answered our Human Rights Management Self-Assessment Questionnaire.

Transparency and monitoring

Vale's supplier management framework is guided by compliance standards that encompass health, safety, social, environmental, ethical, integrity and human rights aspects. Integrated into our management model, the Vale Production System (VPS), this framework includes regulations and processes for monitoring and mitigating risks. Before starting a business relationship with Vale, all suppliers across the world undergo a due diligence process during registration. This process aligns with our ESG strategy and involves an assessment based on public information and the Scope of work to be performed. Suppliers commit to our values and ethical principles through the Principles of Conduct for Third Parties and the Anti-Corruption Guide, which are shared with all contractors and partners. This process is part of our Ethics & Compliance Program, which also features a Whistleblower Channel. This channel is accessible to anyone who wishes to report a suspected violation of our Code of Conduct.

While contracts are in effect, we monitor them in Brazil from multiple perspectives. Through third-party risk management, we assess exposure to risks such as safety, excessive working hours and labor debts, implementing ongoing action plans aimed at minimizing and mitigating these risks. Another key criterion for evaluating suppliers is financial risk, which is managed through a risk matrix. This tool

helps identify suppliers requiring monitoring and provides input for internal purchasing processes. Additionally, we offer the More Capital program (formerly known as Inove Capital), a platform that enables suppliers to request advance payment of receivables. This initiative supports the timely delivery of goods or services procured by Vale. In 2024, 904 suppliers benefited from the program and over USD 2 billion was paid in advance.

Supplier evaluation

Supplier performance is measured across the service and supply chain, with periodic monitoring of sustainability aspects – including social, environmental and human rights criteria – as well as performance and government relations. In 2024, we evaluated our suppliers in the areas of health and safety, quality, performance and ESG through our Supplier Performance Assessment. Approximately 900 suppliers, who were selected based on their criticality in our ESG Matrix, were eligible for the assessment. Of these, 791 completed the analysis, representing an 88% response rate among suppliers engaged in the process. Building on the evaluations conducted with service providers, we hosted the second edition of our "Safer Partnership" event in 2024 to recognize suppliers with the best performance in health and safety at Vale, thus continuing with a relationship program that values our partners.

Risk Management in the base metals supply chain

VBM is committed to responsibly producing and sourcing minerals and metals feeds, including nickel, copper, cobalt, platinum, palladium, ruthenium, rhodium, iridium, gold, and silver, and requires all leaders, employees, suppliers, and contractors to uphold this commitment. To that end, VBM has implemented due diligence processes to assess and manage the risks outlined in Annex II of the OECD Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas (OECD Responsible Sourcing Requirements) and upheld by the **Base Metals Policy Statement on Responsible Sourcing of Minerals and Metals**. These processes incorporate third-party and supplier risk assessments, red flag identification, and implementation of risk management strategies to mitigate identified risks, including the health and safety of workers, financing of conflict, human rights abuses, bribery, and fraudulent misrepresentation of the origin of minerals, money laundering, and public or private security forces. We have an independent audit process that includes a review of management systems related to responsible sourcing and an assessment of the effectiveness of the Company's efforts to mitigate risks in the supply chain, including the **Copper Mark's Joint Due Diligence Standard** and the **Responsible Minerals Initiative's Cobalt Refiner Standard**.

In 2023, VBM achieved assurance under the third-party Copper Mark Joint Due Diligence Standard (JDDS) at three of our North Atlantic refineries: Copper Cliff Nickel Refinery (Ontario), Long Harbour Processing Plant (Newfoundland), and Clydach Nickel Refinery (Wales). The results of these assessments are publicly available for review. In 2024, Vale renewed the certification of the Responsible Minerals Initiative's Cobalt Standard for our Port Colborne Refinery (Ontario) and achieved the certification at the Long Harbour Processing Plant. Based on our due diligence process, VBM identified one potential supplier as high-risk, and a third party assessed this supplier before making any commercial agreement. The assessment results presented no material findings, with no improvement recommendations.

Through our risk mitigation approach, VBM strives to ensure responsible sourcing practices throughout our supply chain. We achieve this by collaborating with our suppliers, actively monitoring their performance, and maintaining a zero-tolerance policy towards human rights violations and support of non-state armed groups. Our responsible sourcing practices have yielded data that has strengthened our due diligence efforts, identifying feeds that are higher risk and prompting us to take enhanced due diligence measures to mitigate those risks.

Reparation

GRI 203-1

Five years since the failure of Córrego do Feijão Dam

We will never forget Brumadinho. January 25, 2024, marked five years since the collapse of Dam B1 at Córrego do Feijão Mine in Brumadinho, Minas Gerais. This tragedy resulted in the irreparable loss of 270 lives, including two pregnant women. To this day, two victims remain missing (the 268th victim, Maria de Lurdes da Costa Bueno, was identified in February 2025.) We remain in close contact with the families and continue to support the Minas Gerais Fire Department in its ongoing search efforts. Our commitment to ensure that such an event never occurs again drives our work on people's safety and the risk management of our dams.

Reparation governance has been managed in three phases. The first phase involved multidisciplinary emergency actions, which guided the company from the very first day of the tragedy. Crisis committees were established, public assistance points were set up, and a sensitive dialogue began with various public and private stakeholders, including NGOs, government bodies and judicial organizations. During this phase, our focus was on saving lives, assisting the victims and their families, providing compensation and addressing the immediate needs of the affected population to ensure they had the minimum necessary support.

To safeguard the human rights of those affected, we provided over 3.7 billion liters of drinking water for human and animal consumption, as well as agricultural use. We disbursed BRL 2.4 billion (USD 445.3 million) in emergency aid to approximately 100,000 people, BRL 3.8 billion (USD 705 million) in compensation¹ to around 17,000 beneficiaries and BRL 36 million (USD 6.7 million) in donations to 1,000 individuals.

Phase 2 began in 2019 with the establishment of the Special Department for Reparation and Regional Development, which reports directly to Vale's CEO. This department was created to focus on socioeconomic, social and environmental reparation, strengthen community relations and develop a comprehensive reparation agreement.

We implemented sanitation initiatives and measures to ensure water security for the Paraopeba, Doce and Velhas river basins, including water monitoring and structural interventions. Over 550 projects were completed to strengthen the water supply system in the Paraopeba River Basin, benefiting approximately 5 million residents.

In partnership with the community, we have implemented projects to revitalize and stimulate the economy of the affected region. These include infrastructure improvements in the village of Córrego do Feijão and the Brumadinho Tourism Program, including an updated Céu de Montanhas catalog. This catalog showcases 39 local businesses offering over 60 products and 40 unique experiences in areas such as gastronomy, textile design, handicrafts, ceramics and music, fostering rural and community-based tourism. Additionally, more than 1,800

hours of training and technical assistance were provided. We also launched a virtual tourist map and conducted the second Brumadinho Tourism Census, identifying 240 tourist enterprises.

The infrastructure improvements in the village of Córrego do Feijão aim to repair the damage and support families in the area most affected by the dam failure, enabling them to rebuild their lives within the community. These efforts are helping reestablish community ties and strengthen the sense of belonging that has developed over time. In addition, this work contributes to the social and economic development of the community through comprehensive urban upgrades, income generation for residents and enhanced local tourism potential.

In 2024, for example, through the strengthening the Córrego do Feijão Network Economy project, we provided over 4,000 hours of training and advisory services to beneficiaries. The initiative reached 24 collective businesses and 141 individuals (65% of whom were women), aiming to strengthen the local economy and keep residents' income circulating within the region. As a result, these enterprises and collectives saw



a 29% rise in revenue compared to 2023 and a 77% increase in their maturity level – an indicator that evaluates production, management/finance, commercialization, marketing and innovation.

From an environmental perspective, by 2024, we had successfully removed 88% of the 12.4 million m³ of tailings that had been deposited in the Ferro-Carvão stream and the Paraopeba River. These tailings are being relocated to the deactivated Feijão Mine pit.

Restoring biodiversity is a cornerstone of our commitment to social and environmental recovery in the areas impacted by the dam collapse. To date, we have completed forest restoration across 159 hectares, planting over 200,000 trees. In 2024 alone, we advanced the recovery of 70 hectares, including remnant Atlantic Forest areas around the affected region and the first sections of the tailings-covered area authorized for restoration. These efforts aim to reestablish native vegetation cover, which is critical for soil stability and creating habitats that support local biodiversity.

Biodiversity monitoring has involved more than 270 professionals in tracking animal species in the Ferro-Carvão Stream Basin and along the Paraopeba River. The monitoring results indicate no obvious ongoing damage to the aquatic and terrestrial biota in the Paraopeba River. Furthermore, these efforts have led to the recording of endangered species, including 19 species of plants and 13 species of terrestrial animals, which are protected at the state,

¹Payments began in Phase 1, and compensation continues to this day.

national, and/or international levels. To assess the water quality of the Paraopeba River, in 2024, Vale has collected approximately 7.5 million analysis results from 95,000 water and sediment samples at 95 control points along the river. The data shows a progressive improvement in water quality, with results equaling or exceeding the values recorded before the dam collapse, particularly during the dry season.

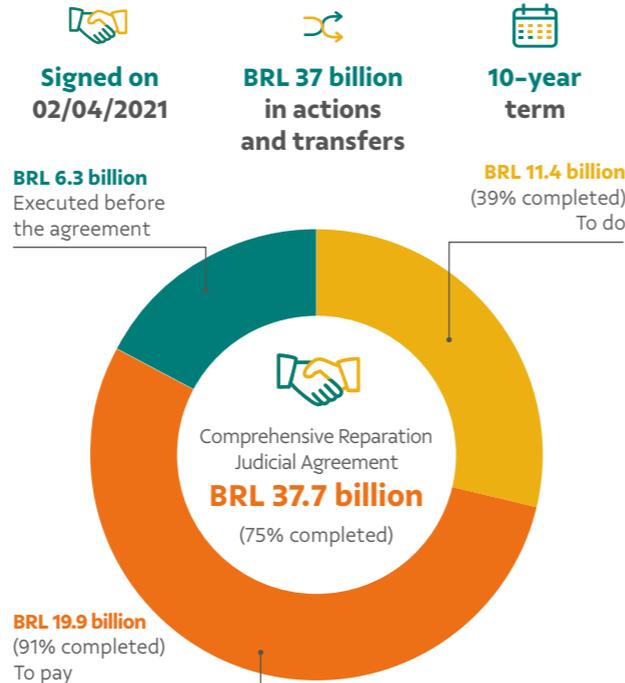
All social and environmental reparation actions are monitored and supervised by the parties to the agreement. Technical support for the social and environmental audits is provided by the independent audit firm Aecom.

On February 4, 2021, Vale signed a comprehensive reparation agreement with the state government of Minas Gerais, the state and federal public prosecutors' offices and the Minas Gerais State Public Defender's Office. The agreement, with an estimated economic value of BRL 37.7 billion (USD 7 billion), sets out Vale's obligations for remediation and compensation, aiming at the full reparation of the collective and broad damage resulting from the dam failure. This reaffirms the company's intent to repair and compensate the affected people and environment.

To date, Vale has assumed a total of BRL 64.5 billion (USD 11.9 billion) in commitments and reparations. Of this amount, BRL 36.9 billion (USD 6.8 billion) has already been disbursed, covering spending on the agreement and other related initiatives.

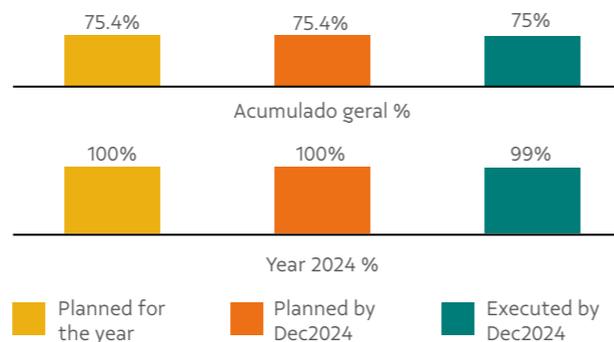
Socioeconomic reparation projects are underway and significant progress has been achieved. Under Vale's obligations to repair harm, the

Comprehensive Reparation Judicial Agreement



Note: This amount includes expenses related to the Civil Defense TAC, Fire Department TAC, and costs with audits, advisory services, and others.

Overall economic progress – cumulative vs annual



parties to the contract have approved 379 projects, including 19 in Brumadinho and 252 in the 25 other municipalities of the Paraopeba Basin. Of these, 102 projects have been completed, three are finalized and under review by the parties, and 169 are currently being implemented by Vale. All the projects are monitored and supervised by the parties, with technical support from Fundação Getulio Vargas's socioeconomic audit arm.

In addition, 105 projects have been converted into financial obligations, which Vale has settled. As part of these socioeconomic initiatives, over 344,5 items – including equipment, vehicles and materials – have been delivered to strengthen public services and generate income. Furthermore, more than 4,600 people have been trained in vocational education courses, rural road maintenance, social assistance management, and technical and agricultural production management.

The social and environmental reparation efforts under the agreement have built on the emergency actions previously undertaken. These include the recovery of degraded areas and the monitoring of physical and biotic environments. Through the Paraopeba River Basin Social and Environmental Reparation Plan, pre- and post-disaster diagnoses were consolidated, and proposed actions for social and environmental recovery were developed.

In 2024, we received 18 approvals for initiatives that were under evaluation by environmental agencies, the contract's parties, and social and environmental auditors. Notably, the first authorizations for restoration of the Ferro-

Carvão Stream Basin – the main tailings-covered area – were granted. In August, we obtained authorization to begin restoration of the first stretch of the stream, Area 1B. In November, the environmental agency granted a second permit for the southern arm of Area 1A. Both work fronts were completed in 2024, resulting in the recovery of 3.69 hectares.

In the area of social and environmental compensation, a court decision ratified the conversion of the Universalization of Sanitation initiative into a financial obligation for Brumadinho and municipalities in the Paraopeba Basin. To date, Vale has paid two installments, totaling BRL 716 million (USD 132.8 million), deposited into a court-controlled bank account. This is part of a total of five installments. In addition, we received approval for the Ethical Population Management of Dogs and Cats Project. This initiative aims to promote ethical population control of dogs and cats through surgical castration, microchipping, environmental education and training for the municipalities in question. Over 35,000 animals are expected to benefit from this project.

Phase 3 of our reparation efforts has been ongoing since 2022, when we created our Reparation Department, part of the Sustainability Vice Presidency. Our primary goal is to ensure comprehensive reparation in Brumadinho and the Paraopeba Basin. We are continuously evolving our reparation structure to meet our goals in terms of time and quality. We strive to maintain transparent communication and foster strong relationships with all stakeholders, ensuring a position of openness and dialogue.

“ I believe the greatest lesson from Brumadinho is that everything must be built directly with each community and each group. I am certain that we are only moving forward because of this ongoing dialogue. It is not up to us, as a Company, to unilaterally evaluate and define what we will give or do. That approach is no longer viable. This process must be collective, respecting the traditions, potential, desires and aspirations of each community. After all, they are the ones who truly understand their reality, not us. This is an act of respect, humility and above all empathy on our part.”

GLEUZA JESUÉ,
reparation director, Vale

Traditional communities

We entered into two agreements involving Indigenous People in 2022 to compensate the Indigenous people of Katurama Village and the group led by Dona Eline Pataxó. These agreements have been paid in full. In 2023, we entered into another comprehensive indemnity agreement with the Pataxó and Pataxó Hã-Hã-Hãe Indigenous people of Tronco Gervasio and Antônia. We are currently awaiting the final judgment of the decision to complete payments. Negotiations with the Naô Xohã Village group are ongoing and are the subject of two Public Civil Actions filed by the Federal Public Ministry and the Federal Public Defender's Office, concerning both collective reparation and individual compensation. We continue to comply with the court decision that mandated the temporary relocation of families from the Naô Xohã village, as well as the payment of relocation and living costs to the affected Indigenous People. To support this, we acquired a property in Brumadinho, chosen by the Indigenous community, for the temporary relocation of the affected families. There is a possibility that this relocation could become permanent, if the property is accepted as part of a potential collective reparation agreement with the group.

We still face many challenges:

- Finalizing pending compensation payments.
- Fulfill commitments made and agreements signed (resuming the use of the Paraopeba River water, managing and disposing of tailings).
- Rebuilding trust with all stakeholders.
- Sharing lessons learned and encouraging their dissemination.
- Continue engaging in meaningful dialogue.



Find out more about our Brumadinho reparation activities

The comprehensive Mariana reparation

The comprehensive Mariana reparation agreement, which ensures the full and definitive conclusion of the reparation and compensation process for the collapse of Samarco's Fundão Dam in Mariana, Minas Gerais, was ratified by the Federal Supreme Court on November 6, 2024.

The approval came one day after the ninth anniversary of the dam failure – an event that will never be forgotten. Reparation remains a public commitment by Samarco, with the support of its shareholders, Vale and BHP. In addition to the mining companies, the agreement was signed by the federal government, the state governments of Minas Gerais and Espírito Santo, federal and state public prosecutors' offices, federal and state public defenders' offices, and other public bodies and authorities.

The definitive agreement provides for an estimated BRL 170 billion (USD 31.5 billion), to cover both past and future obligations to assist people and communities and restore the environment impacted by the dam failure. It establishes three main areas of obligation:

1) BRL 100 billion (USD 18 billion) – Payments to be made over 20 years to the federal government, the state government of Minas Gerais and Espírito Santo, and municipal governments, and to be used by justice institutions to finance compensatory programs and actions linked to public policies and needs.

2) BRL 32 billion (USD 5.8 billion) – Samarco's obligations, including initiatives for individual compensation, resettlement and environmental remediation.

“The definitive agreement represents a mutually beneficial resolution for all parties, established on fair and effective terms while providing legal certainty and security. It is the result of a high-level mediation process conducted by the Federal Regional Court of the Sixth Region, characterized by open dialogue and transparency. The engagement of the Brazilian authorities and public entities ensured the legitimacy of the agreement, which was grounded in social, environmental and technical criteria. This landmark agreement also reaffirms our commitment to Brazilian society and to building a better future for people, communities and the environment.”

GUSTAVO PIMENTA,
CEO of Vale

3) BRL 38 billion (USD 7.9 billion) – Reparation and compensation measured by the Renova Foundation, which was paid from the date of the dam failure to the date the agreement was signed.

As a Samarco shareholder, Vale has committed to covering up to 50% of any amounts the company may fail to finance as the primary debtor. As of December 31, 2024,

Vale’s provision for these obligations stood at BRL 19.4 billion (USD 3.7 billion), including estimates of Samarco’s contributions. The estimated cash disbursement schedule is presented below.

Definitive agreement signed:

BRL 170 billion

Indemnities and compensation to date

~**BRL 38 billion**
disbursed in 42 compensation programs

Liabilities to be paid
BRL 100 billion
in payments,
over a 20-year period

Obligations to perform
BRL 32 billion
in obligations
to be carried out by Samarco



Mutually
beneficial
solution for all
parties



Closure of all
lawsuits filed by
the signatory
authorities



Social,
environmental,
and technical
criteria

Expected cash disbursement (BRL billion)

Indicator/Country	Total	4T24	2025	2026	2027	2028	2029	2030	'31-43 average	
Liabilities to be paid	100	5.0	6.0	7.0	5.0	5.0	5.1	5.5	4.7	Payments over 20 years to fund compensatory programs linked to public policies
Obligations to perform	32	2.0	17.8	4.6	1.5	0.9	0.3	0.3	0.4	To be carried out by Samarco, including compensation, resettlement, and environmental recovery.
Already disbursed	38	-	-	-	-	-	-	-	-	
Total (BRL billion)	170	7.0	23.8	11.6	6.5	5.9	5.4	5.8	5.1	
Vale’s contribution (BRL billion)		3.1	11.5	5.8	3.2	2.2	1.8	1.4	-	Gradual reduction over the years, considering that Samarco will fully finance the reparations after 2031, following the end of the ramp-up phase of operations.
Vale’s contribution (USD billion)		0.5	1.9	0.9	0.5	0.4	0.3	0.2	-	

Vale’s Provision
USD 4.7 billion
provisioned, including
USD 1.0 billion
added in 3Q24

BRL/USD exchange rate of 6.19 on December 31st

In compliance with one of the provisions of the definitive agreement, the Renova Foundation was dissolved and consequently its liquidation process was initiated. A 12-month period has been agreed to complete the transition of rights and obligations to Samarco.

Compensation

The definitive agreement ensures the final resolution of individual indemnities and payments under the Mediated Compensation Program, Emergency Financial Aid and Simplified Compensation System.

The agreement also established the possibility for family farmers and professional fishermen who meet the specified criteria to receive lump-sum compensation payments upon signing the respective discharge agreement.

The Definitive Compensation Program – the final opportunity for definitive indemnification for those not yet covered by previous initiatives – will be implemented and operated by Samarco. This program provides for a lump-sum payment of BRL 35,000 (USD 6,500) per eligible person, contingent upon meeting the agreement’s criteria and signing the discharge agreement.

As of December 2024, more than 448,000 people in the Doce River Basin had been assisted, receiving approximately BRL 18.7 billion (USD 3.5 billion) in total compensation and emergency financial aid paid by the Renova Foundation.

Resettlement

The definitive agreement provides for the completion of resettlement in the districts of Novo Bento Rodrigues and Paracatu, with Samarco coordinating the resolution of the remaining cases. As of December 2024, 90% of the resettlement cases had been completed. The resettlement process involves the active participation of the communities, supported by technical advice, and aims to meet standards of excellence in community resettlement. The agreement stipulates that these structures will be maintained for a period of five years from the handing over of the keys, upon signing the discharge agreement, or until the definitive transfer of ownership through the registration of the property into the name of the household.

Photo: Samarco Archive



Novo Bento Rodrigues resettlement, Minas Gerais, Brazil

Environmental restoration

The environmental recovery actions still pending in the impacted areas of the Doce River in Minas Gerais and Espírito Santo, as well as on the northern coast of Espírito Santo within the Doce River Basin, will be completed directly by Samarco in an efficient and definitive manner, within the shortest technically feasible timeframe. The agreement includes specific milestones and objectives for each of these actions. Key initiatives include the reforestation of 50,000 hectares, completion of the recovery of 5,000 springs, and the restoration of riverbanks and the aquatic environment, in the locations specified in the agreement.

In addition to the measures to be carried out directly by Samarco, the agreement establishes robust initiatives to improve the environmental quality of the Doce River Basin. These initiatives will be implemented by the public authorities, in alignment with public policies, such as basic sanitation for the affected municipalities, as well as other measures aimed at enhancing the water quality of the Doce River.

In December 2024, the Brazilian environmental protection agency, IBAMA, the Chico Mendes Institute for Biodiversity Conservation (ICMbio), the Brazilian Biodiversity Fund (FUNBIO) and Samarco signed an agreement to transfer USD 46.4 million. These funds will be allocated to the preservation of terrestrial and marine fauna, primarily in Wild Animal Screening Centers and Conservation Areas, as part of the reparations for the Doce River Basin.

At the Risoleta Neves Hydroelectric Plant (also known as the Candonga Hydroelectric Plant), Samarco will conduct studies to assess the

economic, social and environmental feasibility of removing up to 9.15 million m³ of sediment. These studies will be submitted to Ibama as part of the relevant environmental licensing process. Samarco will also undertake studies to manage contaminated areas, focusing on the areas and substances specified in the agreement, to monitor environmental quality.

As of December 2024, USD 8.4 billion had been disbursed for reparation and compensation actions related to the Mariana disaster, including USD 7.5 billion for obligations to act and USD 853.4 million for obligations to pay, as renegotiated.



**FOR MORE INFORMATION
ON THE MARIANA
REPARATION PROCESS
FOLLOWING THE SIGNING
OF THE DEFINITIVE
AGREEMENT**



Doce River, Minas Gerais, Brazil

Photo: Samarco Archive



RACHEL MAIA,
Coordinator of the
Sustainability Committee

Message from the Coordinator of the Sustainability Committee

Over the last four years, I have followed Vale's cultural transformation as an independent board member, coordinator of the Sustainability Committee and member of the Governance Committee, which advises the Company's Board of Directors.

I see that Vale has made progress in its pursuit of more efficient and safer operations, with reduced environmental impacts, while building transparent and dependable relationships with neighboring communities and society. Over the last year, the Sustainability Committee has closely monitored issues relevant to the Company and society. I highlight some of these key areas below:

We signed the definitive agreement for comprehensive reparation for Mariana

We reached a satisfactory definitive agreement on claims related to the collapse of the Fundão dam in Mariana, totaling BRL 170 billion. The

engagement of the Brazilian authorities and public bodies ensured the legitimacy of the agreement, which was backed by technical, social and environmental criteria. This important agreement reinforces Vale's commitment to Brazilian society and to a better future for people, communities and the environment.

We moved forward with our 2030 Agenda commitments

Vale has made significant progress in biodiversity, using the impact mitigation hierarchy to manage its operations. By 2024, we had restored and protected 218,500 hectares, advancing toward our goal of adding 500,000 hectares of protected areas by 2030. Vale also published its first Taskforce on Nature-related Financial Disclosures (TNFD) assessment report, one of the first in the industry, disclosing risks and opportunities related to nature. In climate change, we continued to develop solutions to reduce emissions throughout the value chain, including the use of biodiesel, energy efficiency, electrification of mines and railroads, and the adoption of renewable energy sources, alongside partnerships with our clients.

We made progress in promoting inclusion

Vale has made great strides toward creating a more inclusive and equitable work environment. Women in the workforce represent 26%, and black professionals now account for 37% of our leaders (coordinators and above). Vale has also taken a firm stance against harassment and discrimination.

We strengthened our circular economy initiatives in mining

We launched the Waste to Value program, which aims to generate new products from mining waste, encompassing the reprocessing of tailings and reduction in waste rock. In 2024, we recovered around 12 million metric tons of iron ore from processing tailings. One of the program's objectives is to establish, by 2035, a global iron ore operation characterized by zero waste and zero tailings.

We improved our ESG ratings

Vale has seen consistent improvements in its risk perception among leading ESG rating agencies since 2019. While the Company's concrete progress has not yet been fully reflected in these ratings, we have increased our level of transparency regarding our sustainability performance through our Integrated Report, Databook and ESG Portal. We will continue to engage with ESG rating agencies to ensure that Vale's progress is fairly recognized.

Under the leadership of our new CEO, Gustavo Pimenta, and with the support of the Board of Directors, Vale's continued success in the coming years will be guided by advancing operational stability, delivering a superior and flexible portfolio, and making further progress in our safety, circular economy and decarbonization initiatives. These efforts are central to our goal of creating a positive impact on society and the environment.

Cultural transformation is a journey. Vale's began six years ago, and it cannot stop.

Appendices



Stakeholder engagement

Vale believes that the engagement and participation of its stakeholders is essential for improving processes and decision making, enhancing positive impacts for communities and effectively managing risks and negative impacts. The company works in partnership with clients, suppliers and other stakeholders, striving

to maintain transparent and cooperative relationships while promoting responsible and more sustainable business practices.

	Communities	Employees	Clients	Suppliers
Objective	Share information about projects, including their risks and impacts, meet the expectations of communities, and promote regional development.	Promote a commitment to safety and respect for the environment and people, including among employees, contractors, suppliers and communities.	Develop a better understanding of the needs of the market, meet demands for product quality, and align products with the strategy of reducing carbon emissions in the production chain.	Highlight the importance of agile purchasing, the correct choice of items, stock management and attention to health, safety, environmental and community aspects in the supply chain.
Forms of engagement	<ul style="list-style-type: none"> • Community engagement plans; • Management group discussions and participatory meetings • Community visits and forums to monitor activities with communities • Reporting, grievance, and feedback mechanisms—collecting, documenting, addressing, and responding to community feedback • Human rights due diligence throughout the mine lifecycle, from design and licensing through mine closure, decommissioning, and reclamation 	<ul style="list-style-type: none"> • Internal communication (360°, webinars, Vale@, Management Newsletter, Intranet, Teams Card, among others) • Training and academies • Focus groups, interactive dialogue, collective and volunteering initiatives, and collective bargaining with unions or other labor organizations • Human rights due diligence • Low-carbon forum 	<ul style="list-style-type: none"> • Technical meetings/missions, commercial meetings, technical visits • Email and telephone interaction • Customer satisfaction survey • Forums, seminars, and conferences 	<ul style="list-style-type: none"> • Business rounds to connect large suppliers to local businesses • Human rights training, and events about critical human rights issues • “Open Doors – Pará” event to engage with local suppliers • Events to recognize suppliers that have demonstrated outstanding safety performance • Human rights due diligence • More Capital program — a web environment offering suppliers streamlined access to working capital loans.

	Communities	Employees	Clients	Suppliers
Main demands and concerns	<ul style="list-style-type: none"> Regional development agenda (support for social projects and job vacancies) Management of risks and impacts of Vale's activities in regions Management of impacts and reparation for Brumadinho and Mariana (transportation, access to water, assistance, animal rescue and compensation) Concern for the safety of communities, related to accidents with fatal and non-fatal injuries Techniques for environmental restoration and reforestation after mine closure Dams risks and management 	<ul style="list-style-type: none"> Practices related to people management Decent working conditions A diverse, equitable, inclusive and psychologically safe environment Freedom of association and collective bargaining Management of risks, impacts and opportunities related to dams, health and safety Innovation (investments in R&D, automation, robotization and artificial intelligence) 	<ul style="list-style-type: none"> Dam management (policies, commitments, risks, impacts and opportunities) Eco-efficient production and distribution technologies Techniques for environmental restoration and reforestation after mine closure Products (portfolio) and technological solutions for reducing Scope 3 emissions Systems and technologies for carbon capture and storage 	<ul style="list-style-type: none"> Compliance with procurement requirements and payment deadlines Investments in innovation, R&D, and eco-efficient production and distribution technologies Partnerships with suppliers to execute strategies related to occupational health and safety Constant communication with suppliers for continuous improvement of Critical Activities Requirements and risk management processes Decent working conditions
Listening channels¹	<ul style="list-style-type: none"> Contact Us – https://vale.com/contact-us “Alô Vale” (“Hello Vale”) for subjects related to Brazilian railroads – 0800 285 700 or 0800 021 9934 (for people with hearing impairments) “Alô Vale” (“Hello Vale”) for communities: 0800 285 7000 or 0800 021 9934 (for people with hearing impairments). You can also get in touch via vale.com/ronline or speak directly with a community relations professional Reparation Helpline – 0800 031 0831 Whistleblower Channel – 0800 821 5000 or 213485 3000 Canada: +1 844 450 5001 Other countries: +55 21 3485 3000 	<ul style="list-style-type: none"> Whistleblower Channel – 0800 821 5000 or 21 3485 3000 / Canada: +1 844 450 5001 / Other countries: +55 21 3485 3000 	<ul style="list-style-type: none"> Phone and email contacts Meetings, seminars and technical visits Satisfaction surveys Contact Us – https://vale.com/contact-us 	<ul style="list-style-type: none"> Minabot² via Microsoft Teams tool. Contact Us – https://vale.com/contact-us Whistleblower Channel – 0800 821 5000 or 21 3485 3000 / Canada: +1 844 450 5001 / Other countries: +55 21 3485 3000

¹ Vale's Whistleblower Channel may be used by anyone, inside or outside the company, who wants to report a suspected violation of our Code of Conduct.

² Vale's corporate chatbot for internal audiences.

Stakeholders	Investors	Partners, academics, specialists, non-governmental organizations	Public authorities	Press
Objective	Reinforce our commitment to business performance and generation of value for shareholders.	Establish partnerships and collaboration with specialists in various fields of expertise.	Maintain consistent relationships based on the principles of public administration, contributing to political decisions and the formulation of public policies that are essential to the company's highly regulated operations.	Be accountable and promote transparency in relationships with stakeholders, strengthening our image and reputation management.
Forms of engagement	<ul style="list-style-type: none"> • Engagement meetings with IR team, executives and Board of Directors • Shareholders' meetings, letters, events, visits to operations, webinars, conferences and non-deal roadshows • ESG Portal, website and IR email 	<ul style="list-style-type: none"> • Meetings and events • Responses to questionnaires, letters of clarification and public statements • Panels of specialists from Vale Foundation and Vale Cultural Institute • Sounding Panel – group of executives specializing in ESG who advise and influence the company in relation to its performance and long-term strategy 	<ul style="list-style-type: none"> • Strategic, political-institutional and technical meetings • Thematic groups and events • Activities with trade associations 	<ul style="list-style-type: none"> • Relations with media outlets, responding to requests for interviews with Vale executives and information about the company's businesses and operations
Main demands and concerns	<ul style="list-style-type: none"> • Business performance and Capital allocation • Long-term strategy • Iron ore, nickel, and copper markets • Good corporate governance (independence and transparency), environmental (water and biodiversity impacts), and social (labor and community safety, human rights, and local community relations) practices • Climate change and its impacts on our business model; application innovation and GHG emissions management • Dam management • Reparations in Brumadinho and Mariana • Innovation (products, ore, and metal lifecycles, and post-mine-closure rehabilitation and reforestation methods) and eco-efficient production and distribution technology 	<ul style="list-style-type: none"> • Cultural transformation and greater transparency around challenges affecting civil society • Community matters, from community investment and human rights through impacts from dams and mine closure • Innovation (ore and metal lifecycles and post-mine-closure rehabilitation and reforestation methods) and R&D investment • Reparations in Brumadinho and Mariana • Exploration in areas with high biodiversity value 	<ul style="list-style-type: none"> • Compliance with social, environmental, and production requirements • Reparations in Brumadinho and Mariana; • Dam management (risks, impacts, and opportunities) • Innovation (ore and metal lifecycles and post-mine-closure rehabilitation and reforestation methods) and R&D investment • Topics currently on the agenda: mine waste, water, particulate matter emissions, conflicts with local communities, and mine closure 	<ul style="list-style-type: none"> • Media relations are managed both reactively — in response to journalist inquiries on different topics related to the Company — and proactively, through media outreach • Common reactive media topics include business matters, reparations, and dams • Common proactive media topics include our sustainability agenda (Net Zero and biodiversity), culture, innovation, and Diversity, equity, and inclusion
Listening channels*	Email (vale.ri@vale.com) and Vale's IR Portal			

* To learn about all our available channels, visit the [Contact Us](#) page.

Indices and ratings

Our evolution in ESG best practices has been reflected in our improved performance in related indices and ratings. Last year, Vale was removed from four asset exclusion lists, unlocking approximately USD 800 billion of AuM¹. This included the exclusion list of Robeco, one of Europe’s largest investment managers, based in the Netherlands. Vale had been excluded from these investment funds’ portfolios after the dam collapse in Brumadinho, Minas Gerais.

We have constantly evaluated the methodologies used by leading ESG information providers. To align our management and processes with the best practices demanded by the market and society, we developed an action plan that identified gaps and outlined initiatives to address them.

 **FIND OUT MORE ABOUT THE EVOLUTION OF OUR ESG GAPS PLAN**

¹AuM: Assets under Management

Vale's ESG Ratings	2018	2019	Dec2024
Sustainalytics (lower, better)	36.5	54.5	33.7
ISS Governance (lower, better)	8	10	1
MSCI (AAA better/CCC lower)	B	CCC	B
DJSI (higher/better)	45	45	46 ²

² Despite the progress made in recent years (63 points in 2021 and 69 points in 2022), the revision of the controversy methodology that occurred in 2023 significantly impacted Vale's final result. In 2024, the controversy discount is responsible for a deduction of -31 points, resulting in a final score of 46 points.

Photo: Andre Barcelo



Rotor Sail ships at Tubarão Port, Espírito Santo, Brasil.

About this report: Methodology and frameworks

This edition of Vale's Integrated Report covers the period from January 1 to December 31, 2024. The information in this document includes all companies over which Vale has operational control, as listed in our Form 20-F report, excluding any operations that have since been sold. [GRI 2-2](#) [GRI 2-3](#)

Throughout this document, we present indicators, management approaches and disclosures on environmental, social and governance topics, aligned with our materiality assessment. (For more details, see the **Materiality** section.) This information has been reported in accordance with the GRI Standards. In addition, the document follows the guidelines of the International Integrated Reporting Framework, now consolidated under the International Sustainability Standards Board (ISSB) and the standards of the Sustainability Accounting Standards Board (SASB), as well as the financial statements prepared under the International Financial Reporting Standards (IFRS). Vale is aware of the evolving nature of these initiatives and will reflect the ongoing process of adapting and aligning information and performance indicators in this and future reports.

We also report on our efforts to adhere to the ICMM Mining Principles and Performance Expectations, as well as the World Economic Forum's key metrics in the ESG Databook.

Vale implemented the ICMM Mining Principles as a condition of membership. We endorse and support ICMM's international efforts to enhance the transparency of mining revenues, including through the Extractive Industries Transparency Initiative (EITI). Vale actively participates in relevant forums to improve mining revenue transparency and supports the Global Industry Standard on Tailings Management (GISTM), an initiative aimed at enhancing safety across all stages of the life cycle of tailings dams and storage facilities. For more information, visit Vale's ESG Portal.

 [FIND OUT MORE HERE](#)

In addition to the limited assurance carried out by PwC, as detailed in the Limited Assurance Report, our Integrated Report was also assessed and reviewed by the Executive Committee, under the guidance of the Sustainability Committee. The Board of Directors acknowledges its responsibility to ensure the integrity of this annual report and has worked to establish guidelines for its preparation and presentation.

[GRI 2-5](#) [GRI 2-12](#) [GRI 2-14](#)

As of this edition, we have discontinued the analysis by independent readers (Letters from External Readers) and migrated to statements from various stakeholders throughout the document, seeking to present a greater diversity of opinions.

New Reporting Standards

In May 2024, we voluntarily adopted the international standard issued by the International Sustainability Standards Board (ISSB) for preparing and disclosing sustainability-related financial information. Vale is one of only two Brazilian companies to adopt this standard in its first year.

The creation of the ISSB was announced by the IFRS Foundation in 2021 during COP26, with the goal of developing global standards for disclosing financial information related to sustainability and climate change in a consistent and comparable manner. As part of this initiative, the International Integrated Reporting Council (IIRC) and the Sustainability Accounting Standards Board (SASB) were consolidated into the IFRS Foundation.

If you have any questions, criticisms or comments about this publication, please reach out to us via our Contact Us channel. [GRI 2-3](#)

¹ The U.S. dollar (USD) figures in this report were calculated by converting from Brazilian reais (BRL) at the annual average exchange rate of BRL 5.390 to USD 1.00, except for financial disclosures and environmental and social expenditures, which were converted using the monthly average exchange rate.

² Exceptions to reporting limits are presented in the IR Premises Basis in the ESG Databook

³ This document may include statements that reflect Vale's current expectations regarding future events or results. All forward-looking statements involve various risks and uncertainties. Vale cannot guarantee that such statements will prove to be accurate. These risks and uncertainties include, among others, factors related to: (a) geotechnical structures such as dams, piles and pits; (b) operations, including health, safety, the environment and operational shutdowns; (c) production planning, including licensing; (d) talent management; (e) strategy; (f) strategy; (g) sustainability; (h) cybersecurity; (i) financial management; (j) Institutional relations and communication, including changes in the law and regulations; (k) compliance; (l) countries where Vale operates, especially Brazil and Canada; (m) the global economy; (n) capital markets; (o) mining and metals prices and their dependence on global industrial production, which is cyclical by nature; (p) the high degree of global competition in the markets where Vale operates; (q) mining and tailings storage operations; and (r) the estimation of mineral resources and reserves, their exploration and the development of mining facilities, our ability to obtain or renew new licenses, and the depletion and exhaustion of mines and mineral reserves and resources. For additional information on factors that may give rise to results different from those estimated by Vale, please consult the reports filed by Vale with the U.S. Securities and Exchange Commission (SEC), the Brazilian Securities and Exchange Commission (CVM) and, in particular, the factors discussed in the sections "Forward-looking Statements" and "Risk Factors" in Vale's Annual Report Form 20-F.

Main trade associations and other organizations we are part of: GRI 2-28

Amazon Restoration Alliance, via Fundo Vale and Vale Natural Reserve

Aspen Network of Development Entrepreneurs (ANDE), via Fundo Vale

Association of Private Port Terminals (ATP)

Brazil-Canada Chamber of Commerce

Brazil-China Business Council (CEBC)

Brazilian Academy of Sciences (ABC)

Brazilian Association of Publicly Traded Companies (ABRASCA)

Brazilian Association of Science Publishers (ABEC Brasil), via Vale Institute of Technology

Brazilian Business Council for Sustainable Development (CEBDS)

Brazilian Center for International Relations (CEBRI)

Brazilian Chamber of Commerce in Japan (CCBJ)

Brazilian Climate, Forests and Agriculture Coalition, via Fundo Vale

Brazilian Corporate Volunteering Council

Brazilian Foreign Trade Association (AEB)

Brazilian Infrastructure and Heavy Industry Association (ABDIB)

Brazilian Metallurgy, Materials and Mining Association (ABM)

Brazilian Mining Institute (IBRAM)

Brazilian Port Terminals Association (ABTP)

Brazilian Technical Standards Association (ABNT)

Brazil-Japan Business Council (CEBRAJ)

BRICS Business Council (CEBRICS)

Buritizeiro Integrated and Sustainable Local Development Agency (ADESB)

Business at OECD (BIAC)

Business for Social Responsibility (BSR)

Childhood Brasil

Cobalt Development Institute

Columbia Center on Sustainable Investment (CCSI)

Commercial and Industrial Association of São Gonçalo de Rio Abaixo

Commercial Association of Açailândia

Commercial Association of Buriticupu

Commercial Association of Canaã dos Carajas

Commercial Association of Cariacica

Commercial Association of Catas Altas

Commercial Association of Congonhas

Commercial Association of Curionópolis

Commercial Association of Marabá

Commercial Association of Maranhão

Commercial Association of Ourilândia

Commercial Association of Ouro Preto

Commercial Association of Parauapebas

Commercial Association of Rio de Janeiro (ACRJ)

Commercial Association of Rio Piracicaba (ACIARP)

Commercial Association of Tucumã

Commercial, Industrial and Agricultural Association of Barão de Cocais

Commercial, Industrial and Agricultural Association of Mariana

Commercial, Industrial, Service and Agricultural Association of Itabira

Comprehensive Education Reference Center, via Vale Foundation

Dow Jones Sustainability Index

Espírito Santo Minas Gerais Railroad Association (Sindfer)

Espírito Santo in Action

Espírito Santo State Federation of Industry (FINDES)

European Association of Metals

Everyone for Education Association, via Vale Foundation

Extractive Industries Transparency Initiative (EITI)

Forest Peoples Connection Network, via Fundo Vale

France-Brazil Chamber of Commerce

Global Business Initiative on Human Rights (GBI)

Group of Institutes, Foundations and Companies (GIFE)

India-Brazil Chamber of Commerce

Indonesian Mining Association

Industrial Association of Pará (CIP)

Institute for Industrial Development Studies (IEDI)

Institute of Government Relations (IRElGOV)

Instituto Acende Brasil ("Light up Brazil Institute," an electricity research institute)

International Council of Museums Brasil (ICOM)

International Council on Mining & Metals (ICMM)

ISS Governance

Japan-Brazil Central Association (ACNB)

Latin American Venture Philanthropy Network (Latimpecto), via Fundo Vale

Leaders of Tomorrow Institute

Malaysian International Chambers of Commerce and Industry (MICCI)

Malaysian Iron and Steel Industry Federation (MISIF)

Minas Gerais State Federation of Industry (FIEMG)

Mines for Peace Institute

Mining Association of Canada (MAC)

Mining Hub

Moody's

MSCI

NA CIS -2 / Neutral to Low

National Center for Technological Research on Nickel and the Environment, New Caledonia

National Confederation of Industry (CNI)

National Education and Research Network, via Vale Institute of Technology

National Forum of Research and Graduate Studies Provosts (FOPROP), via Vale Institute of Technology

National Pact for Early Childhood, via Vale Foundation

National Pact to Eradicate Slave Labor (InPACTO)

National Railroad Transportation Association (ANTF)

Nickel Institute

Ouro Preto Economic and Social Development Agency (ADOP)

Pact to Promote Racial Equity

Pará State Mining Industry Association (Simineral)

Rio de Janeiro Industrial Center Association (CIRJ)

Rio de Janeiro State Federation of Industry (FIRJAN)

Serra Businesspeople's Association (ASES)

Sustainable Development Solutions Network (SDSN)

Sustainalytics

Task Force on Climate-related Financial Disclosures (TCFD)

Taskforce on Nature-related Financial Disclosures (TNFD)

U.S. Chamber of Commerce in Brazil (AMCHAM)

UNICEF Partners in the Brazilian Amazon, via Vale Foundation

Vila Velha Businesspeople's Association (ASEVILA)

Voluntary Principles on Security and Human Rights

Wise Group

Women in Mining and Resources Singapore

Women in Mining Brasil

World Business Council for Sustainable Development (WBCSD)

World Economic Forum



Employees Vladimir Dias, Douglas Messias, Juscélia Neves and Maria Helena Madeira at Mar Azul mine, Minas Gerais, Brazil

Assurance

GRI 2-5

Independent auditor's limited assurance report on the non-financial information included in the 2024 Integrated Report (A free translation of the original in Portuguese)

To the Board of Directors and Stockholders
Vale S.A.
Rio de Janeiro – RJ

Introduction

We have been engaged by Vale S.A. ("Company" or "Vale") to present our limited assurance report on the non-financial information included in the 2024 Integrated Report and certain selected information from the attachment Databook ESG (hereinafter collectively referred to as "2024 Integrated Report") for the year ended December 31, 2024, as detailed in the basis of preparation (named Premises Base).

Our limited assurance does not cover prior-period information, or any other information disclosed together with the 2024 Integrated Report, including any images, audio files or videos.

Responsibilities of Vale's management

The management of Vale is responsible for:

- (a) selecting or establishing adequate criteria for the preparation and presentation of the information included in the 2024 Integrated Report;
- (b) preparing the information in accordance

with the GRI Standards, with the Premises Base developed by the Company, with Guidance CPC 09 – Integrated Reporting, issued by the Federal Accounting Council (CFC), equivalent to the Basic Conceptual Framework for Integrated Reporting, prepared by the International Integrated Reporting Council (IIRC), and with the subject matters 1 to 5 of the ICMM – International Council on Mining and Metals (detailed content in the "Subject matters ICMM" tab of the Databook ESG);

(c) designing, implementing and maintaining internal controls over the significant information used in the preparation of the 2024 Integrated Report, free from material misstatement, whether due to fraud or error.

Limitations in the preparation and presentation of non-financial information and indicators

In the preparation and presentation of non-financial information and indicators Management followed the definitions of the Premises Base developed by the Company and the GRI Standards and, therefore, the information included in the 2024 Integrated Report does not aim to provide assurance with regard to the compliance with social, economic, environmental or engineering laws and regulations. However, the aforementioned standards establish the presentation and disclosure of possible cases of non-compliance with such regulations when sanctions or significant fines are applied.

The absence of a significant set of established practices on which to base the evaluation and measurement of non-financial information allows for different but acceptable evaluation and measurement techniques, which can affect comparability between entities and over time.

Our independence and quality control

We comply with the independence and other ethical requirements of the Federal Accounting Council (CFC) in NBCs PG 100 and 200 and NBC PA 291, which are based on the principles of integrity, objectivity and professional competence, and which also consider the confidentiality and behavior of professionals.

We apply the Brazilian and international quality control standards established in NBC PA 01, issued by the CFC, and thus maintain an appropriate quality control system that includes policies and procedures related to compliance with ethical requirements, professional standards, legal requirements and regulatory requirements.

Independent auditor's responsibility

Our responsibility is to express a conclusion on the non-financial information included in the 2024 Integrated Report, based on our limited assurance engagement carried out in accordance with the Technical Communication CTO 01/12, "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), applicable to non-financial information.

The aforementioned standards require that the work be planned and performed to obtain limited

assurance that the non-financial information included in the 2024 Integrated Report, taken as a whole, is free from material misstatement, whether due to fraud or error, and to issue a limited assurance report that includes our conclusion.

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 Vale involved in the preparation of the information, as well as applying analytical procedures to obtain evidence that allows us to issue a limited assurance conclusion on the information, taken as a whole. A limited assurance engagement also requires the performance of additional procedures when the independent auditor becomes aware of matters that lead him to believe that the information disclosed in the 2024 Integrated Report taken as a whole might present material misstatements.

As part of a limited assurance engagement in accordance with NBC TO 3000 (ISAE 3000), we exercise professional judgment and maintain professional skepticism throughout the engagement. We also:

- (a) Determine the suitability in the circumstances of the Company's use of the GRI Standards as basis of preparation of the non-financial information and indicators.
- (b) Perform risk assessment procedures, including obtaining an understanding of internal controls relevant to the engagement, to identify where material misstatements are likely to arise, whether due to fraud or error, but not for the purpose of providing a conclusion on the effectiveness of the Company's internal controls.
- (c) Design and perform procedures responsive

to where material misstatements are likely to arise in the non-financial information and indicators. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal controls.

Summary of the procedures performed

The procedures selected are based on our understanding of the aspects related to the compilation, materiality, and presentation of the information included in the 2024 Integrated Report, other circumstances of the engagement and our analysis of the activities and processes associated with the material information disclosed in the 2024 Integrated Report in which significant misstatements might exist. The procedures comprised:

- (a) planning the work, taking into consideration the materiality and the volume of quantitative and qualitative information and the operating and internal control systems that were used to prepare the information included in the 2024 Integrated Report;
- (b) understanding the calculation methodology and the procedures adopted for the compilation of indicators through inquiries of the managers responsible for the preparation of the information;
- (c) applying analytical procedures to quantitative information and making inquiries regarding the qualitative information and its correlation with the indicators disclosed in the 2024 Integrated Report;
- (d) applying substantive tests to certain non-

financial information and indicators; and

- (e) when non-financial data relate to financial indicators, comparing these indicators with the financial statements and/or accounting records;
- (f) understanding and analysis of the Company's approach to ICMM subject matters.

The limited assurance engagement also included the analysis of the compliance with the GRI Standards, the principles for the Integrated Reporting, pursuant to Guidance CPC 09 – Integrated Reporting, the criteria established in the Premises Base developed by the Company, and the subject matters 1 to 5 of the ICMM – International Council on Mining and Metals. Our procedures did not include assessing the adequacy of the design or operating effectiveness of the controls, testing the data on which the estimates are based or separately developing our own estimate to compare with Vale's estimate.

Basis for conclusion

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

Scope and limitations

The procedures applied in a limited assurance engagement are substantially less detailed than those applied in a reasonable assurance engagement, the objective of which is the issuance of an opinion on the information included in the 2024 Integrated Report. Consequently, we were unable to obtain reasonable assurance that we would become aware of all significant matters that might be identified in a reasonable assurance engagement, the objective of which is the issuance 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 information included in the 2024 Integrated Report. Therefore, we do not express an opinion on this information.

Non-financial data are subject to more inherent limitations than financial data, due to the nature and diversity of the methods used to determine, calculate and estimate these data. Qualitative interpretations of the relevance, materiality, and accuracy of the data are subject to individual assumptions and judgments. Furthermore, we did not consider in our engagement the data reported for prior periods, nor future projections and goals. Our assurance report must be read and understood in the context of the limitations inherent in the process of the preparation of non-financial information and indicators used by management, including the fact this information is not intended to provide assurance with regard to the compliance with social, economic, environmental or engineering laws and regulations.

The contents included in the scope of this assurance engagement are presented in the Premises Base of the 2024 Integrated Report.

Conclusion

Based on the procedures performed, described herein, and on the evidence obtained, no matter has come to our attention that causes us to believe that the non-financial information included in the 2024 Integrated Report of Vale has not been prepared, in all material respects, in accordance with the criteria established in the Premises Base, with the GRI Standards, with the Guidance CPC 09 – Integrated Reporting and with the ICMM criteria.

Other matters – Restriction on use and distribution

This report was prepared for the use of Vale and may be presented or distributed to third parties, as long as they are familiar with the object and criteria applicable to this assurance engagement, considering its specific purpose described in the first paragraph of this report.

Any parties other than Vale that obtain access to this report, or a copy thereof, and rely on the information contained therein does so at their own risk. We do not accept or assume any responsibility and deny any liability to any party other than Vale for our engagement, the assurance report or our conclusions.

São Paulo, April 11, 2025

**PricewaterhouseCoopers
Audidores Independentes Ltda.**
CRC 2SP000160/O-5

Maurício Colombari
Contador CRC 1SP195838/O-3

GRI content index

Statement of use Vale has reported in accordance with the GRI Standards for the period from January 1 to December 31, 2024.
GRI1 used GRI1: Foundation 2021

GRI Standard	Disclosure	Page number(s) and/or url(s)page number(s) and/or url and/or direct answers	Material / Non-material	Omission		
				Requirement(s) omitted	Reason	Explanation
Temas materiais						
	2-1 Organizational details	Page 8 .	Mandatory			
	2-2 Entities included in the organization's sustainability reporting	Pages 25 and 113 . The financial statements can be checked at link . All entities controlled by vale are covered in the integrated reporting.	Mandatory			
	2-3 Reporting period, frequency and contact point	Annual. Further information can be found on page 113 .	Mandatory			
	2-4 Restatements of information	Pages 29 , 37 and 46 . More information can be found in the "social data" tab of the ESG Databook .	Mandatory			
	2-5 External assurance	Pages 113 and 116 . Vale's external verification process is required by its membership of the International Council on Mining and Metals (ICMM).	Mandatory			
GRI 2: General Disclosures 2021	2-6 Activities, value chain and other business relationships	Page 100 . Further information can be found in the 2024 Reference Form - Section item 1.1. Issuer's History / 1.4. Information related to products and services corresponding to operating segments.	Mandatory			
	2-7 Employees	Page 37 . More information can be found in the "social data" tab of the ESG Databook .	Mandatory			
	2-8 Workers who are not employees	Page 37 . More information can be found in the "social data" tab of the ESG Databook .	Mandatory			
	2-9 Governance structure and composition	Pages 25 and 27 . Further information can be found in Board of Directors' Internal Regulations .	Mandatory			
	2-10 Nomination and selection of the highest governance body	Pages 26 and 27 . Further information can be found in the Form 20F 2024 - section: Management and employees.	Mandatory			
	2-11 Chair of the highest governance body	Pages 25 and 27 . The CEO does not accumulate the position of chairman of the board of directors.	Mandatory			

GRI Standard	Disclosure	Page number(s) and/or url(s)page number(s) and/or url and/or direct answers	Material / Non-material	Omission	
				Requirement(s) omitted"	Reason Explanation
GRI 2: General Disclosures 2021	2-12 Role of the highest governance body in overseeing the management of impacts	Pages 11, 16, 26, 27, 109 and 113 . Further information can be found in 2024 General Meetings of Shareholders and Internal Regulations of the Sustainability Committee - Chapter V - Meetings.	Mandatory		
	2-13 Delegation of responsibility for managing impacts	Pages 25 and 26 . Further information can be found in Board of Directors' Internal Regulations .	Mandatory		
	2-14 Role of the highest governance body in sustainability reporting	Pages 11, 26 and 113 .	Mandatory		
	2-15 Conflicts of interest	The absence of conflicts of interest is one of the ethical principles of the Code of Conduct . We repudiate and reject any action, influence or decision motivated by interests contrary to Vale's standards. Further information can be found in Related Parties Transactions and Conflicts of Interest Policy .	Mandatory		
	2-16 Communication of critical concerns	Pages 28, 31 and 97 . Further information can be found in the Form 20F 2024 and in the 2024 Reference Form , both on section: "Risk Factors".	Mandatory		
	2-17 Collective knowledge of the highest governance body	Page 26 . Further information can be found in 2024 General Meetings of Shareholders .	Mandatory		
	2-18 Evaluation of the performance of the highest governance body	Page 26 . Additional information regarding the content is disclosed in the Reference Form and should be consulted in the chapter "7. Shareholders' meeting and management".	Mandatory		
	2-19 Remuneration policies	Page 27 . Further information can be found in the 2024 Reference Form - Item "8. Management compensation /8.1. Compensation policy or practice".	Mandatory		
	2-20 Process to determine remuneration	Page 27 . Additional information regarding the content is disclosed in the Reference Form under the chapters Management Compensation and Compensation Policy/Practice.	Mandatory		

GRI Standard	Disclosure	Page number(s) and/or url(s)page number(s) and/or url and/or direct answers	Material / Non-material	Omission	
				Requirement(s) omitted"	Reason Explanation
GRI 2: General Disclosures 2021	2-21 Annual total compensation ratio	The ratio between the highest individual compensation and the median individual compensation of Vale employees, for the fiscal year ending 2024, is 441.08 times, according to the accrual accounting view. More information on the methodology used for the calculation can be found in the Reference Form , in section "10.3. Employee remuneration policies and practices"	Mandatory		
	2-22 Statement on sustainable development strategy	Pages 4, 5, 6, 13, 19 and 21 .	Mandatory		
	2-23 Policy commitments	Pages 13 and 83 . Further information can be foun at Form 20-F 2024, section: 4. Risk Factor.	Mandatory		
	2-24 Embedding policy commitments	Pages 13 and 39 .	Mandatory		
	2-25 Processes to remediate negative impacts	Pages 11, 16, 31, 97 and 109 .	Mandatory		
	2-26 Mechanisms for seeking advice and raising concerns	Pages 31 and 97 .	Mandatory		
	2-27 Compliance with laws and regulations	Page 32 .	Mandatory		
	2-28 Membership associations	Page 114 .	Mandatory		
	2-29 Approach to stakeholder engagement	Pages 16 and 109 .	Mandatory		
	2-30 Collective bargaining agreements	Page 41 .	Mandatory		
Material topics					
GRI 3: Material Topics 2021	3-1 Process to determine material topics	Page 11 . Further information can be found at Vale's ESG Portal .	Mandatory		
GRI 3: Material Topics 2021	3-2 List of material topics	Page 11 . There have been no significant changes in the material topics since the last integrated report.	Mandatory		

GRI Standard	Disclosure	Page number(s) and/or url(s)page number(s) and/or url and/or direct answers	Material / Non-material	Omission	
				Requirement(s) omitted"	Reason Explanation
Dams					
GRI 3: Material Topics 2021	3-3 Management of material topics	Page 47 . Further information can be found at Vale's ESG Portal .	Mandatory		
GRI G4 Mining and Metals Sector Disclosures 2013	MM3 Total amounts of overburden, rock, tailings, and sludges and their associated risks	Pages 54 . More information can be found in the "environment data" tab of the ESG Databook .	Material		
Biodiversity					
GRI 3: Material Topics 2021	3-3 Management of material topics	Page 65 . Further information can be found at Vale's ESG Portal .	Mandatory		
GRI 304: Biodiversity 2016	304-1 Operational sites owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas	ESG Databook : "environment data" tab.	Material		
	304-2 Significant impacts of activities, products and services on biodiversity	ESG Databook : "environment data" tab.	Material		
	304-3 Habitats protected or restored	Page 65 . More information can be found in the "environment data" tab of the ESG Databook .	Material		
	304-4 IUCN Red List species and national conservation list species with habitats in areas affected by operations	ESG Databook : "environment data" tab.	Material		
Mining and Metals Sector Disclosures	MM1 Amount of land (owned or leased, and managed for production activities or extractive use) disturbed or rehabilitated	ESG Databook : "environment data" tab.	Material		
	MM2 The number and percentage of total sites identified as requiring biodiversity management plans according to stated criteria, and the number (percentage) of those sites with plans in place	Page 65 . More information can be found in the "environment data" tab of the ESG Databook .	Material		
Ecoefficiency					
GRI 3: Material Topics	3-3 Management of material topics	Page 59 . Further information can be found at Vale's ESG Portal .	Mandatory		

GRI Standard	Disclosure	Page number(s) and/or url(s)page number(s) and/or url and/or direct answers	Material / Non-material	Omission		
				Requirement(s) omitted"	Reason	Explanation
GRI 303: Water and Effluents 2018	303-1 Interactions with water as a shared resource	Page 59 . More information can be found in the "environment data" tab of the ESG Databook .	Material			
	303-2 Management of water discharge-related impacts	Page 59 . More information can be found in the "environment data" tab of the ESG Databook .	Material			
	303-3 Water withdrawal	Page 53 . More information can be found in the "environment data" tab of the ESG Databook .	Material			
	303-4 Water discharge	Page 59 . More information can be found in the "environment data" tab of the ESG Databook .	Material	303-4-d-iii	Information unavailable/incomplete.	We follow the regulations in place, maintaining our controls, the violations are investigated and reported to the responsible authorities, and the appropriate action plans are established. However, the definitions of "non-conformities" are under discussion, making it impossible to make any statements.
	303-5 Water consumption	Page 69 . More information can be found in the "environment data" tab of the ESG Databook .	Material			
GRI 305: Emissions 2016	305-7 Nitrogen oxides (NOx), sulfur oxides (SOx), and other significant air emissions	Page 63 . More information can be found in the "environment data" tab of the ESG Databook .	Material			
Mine closure and future use						
GRI 3: Material Topics 2021	3-3 Management of material topics	Page 57 . Further information can be found at Vale's ESG Portal .				Mandatory
GRI G4: Mining and Metals Sector Disclosures	MM10 Number and percentage of operations with closure plans	Page 57 . More information can be found in the "environment data" tab of the ESG Databook .				Material
Climate change						
GRI 3: Material Topics 2021	3-3 Management of material topics	Page 66 . Further information can be found at Vale's ESG Portal .				Mandatory

GRI Standard	Disclosure	Page number(s) and/or url(s)page number(s) and/or url and/or direct answers	Material / Non-material	Omission	
				Requirement(s) omitted"	Reason Explanation
GRI 201: Economic Performance 2016	201-2 Financial implications and other risks and opportunities due to climate change	More information can be found in the ESG Databook : 'Economic Data' tab, Climate Change Report, and 2024 Form 20-E , section 4: Risk Factors	Material		
	302-1 Energy consumption within the organization	Page 73 . More information can be found in the "environment data" tab of the ESG Databook .	Material		
GRI 302: Energy 2016	302-2 Energy consumption outside of the organization	ESG Databook : "environment data" tab.	Material		
	302-3 Energy intensity	Page 73 . More information can be found in the "environment data" tab of the ESG Databook .	Material		
	302-4 Reduction of energy consumption	Page 73 . More information can be found in the "environment data" tab of the ESG Databook .	Material		
	305-1 Direct (Scope 1) GHG emissions	Page 72 . More information can be found in the "environment data" tab of the ESG Databook .	Material		
GRI 305: Emissions 2016	305-2 Energy indirect (Scope 2) GHG emissions	Page 72 . More information can be found in the "environment data" tab of the ESG Databook .	Material		
	305-3 Other indirect (Scope 3) GHG emissions	Page 72 . More information can be found in the "environment data" tab of the ESG Databook .	Material		
	305-4 GHG emissions intensity	Page 72 . More information can be found in the "environment data" tab of the ESG Databook .	Material		
	305-5 Reduction of GHG emissions	ESG Databook : "environment data" tab.	Material		
	305-6 Emissions of ozone-depleting substances (ODS)	ESG Databook : "environment data" tab.	Material		
Governance and compliance					
GRI 3: Material Topics 2021	3-3 Management of material topics	Page 25 . Further information can be found at Vale's ESG Portal .	Mandatory		
GRI 201: Economic Performance 2016	201-1 Direct economic value generated and distributed	Page 85 . More information can be found in the "economic data" tab of the ESG Databook .	Material		
	201-4 Financial assistance received from government	ESG Databook : "economic data" tab.	Material		
GRI 205: Anti-Corruption 2016	205-1 Operations assessed for risks related to corruption	Page 30 e 31 . ESG Databook : "economic data" tab.	Material		
	205-2 Communication and training about anti-corruption policies and procedures	Page 30 . More information can be found in the "economic data" tab of the ESG Databook .	Material		
	205-3 Confirmed incidents of corruption and actions taken	ESG Databook : "economic data" tab.	Material		

GRI Standard	Disclosure	Page number(s) and/or url(s)page number(s) and/or url and/or direct answers	Material / Non-material	Omission	
				Requirement(s) omitted"	Reason Explanation
GRI 206: Anti-competitive Behavior 2016	206-1 Legal actions for anti-competitive behavior, anti-trust, and monopoly practices	ESG Databook: "economic data" tab.	Material		
Human rights					
GRI 3: Material Topics 2021	3-3 Management of material topics	Page 33 . Further information can be found at Vale's ESG Portal .	Mandatory		
GRI 408: Child Labor 2016	408-1 Operations and suppliers at significant risk for incidents of child labor	Page 35 . More information can be found in the "social data" tab of the ESG Databook .	Material		
GRI 409: Forced or Compulsory Labor 2016	409-1 Operations and suppliers at significant risk for incidents of forced or compulsory labor	Page 35 . More information can be found in the "social data" tab of the ESG Databook .	Material		
GRI 410: Security Practices 2016	410-1 Security personnel trained in human rights policies or procedures	Page 33 . More information can be found in the "social data" tab of the ESG Databook .	Material		
People					
GRI 3: Material Topics 2021	3-3 Management of material topics	Page 36 . Further information can be found at Vale's ESG Portal .	Mandatory		
GRI 202: Economic Performance 2016	202-1: Ratios of standard entry level wage by gender compared to local minimum wage	Page 41 . More information can be found in the "economic data" tab of the ESG Databook .	Material		
GRI G4 2013: Mining and Metals Sector Disclosures	MM4: Number of strikes and lock-outs exceeding one week's duration, by country	Page 41 . More information can be found in the "social data" tab of the ESG Databook .	Material		
GRI 201: Economic Performance 2016	201-3 Defined benefit plan obligations and other retirement plans	ESG Databook: "economic data" tab. Further information can be found in the 2024 Form 20F - section: Employees.	Material		
GRI 401: Employment 2016	401-1 New employee hires and employee turnover	ESG Databook: "social data" tab.	Material		
	401-2 Benefits provided to full-time employees that are not provided to temporary or part-time employees	ESG Databook: "social data" tab.	Material		
	401-3 Parental leave	ESG Databook: "social data" tab.	Material		

GRI Standard	Disclosure	Page number(s) and/or url(s)page number(s) and/or url and/or direct answers	Material / Non-material	Omission		
				Requirement(s) omitted"	Reason	Explanation
GRI 404: Training and Education 2016	404-1 Average hours of training per year per employee	Pages 39 and 40 . More information can be found in the "social data" tab of the ESG Databook .	Material			
	404-2 Programs for upgrading employee skills and transition assistance programs	ESG Databook : "social data" tab.	Material			
	404-3 Percentage of employees receiving regular performance and career development reviews	ESG Databook : "social data" tab.	Material			
GRI 405: Diversity and Equal Opportunity 2016	405-1 Diversity of governance bodies and employees	ESG Databook : "social data" tab.	Material			
GRI 405: Diversity and Equal Opportunity 2016	405-2 Ratio of basic salary and remuneration of women to men	Page 41 . More information can be found in the "social data" tab of the ESG Databook	Material	405-2-a 405-2-b	Information unavailable/incomplete.	The information disclosed about the ratio between the base salaries and remuneration received by women and men does not use "significant operational units" as a criterion, because the employees of all the company's units are considered.
GRI 406: Non-Discrimination 2016	406-1 Incidents of discrimination and corrective actions taken	Page 31 . More information can be found in the "social data" tab of the ESG Databook .	Material			
GRI 407: Freedom of Association and Collective Bargaining 2016	407-1 Operations and suppliers in which the right to freedom of association and collective bargaining may be at risk	Page 41 . More information can be found in the "social data" tab of the ESG Databook .	Material			
Health and safety						
GRI 3: Material Topics 2021	3-3 Management of material topics	Page 42 . Further information can be found at Vale's ESG Portal .	Mandatory			
GRI 403: Occupational Health and Safety 2018	403-1 Occupational health and safety management system	ESG Databook : "social data" tab.	Material			
	403-2 Hazard identification, risk assessment, and incident investigation	ESG Databook : "social data" tab.	Material			
	403-3 Occupational health services	ESG Databook : "social data" tab.	Material			
	403-4 Worker participation, consultation, and communication on occupational health and safety	ESG Databook : "social data" tab.	Material			

GRI Standard	Disclosure	Page number(s) and/or url(s)page number(s) and/or url and/or direct answers	Material / Non-material	Omission		
				Requirement(s) omitted"	Reason	Explanation
GRI 403: Occupational Health and Safety 2018	403-5 Worker training on occupational health and safety	ESG Databook: "social data" tab.	Material			
	403-6 Promotion of worker health	ESG Databook: "social data" tab.	Material			
	403-7 Prevention and mitigation of occupational health and safety impacts directly linked by business relationships	ESG Databook: "social data" tab.	Material			
	403-8 Workers covered by an occupational health and safety management system	ESG Databook: "social data" tab.	Material			
	403-9 Work-related injuries	Page 44 . More information can be found in the "social data" tab of the ESG Databook .	Material			
GRI 403: Occupational Health and Safety 2018	403-10 Work-related ill health	Page 44 . More information can be found in the "social data" tab of the ESG Databook .	Material	403-10-b	Information unavailable/incomplete.	The data reported here deals only with employees, health statistics on third-party employees are managed by the contracting company.
Local communities						
GRI 3: Material Topics 2021	3-3 Management of material topics	Pages 83 and 98 . Further information can be found at Vale's ESG Portal .	Mandatory			
GRI 203: Indirect Economic Impacts 2016	203-1 Infrastructure investments and services supported	Pages 46, 51, 66, 79, 84, 85, 86, 90, 95 and 102 . More information can be found in the "economic data" tab of the ESG Databook .	Material			
	203-2 Significant indirect economic impacts	ESG Databook: "economic data" tab.	Material			
GRI 411: Rights of Indigenous People 2016	411-1 Incidents of violations involving rights of Indigenous People	ESG Databook: "social data" tab.	Material			
GRI 413: Local Communities 2016	413-1 Operations with local community engagement, impact assessments, and development programs	Pages 46, 83 and 98 . More information can be found in the "social data" tab of the ESG Databook .	Material			
	413-2 Operations with significant actual and potential negative impacts on local communities	Pages 46, 83 and 98 . More information can be found in the "social data" tab of the ESG Databook .	Material			

GRI Standard	Disclosure	Page number(s) and/or url(s)page number(s) and/or url and/or direct answers	Material / Non-material	Omission	
				Requirement(s) omitted"	Reason Explanation
GRI G4: Mining and Metals Sector Disclosures	MM5 Total number of operations taking place in or adjacent to Indigenous People' territories, and number and percentage of operations or sites where there are formal agreements with Indigenous People' communities	Pages 46 and 93 . More information can be found in the "social data" tab of the ESG Databook .	Material		
	MM6 Number and description of significant disputes relating to land use, customary rights of local communities and Indigenous People	Page 95 . More information can be found in the "social data" tab of the ESG Databook .	Material		
	MM7 The extent to which grievance mechanisms were used to resolve disputes relating to land use, customary rights of local communities and Indigenous People, and the outcomes	Page 95 . More information can be found in the "social data" tab of the ESG Databook .	Material		
	MM8 Number (and percentage) of company operating sites where artisanal and small-scale mining (ASM) takes place on, or adjacent to, the site; the associated risks and the actions taken to manage and mitigate these risks.	ESG Databook : "social data" tab.	Material		
	MM9 Sites where resettlements took place, the number of households resettled in each, and how their livelihoods were affected in the process	Pages 51 and 96 . More information can be found in the "social data" tab of the ESG Databook .	Material		

Credits

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BH Press Comunicação e Sustentabilidade

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MTC Comunicação Estratégica

Translation

Batata Comunicação

International Reviewer

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Infographics

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Cover

Employees at CPBS Port, in Itaguaí, Rio de Janeiro, Brazil. Photo: Ricardo Teles.

We would like to thank all individuals who were directly or indirectly involved in preparing the 2024 Integrated Report.

Published April 2025.

