One of two 100% electric trucks delivered to iron ore mines.

MANAGEMENT REPORT 2022

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INFORMATION ON WEBCAST AND CONFERENCE CALL

Vale S.A. ("Vale" or the "Company") will host a webcast on Friday, February 17, 2023 at 11:00 am, Brasília time (9:00 am New York time; 2:00 pm London time). Internet access to the webcast and presentation materials will be available on Vale's website at www.vale.com/investidores. The conference call will be in English, simultaneously translated into Portuguese and broadcast live on the Company's *website*. A recorded copy of the webcast will be available shortly after the end of the conference call. Interested parties can listen to the conference call by calling:

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The Access Code for this call is VALE.

More information on Vale can be found at: vale.com

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A Letter from the Chairman of the Board of Directors

Dear Shareholders,

Vale advances in its ambition to become a leader in sustainable mining and a reference in creating and sharing value with its shareholders, stakeholders, and society. In the global energy transition, Vale plays a fundamental role, with its portfolio of high-quality iron ore products and solutions, essential for the decarbonization of the steel industry, and as a producer of essential metals for global electrification.

In 2022, with clear goals for its long-term environmental and social activities, Vale intensified dialogue with shareholders, communities, and society, and evolved with greater information transparency. The Board of Directors continues to act with enthusiasm and diligence in building the Vale of the future.

Effective Board performance

The Board of Directors, reappointed at the 2022 Annual General Meeting, played an effective role in defining the Company's future. At 80 years of Vale's operations in Brazil and planning Vale for the next 20 years, the Board approved the Vale 100 Strategy, which supports Vale's centenary journey. The Board's performance in long-term strategic planning benefited from the broad and diverse background of its members, with very rich and plural discussions.

The Board's dynamics gained more efficiency, with a reduction in the number of meetings and better dynamics in discussions. In 2022, 21 Board meetings and 86 Advisory Committee meetings were held, a 42% and 21% reduction, respectively, compared to 2021, the first year of the current Board's mandate.

Oversight of critical issues

The Board of Directors highlights the efficient oversight of issues critical to Vale's short and long-term performance as one of its priorities. In 2022, the Board maintained close monitoring on the following matters:

- Periodic monitoring of Vale's Integrated Global Risk Map.
- The evolution of tailings dam management, structures in critical safety conditions and the progress of the Upstream Dam Decharacterization Program.
- Brumadinho reparation and the execution of Brumadinho's Integral Reparation Agreement, according to established timeframes.
- The reparation in Mariana, led by the Renova Foundation, with attention to accelerating the housing rights restoration and individual compensation processes. The Board monitors the negotiations with authorities for higher-speed reparation programs.
- The progress of cultural transformation, to make Vale a reliable operator, a leader in sustainable mining, a benchmark in safety, innovative, talent-driven, diverse, and inclusive.
- The launch of Vale's first public report on its Ethics & Compliance Program, referring to the previous year.
- Details of actions required to achieve the long-term social goal – lifting 500,000 people out of extreme poverty by 2030[1].
- Actions for the stability of Iron Solutions and Energy Transition Materials operations with safety and competitiveness.
- Expansion of the high-quality iron ore products and solutions portfolio, in partnership with clients.
- The reorganization of the Energy Transition Materials business and the search for a minority investor for the business, to accelerate the value creation agenda in the energy transition.

[1] In line with the Sustainable Development Goals of the United Nations, particularly item 1 – Poverty Eradication.

- The divestment of non-core assets, with the completion of transactions related to the California Steel Industries – CSI, the Moatize coal mine and the Nacala Logistics Corridor, and the iron ore, manganese, and logistics assets of the Midwestern System, in addition to entering into a binding agreement for the sale of the Companhia Siderúrgica do Pecém – CSP.

Capital allocation and return on value

Vale's Board sustains its commitment to return value to shareholders and understands that the dividend distribution and share buyback programs are important tools in this regard. The Board approved the payment of dividends and interest on equity that represented, in 2022, R$ 5.69 /share, generating a return (dividend yield) of 7.3% on the share value at the end of 2021[2].

In 2022, the Board also approved a new share buyback program, which reached 43% of its totality, with approximately 213 million shares repurchased for a total of US$ 3.4 billion, representing more than 5% of outstanding shares as of the date of this report. Altogether, the three buyback programs executed since 2021 have accumulated a total of 683 million shares repurchased and earnings and dividends on a per share basis have increased 15%.

Governance improvements

The Board simplified and modernized the Company's policy framework, which included a comprehensive review of the attributions of Vale's governance bodies, in line with best global practices. To reinforce the role of the Board of Directors in the Company's strategic direction, the powers of the body were revised, and the levels of delegation to the Executive Committee were increased with the Authority Policy review. The composition of the statutory committees became exclusive to elected members and the number of permanent committees was reduced from 7 to 5, with the scope of the remaining committees being adjusted to ensure full coverage of critical issues.

The new design of the top leadership, established in December 2022, aims to accelerate the achievement of the Company's strategic objectives. The adjustments favor, among other items, the acceleration of the development of products and innovative solutions in iron ore and the improvement of the marketing strategy for Vale's portfolio, the wide implementation of Vale’s management model in the Iron Ore business, the support for the development and longevity of the Company's portfolio and the reinforcement of Vale's second line of defense and risk management model.

ESG Commitments

The implementation of Vale's climate strategy reached important milestones in 2022, such as the operational start-up of Sol do Cerrado solar park, the largest project of its kind in Latin America. The Board monitors the maturity and development of projects and technologies that are critical to achieving the Company's carbon emissions reduction targets, in line with the Paris Agreement and in pursuit of carbon neutrality by 2050.

As a circular mining approach, the Board encourages the development of co-products from the reuse of mining tailings. In the preservation and recovery of forests, about 50 thousand hectares were protected in 2022, totaling more than 170 thousand hectares protected and/or recovered since 2019, which add up to about 1 million hectares of forest protected by Vale, mostly in the Amazon[3].

On the social front, the Board encourages building positive relationships with communities surrounding operations, with special attention to ESG controversies, indigenous peoples, and traditional communities. In 2022, Eduardo Bartolomeo had the honor of being the first and only Vale CEO, in 40 years of operations in the region, to visit the indigenous land and celebrate a historic agreement with the Xikrin do Cateté Indigenous People, ending 15-year controversies and starting a positive phase in the relationship model.

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[2] Considering earnings distributed per share (R$ 5.69), divided by the closing share price (R$ 77.96) on 12/30/2021 (excluding dividends paid in 2022). The starting share value considered was defined within the period related to the dividend (year 2022) for a better yield measurement in the referred period.

[3] Directly or through partnerships.

Perspectives for the evolution of Vale's Board of Directors

At the next Annual General Meeting, shareholders will have the opportunity to elect Vale's Board of Directors for the 2023-2025 term. To structure the process of nominating candidates, in June 2022, the Board of Directors installed the Nominating Committee, composed mostly of independent directors. In tune with the challenges faced by society and by Vale, the Board to be elected will guide the Company on its centenary journey, with operational excellence, towards leadership in sustainable mining.

On behalf of Vale's Board of Directors, I thank you for your support and renew our commitment to building a better Vale. We will continue to act energetically and attentively to make Vale one of the safest and most reliable mining companies in the world.

Jose Luciano Penido
Chairman of the Board of Directors

A message from Vale's CEO

Dear Vale Shareholder,

The year of 2022 was affected by issues with global impacts, such as the war in Ukraine and the challenging economic picture in the United States, as well as the Covid-19 developments in China. Despite the demanding and volatile scenario, we built a solid result and returned value to our stakeholders. I thank my colleagues on the Executive Committee, our Board of Directors, our employees, the communities where we operate, suppliers and clients for their continued support and partnership.

Additional uncertainties about energy supply have joined the climate emergency to reinforce the necessary diversification of matrixes on a global level. In this context, Vale is essential to the energy revolution. In addition to acting to reduce its own emissions, Vale is uniquely positioned with its high-quality products and solutions and assets strategically positioned to support the decarbonization of the steel industry and the electrification of the world.

A change in the iron ore demand profile is in progress, with higher opportunities for segmentation and growth in demand for high quality. We are facing a unique transformation in the steel market and there is no other company that combines volume and high-quality iron ore, innovative products and supply chain like Vale to deliver decarbonization solutions that the steel industry needs.

In 2022, Vale engaged with clients that represent about 50% of Vale's Scope 3 emissions to build partnerships in the development of low-carbon materials and solutions. In the same path, we signed three agreements in the Middle East for the development of Mega Hubs, industrial complexes focused on the supply of lower emission solutions. In Brazil, we began work on the first commercial plant of Tecnored, Vale's wholly-owned subsidiary focused on the production of pig iron using biomass as fuel, with zero CO_2 emissions.

In Energy Transition Materials, we have the right assets in the right jurisdictions, making us the ideal partner for supplying high-quality products to our clients. In the energy transition, we have strategic nickel supply agreements with Swedish lithium-cell producer Northvolt AB and automaker General Motors, and a memorandum of understanding of nickel processing between PTVI, Huayou and Ford Motor Co. We are developing a unique plant in Canada and North America to produce nickel sulfate from high-purity and low-carbon nickel from our Canadian refineries. This project is a natural extension for our business, offering diversified sales with fast entry and anchor point into the North American electric vehicle market.

We advanced in our scope 1 & 2 emissions reduction target by 2030, with 7 p.p. delivered in 2022, from the start of Sol do Cerrado operation, one of the largest solar projects in Latin América. We are more mature in our portfolio of projects portfolio for decarbonization, for example, we entered into a contract to enable the supply of natural gas as fuel for a pilot pelletizing plant. We are also testing biochar in our metallurgical and pelletizing processes, while progressing with the conversion of two pelletizing plants into green briquette plants. With the Powershift program, we are continuing the electrification of our operations through renewable sources by adding a new locomotive and new battery-powered off-highway trucks.

Our strategic roadmap, established in 2019, allowed significant results by 2022. We materially reduced Vale's risk exposure:

- We advanced in Brumadinho reparation, with the execution of 58% of the commitments set out in the Integral Reparation Agreement and total disbursement in the reparation of R$ 37.6 billion by 2022[4]. In Mariana reparation[5], the housing rights restoration was accelerated, with 315 solutions delivered by 2022, reaching a total of 441 solutions delivered, compared to the 584 requests by the resettlement.

- We reduced 40%[6] of our upstream dams' portfolio in Brazil, with 12 structures eliminated by 2022. The B3/B4 dam had its emergency level reduced from 3 to 2, an important step to eliminate critical safety conditions in dams by 2025. We also implemented successful safety improvements for another 8 tailings dams, which had emergency level

[4] Includes incurred expenses.
[5] Mariana reparation is conducted by Renova Foundation according to TTAC, term signed in March 2016 by the interested parties.
[6] Considers the number of decharacterized structures and to be decharacterized.

protocols deactivated. By December 2022, Vale's Tailings and Dams Management System achieved about 90% adherence to the requirements of the Global Industry Standard on Tailings Management (GISTM).

- We continue with the capacity resumption, with the delivery of new assets that increase the resilience and flexibility of our operations, such as the implementation of four tailings filtration plants, enabling safer and more sustainable beneficiation processes and reducing our dependence on the use of dams.

We have significantly simplified our portfolio, with the responsible divestment of 9 non-core assets in 5 countries since 2019, eliminating costs of up to US$ 2.0 billion per year. This action allows us to focus on our core assets, starting with the reorganization of our Energy Transition Materials operations in Brazil, with more efficient processes and management. We improved our cost efficiency with a comprehensive program to identify cost cutting and productivity gains, which include digital solutions and a new, leaner organizational design.

As a result of better practices and greater transparency, we received upgrades in our ESG ratings from Moody's and MSCI. Maintaining our discipline in capital allocation, we returned value to shareholders, with the distribution of US$ 6.6 billion in dividends and interest on capital by 2022, and US$ 6.0 billion dedicated to share buybacks.

In our Iron Solutions operations, we faced delays in the licensing of Serra Norte and a drop in the operational performance of S11D, linked to the jaspilite waste processing, which resulted in production in line with the previous year. In nickel operations, we closed the year with higher production, after successful actions to stabilize operations affected by a work stoppage in 2021. In copper operations, prolonged maintenance - necessary for asset integrity - affected the annual production volume. In 2023, we are in a stronger position to face remaining challenges, which enable Vale to deliver the production guidance.

Vale's transformation into a company that is a benchmark in safety is built day by day. Through our Safety Transformation Program, we have reduced more than 80% of the number of high-potential (N2) recordable injuries since 2019 in key critical activities, such as driving motor vehicles and operating mobile equipment. Vale now has the lowest Total Recordable Accident Frequency Rate (TRIFR) in 15 years. In 2022, more than 24 thousand employees gave their perception about the adherence to key behaviors in their routines, a picture that reveals the growth of the obsession for safety and risk management in our routine.

Vale's relationship with its communities is one of our priorities, and, in 2022, symbolic milestones were achieved, such as a historic agreement with the Xikrin do Cateté Indigenous People, which ended 15 years of controversy; an agreement with the Kayapó indigenous people, which agreed on resources for investments in structuring projects and established a fund for future generations; and the approval by the Gavião Indigenous People of the Basic Environmental Plan in the project for the duplication of the Carajás Railroad.

Our commitment to protecting human rights advances, with 76% of Vale's operations (including 100% of operations in Brazil) covered by human rights due diligence, reaching 100% by 2024. Seeking to be a good neighbor, we are working to serve 100% of priority communities with Relationship Plans by 2026, of which 78% of Brazilian communities already have their Relationship Plans. In 2022, Vale maintained relationships with 1,532 communities in different countries

Considering these results, and to strength our strategy for the Vale of the future, we have defined new strategic guidelines: promote sustainable mining, foster low-carbon solutions, and stay disciplined. We remain firm in our goal of making Vale a leader in sustainable mining, promoting low-carbon solutions for the energy revolution and for the decarbonization of the steel industry. And, of course, always with great discipline and being a reference in creating and sharing value.

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

Eduardo Bartolomeo
President

Highlights of the year

Business results

- **Adjusted EBITDA from continuing operations totaled R$ 102.1 billion**, 39% below 2021, mainly due to lower iron ore prices in the year. **Net earnings attributable to Vale's shareholders were R$ 95.9 billion**, down 21% when compared to R$ 121.2 billion in 2021, due to lower EBITDA.

- **Dividends and interest on equity** paid in the year represented R$ 5.69/share, generating a return (dividend yield) of 7.3% on the closing value of the share on December 31, 2021[7], reinforcing the company's commitment to returning shareholder value.

- **Strong commitment to the current share buyback program**, which reached 43% of its totality, with approximately 213 million shares[8] repurchased for a total of US$ 3.4 billion, representing more than 5% of outstanding shares as of the date of this report. Altogether, the three buyback programs accumulate a total of 683 million shares repurchased, and earnings and dividends on a per share basis have each increased 15%.

- **Iron ore production totaled 308 Mt**, 2% lower when compared to the previous year, mainly due to delays in the licensing of Serra Norte and the operational performance and jaspilite waste processing in S11D. The **production of pellets totaled 32 Mt**, in line with the 2021 production, with a better mix of direct reduction pellets, leveraged by a higher quality feed and taking advantage of higher market premiums.

- In the Energy Transition Materials operations, **nickel production totaled 179 kt**, 6% higher than 2021, mainly due to the stabilization of the Sudbury operations and the strong performance in Onça Puma. **Copper production totaled 253 kt**, down 15% year-on-year due to critical maintenance activities at Sossego and Salobo.

Strengthening core assets

- **Responsible divestment of non-core assets**, totaling 9 deals in 5 countries since 2019, eliminating expenditures of up to US$ 2.0 billion per year.

- **Approval of the Morowali project** (formerly known as Bahodopi nickel project), in Indonesia, with start-up scheduled for 2025. The RKEF (Rotary-Kiln Electric Furnace) front of the project is a partnership among PTVI and two Chinese partners with capacity of 73 ktpy, and estimated investment of around US$ 2.2 billion[9] for the plant RKEF and US$ 400 million for the mine.

- **Reorganization of energy transition materials operations in Brazil,** to centralize copper and nickel assets in two companies, with more efficient processes and management. The copper and nickel assets continue to be consolidated and wholly owned by Vale.

- **Approval for the construction of the 2nd furnace at Onça Puma**, in Brazil, with an investment of US$ 555 million to add capacity of 12-15 ktpy of nickel. The project is expected to start up operations in 1H25.

- In Canada, **beginning of the first phase of the C$ 945 million Copper Cliff Complex South Mine Project**, which is expected to nearly double ore production at the Copper Cliff mine, adding around 10 ktpy of nickel and 13 ktpy of copper.

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[7] Considering earnings distributed per share (R$ 5.67), divided by the closing share price (R$ 77.96) on 12/30/2021 (excluding dividends paid in 2022). The starting share value considered was defined within the period related to the dividend (year 2022) for a better yield measurement in the referred period.
[8] Related to the third buyback program in April 2022 for a total of 500 million shares. As reflected in our 4Q22 Financial Statements, as of December 30, 2022, the Company had repurchased approximately 188 million common shares for a total amount of US$2.9 billion.
[9] Base 100%. Excluding contingency. PTVI owns 49% of the processing facility and 100% of the mine. The mine will supply ore pursuant to PTVI's equity interest in the JV.

- **Delivery of the Salobo III project**, in Brazil, with investments in the order of US$ 1.0 billion for the implementation of the third processing line with a capacity of 12 Mtpy, a potential increase in copper production between 30 and 40 ktpy per year. Operation at full capacity is scheduled for 4Q24.

- **Beginning of construction of Tecnored's commercial plant**, worth R$ 1.6 billion. The start-up is scheduled for 2025, with an initial production capacity of 250 ktpy of green pig iron, which could reach 500 ktpy in the future.

Strategic partnerships

- Multi-year agreement to supply low-carbon nickel to Swedish lithium-cell producer **Northvolt AB**.

- Long-term nickel supply agreement with **General Motors**, key to North America's EV supply chain. Vale will supply battery grade nickel sulfate, equivalent to 25 ktpy of contained nickel, starting in 2026.

- Memorandum of Understanding ("MoU") with **Nippon Steel Corporation,** Hunan Iron & Steel Group[10], SHS, among others to pursue ironmaking solutions focused on the carbon-neutral steelmaking process.

- The start of construction for the Zhongzhai Pre-blending Project, a partnership with Shagang and Ningbo Zhoushan Port. Vale is committed to supply part of the blended cargos, with high-quality products as BRBF, and to provide technical assistance on the blending activities.

- MoU among **PTVI, Huayou and Ford Motor Co**. to process nickel ore mined by PTVI in Pomalaa, Indonesia.

- Affirmed nickel supply contract with Tesla.

Disciplined capital allocation

- **Investments of US$ 5.4 billion**, including growth and sustaining investments, in line with guidance.

- **Gross debt and leases of US$ 12.7 billion** as of December 31, 2022, US$ 1.0 billion lower year-on-year, largely due to bank loan repayments.

- **Expanded net debt[11] of US$ 14.1 billion**, up 56% year-on-year, but remaining within targeted leverage of US$ 10-20 billion. The increase was mainly due to lower operating cash generation, increased payments of reparation commitments, and maintenance of the cash return to shareholder commitment, while seeking a more efficient leverage structure for the Company.

- **Maximization of cost efficiency** with a broad program to identify cost cuts and productivity gains, which include the inclusion of digital solutions, and a new, leaner organizational design.

Promotion of sustainable mining

- For **scope 1 and 2 emission reductions**, Vale entered into an agreement to enable the supply of natural gas from one of its pelletizing plants, started operating the Sol do Cerrado project, one of the largest solar farms in Latin America, and advanced in the electrification of the operational fleet through renewable sources.

- In the **decarbonization of the steel making industry**, the Company engaged with customers that represent around 50% of Vale's Scope 3 emissions for the development of solutions and signed three agreements in the Middle East to develop Mega Hubs for procurement of green solutions to the steel industry, among other actions.

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[10] Former Hunan Valin Iron & Steel Group Co., Ltd.

[11] On October 27, 2022, Vale revised the concept of Expanded Net Debt, seeking to be more aligned with market practices and to have an indicator that better informs management in making capital allocation decisions. The revised Expanded Net Debt represented an initial reduction of approximately US$ 6 billion and now considers: (a) net debt, leasing (IFRS 16) and currency swaps, and (b) the provisions for repairs in Brumadinho and Mariana, whose annual cash commitments are more concentrated in the first years. Operational and regulatory commitments previously included, such as the Refis tax renegotiation program and the provision for decommissioning upstream dams, are now excluded from the Expanded Net Debt concept. These commitments are expected to have a more stable and longer annual cash disbursement profile. The Expanded Net Debt target of $10 billion to $20 billion remains unchanged.

- As milestones in the improvement of **relationships with indigenous peoples and traditional communities**, in 2022 Vale signed a historic agreement with the Xikrin do Cateté Indigenous People, which ended 15-year disputes, and with the Pataxó and Pataxó Hã-Hã-Hãe communities, affected by the Brumadinho dam collapse.
- In 2022, Vale **dedicated around US$ 3.7 billion to socio-environmental and institutional initiatives**, excluding disbursements related to the reparations in Brumadinho and Mariana.
- Governance has evolved to **concentrate the work of the Board of Directors** on the Company's strategic direction. At the executive level, the **new organizational design** aims to accelerate the achievement of strategic objectives.
- In the reparation of **Brumadinho**, Vale advanced with the execution of the Integral Reparation Agreement[12], reaching 58% of its commitments[13]. Since 2019, R$ 37.6 billion have been disbursed[14], with another R$ 7.9 billion expected for 2023.
- In the reparation of **Mariana**, the restitution of the right to housing was accelerated with 315 solutions in 2022, a total of 441 housing solutions delivered, compared to the 584 assistances, as provided for resettlement.
- In the **Upstream Dam Decharacterization Program**, 12 structures were eliminated by 2022.
- **The B3/B4 dam had its emergency level reduced from 3 to 2**, after successful safety improvements, an important milestone in the journey to eliminate critical safety conditions in dams[15] by 2025.
- In 2022, **8 structures received stability condition statements**, with emergency level protocols withdrawn.
- **Implementation of 4 tailings filtration plants**, which allow for safer and more sustainable processing processes, and the reduction of dependence on the use of dams.

[12] Signed on February 4, 2021 by the Government of Minas Gerais, State Prosecution Office, Federal Prosecution Office, Public Defender's Office of Minas Gerais and Vale.
[13] Commitments to pay and to make.
[14] Includes incurred expenses.
[15] Level 3 emergency.

Sustainability

Vale is a nature-based company, which promotes sustainable mining and encourages low-carbon solutions as part of its strategy. With unique assets for the energy transition, the Company improves its practices and goals to achieve a more sustainable performance and future, sharing value with society.

Environmental

- Vale continues to pursue its goals of **reducing scopes 1 and 2 emissions by 33% by 2030**, of **carbon neutrality by 2050**, in line with the Paris Agreement, and of **100% renewable energy in Brazil (2025) and globally (2030)**. Among numerous advances, the following stand out:
  - **Beginning of operations of Sol do Cerrado solar farm**, one of the largest solar energy projects in Latin America, with an installed capacity of 766MWp. In July 2023, when it should reach full operating capacity, it will produce 16% of all the energy required by Vale's operations in Brazil.
  - **Powershift program for the electrification of operations**: in railroad mode, the second 100% electric locomotive was delivered, with autonomy of up to 10 hours[16]; in road transport, two battery-powered off-highway trucks weighing 72t were received. In addition to zeroing CO2 emissions, the noise impact is minimized.
  - The **use of natural gas at Vale's pelletizing plant in São Luís** (MA) was entered into a contract, the first step towards converting 100% of the pelletizing plants for consumption of natural gas, starting in 2024,.
- Seeking to achieve the goal of **15% reduction of net scope 3 emissions by 2035**, the following stand out:
  - Partnerships in the development of decarbonization solutions in the steel making industry, with **engagement of around 30 steelmaking clients**, which represent approximately 50% of Vale's Scope 3 emissions.
  - **Beginning of construction of the first commercial plant for Tecnored**, a wholly owned subsidiary of Vale, in Marabá (PA). With a production capacity of 250 ktpy of green pig iron, with low carbon emissions, and start-up scheduled for 2025, the project has estimated investments of R$ 1.6 billion.
  - Signing of **three agreements for a joint study on the development of Mega Hubs**, industrial complexes for the production of hot briquetted iron ("HBI") and steel products with a significant reduction of CO_2 emissions. The agreements have been signed with local authorities and customers in the Kingdom of Saudi Arabia, the United Arab Emirates and the Sultanate of Oman, and potential production will be destined for local and seaborne markets.
  - In shipping, obtaining independent approval[17] for **a pioneering project for multi-fuel tanks on ships** for transportation of iron ore. A preliminary study for Guaibamaxes estimates a reduction of emission between 40% and 80% with the use of methanol and ammonia, or up to 23% with LNG.
  - In the voluntary commitment to **protect and restore 500 thousand hectares of forestry areas[18]** by 2030, 51,000 hectares were protected and/or recovered[19] in 2022, bringing the total to 172,000 hectares since 2019[20], or about **34.4% of the long-term goal**.

[16] No recharge shutdown.
[17] Approval in Principle confirms that a concept design is viable and that there are no significant obstacles to its performance. It is provided by an independent external entity.
[18] Beyond company boundaries.
[19] Consider the recovery of a degraded forest area to a non-degraded condition, which may be different from its original condition, but which increases vegetation cover and results in carbon capture. It is considered protected the area with conserved native vegetation cover, generated in the maintenance of the carbon stock. In 2022, 50,000 hectares were protected and 1,215 hectares recovered.
[20] Considering about 165,000 hectares protected and about 7,000 hectares recovered.

- The “Biomas” initiative, launched by Vale and other large companies in **partnership to restore and protect 4 million hectares of native forests** in different Brazilian biomes over 20 years.

- As a **circular mining** approach, 580 kt of certified sand were produced in Brucutu, Viga and Itabira in 2022 from the reuse of mining tailings.

Social

- Vale seeks to **contribute to indigenous peoples and traditional communities** in promoting their rights, valuing culture and ethnic development. **Dispute resolution** and **transparency in operating conditions** for well-informed decisions are essential to building dialogue and joint work.

  - Vale signed a historic agreement with the Xikrin do Cateté Indigenous People, which **ended 15-year disputes**, and started a positive phase in the relationship.

  - Vale signed an agreement with the Pataxó and Pataxó Hã-Hã-Hãe communities, affected by the Brumadinho dam collapse.

  - The Company has also signed an **agreement with the Kayapó indigenous community**[21], which agrees on resources for investments in structuring projects and establishes a fund for future generations.

  - In the Carajás Railroad duplication project, **approval of the Basic Environmental Plan by the Gavião Indigenous People**[22], with the consent of the National Indigenous Foundation and issuance of the Construction License for the project by IBAMA.

- In line with the goal of **taking 500,000 people out of extreme poverty by 2030**, in 2022 Vale has defined a methodology for its performance and has carried out more in-depth planning of actions for the coming years. In 2023 Vale will begin concept tests in urban, rural and forest locations, for the benefit of 30,000 people.

- With firm action in **protecting human rights**, 76% of Vale's operations (including 100% of operations in Brazil) underwent due diligence of human rights[23]. The remaining 24% will have adherence assessed between 2023 and 2024.

- Seeking to **be a good neighbor**, the Company works to serve 100% of priority communities with relationship plans by 2026. In Brazil, 165 are very high and high priority communities for engagement. Currently, 78% of these communities have Relationship Plans.

- In 2022, the Community Relations Channel[24] registered 11,085 protesting, an expected volume and in line with the numbers observed in 2021. Of this total, 99.4% were answered and 84.2% served.

- In 2022, Vale **dedicated around R$ 3.7 billion[25] to social and environmental and institutional initiatives**, excluding disbursements related to the reparations.

Governance

- In line with best practices of corporate governance, **Vale’s Board of Directors is made up of an independent majority[26]**, including its Chairman.

[21] Within the scope of the Public-Interest Civil Action of Onça Puma. For more information, access the Company's ESG Portal, section of Controversies.
[22] Arãtikatêjê, Kyikatêjê and Parkatêjê.
[23] Executed by independent external companies based on the United Nations Guiding Principles on Business and Human Rights.
[24] The Community Relations Channel is one of Vale's stakeholders' listening channels and is part of the Company's Listening and Response Mechanism.
[25] Estimated value in Brazilian reals. For installments outside Brazil, we use the monthly exchange rate, which is an average of R$/US$ 5.16 for 2022.
[26] 8 out of 13 members of the Board of Directors are independent.

- Its election in 2022 was previously advised by the Nominating and Governance Committee ("CIG"), also with an independent majority.

- For the 2023 election, scheduled to take place at the Annual Meeting of Shareholders in April, the CIG is installed to define the qualification matrix and the list of candidates nominated for election, among other prerogatives of the body.

- In 2022, the Board of Directors simplified and modernized the Company's policy bundle. To **concentrate the work of the Board** on the Company's strategic direction, the qualification of the body has been changed and a wide review of the Delegation Policy was implemented. The statutory advisory committees were reduced from 7 to 5[27] - the Innovation Committee became non-permanent and non-statutory; the Safety and Operational Excellence Committee was terminated, with attributions absorbed by the Audit and Risk Committee. The composition of advisory committees became exclusive to members of the Board of Directors.

- The **new design at the executive level** aims to accelerate the achievement of strategic purposes. Among other adjustments:

  - The Executive Vice-Presidency of Iron Ore Solutions, under the leadership of Marcello Spinelli, was created to accelerate the development of products and innovative solutions in iron ore, and the improvement of the marketing strategy for our portfolio, with substantial value creation in the decarbonization process.

  - The Executive Vice-Presidency of Operations, under the leadership of Carlos Medeiros, was created to accelerate the implementation of the Vale management model in the Iron Solutions business. With the management of mining, pelletizing and logistics operations, the area will deepen the standardization of processes and promote greater safety, operational stability, increasing flexibility and efficiency for Vale's production.

  - To support the development and longevity of the Company's portfolio, the Executive Vice-Presidency for Projects was created, under the leadership of Alexandre Pereira, for the implementation of key projects in the strategic plan.

  - To reinforce the second line of defense and the risk management model at Vale, promoting the journey towards technical excellence, the Technical Executive Vice-Presidency was created. The area incorporates the attributions of the former Executive Vice-Presidency for Safety and Operational Excellence and receives additional attributions, increasing the concentration of technical qualifications. Rafael Bittar, then Director of Geotechnics, took over the position.

- Advancing towards **transparency** of the Company's information:

  - The Integrated Report was published, with indicators, management approaches, and accountability on environmental, social and governance issues, according to the materiality matrix.

  - The Annual Tax Transparency Report was published, for a better understanding of the global contribution of Vale and its operations to societies and economies.

  - The Company's sustainability agenda is maintained and updated frequently at www.vale.com/esg.

Reparation

- In **Brumadinho**, Vale advanced with the execution of the Integral Reparation Agreement[28], reaching 58% of its commitments[29], according to established deadlines. In individual indemnities, Vale signed agreements that reach 13.6 thousand people and R$ 3.2 billion. Since 2019, R$ 37.6 billion have been spent on reparation, with another R$ 7.9 billion expected in 2023.

[27] Capital Allocation and Projects Committee, Risk and Audit Committee, Nominating and Governance Committee, People and Compensation Committee, and Sustainability Committee.
[28] Signed on February 4, 2021 by the Government of Minas Gerais, State Prosecution Office, Federal Prosecution Office, Public Defender's Office of Minas Gerais and Vale.
[29] Commitments to pay and to make.

- In **Mariana**[30], the Company supports Renova Foundation in the performance of reparation programs, through its governance bodies, the provision of specialized professionals, and the execution of applicable accruals. The restitution of the right to housing was accelerated with the delivery of 315 solutions in 2022, a total of 441 housing solutions delivered, compared to the 584 services, as provided for by resettlement. In individual indemnities, more than 409 thousand people have agreements. Total disbursements on reparation reached R$ 28.1 billion, with another R$ 8.1 billion expected to meet the Renova Foundation's budget in 2023.

Dam management

- The main advances of Vale's **Upstream Dam De-Characterization Program** during the year were:
  - Agreement signed with Brazilian authorities that establishes a new schedule for the Program, aligned with the technical challenges identified so far, and which prioritizes project safety.
  - De-characterization of 5 upstream structures, totaling 12 of the 30 structures provided in the Program, an advance of 40%[31] by 2022, in view of the commitment undertaken by 2035.
  - Reduction of the emergency level of the B3/B4 dam, from 3 to 2, after the removal of almost 60% of the contained tailings. The completion of the de-characterization of this structure is expected in 2025.
  - Anticipation of the de-characterization of Dyke 2 in Itabira to 2023.
  - Delivery of the downstream containment structure[32] of Coqueirinho, which increases safety during the de-characterization activities of Dike Minervino and Cordão Nova Vista, in Itabira (MG), scheduled to 2029. In all, 4 downstream containment structures have already been built.
- In **dam safety management**, in addition to the changes in governance already reported, the following progress is highlighted:
  - Improvements in the safety conditions of 8 dams: Elefante (Rio Piracicaba), Borrachudo II (Itabira), B5/MAC (Nova Lima), Marés II (Belo Vale), Santana (Itabira), Paracatu (Catas Altas), Sul Inferior (Barão de Cocais) and Porteirinha (Santa Bárbara), all of them located in Minas Gerais. The structures had their emergency level protocols closed and received the respective DCE, which attests to their safety.
  - Improvement in the safety condition of the B3/B4 dam (Nova Lima), which reduced the emergency level from 3 to 2, and of Capitão do Mato (Nova Lima), which reduced the level from 2 to 1.
  - As part of the commitment to implement the GISTM (Global Industry Standard on Tailings Management), the GISTM Journey 100 program was established and, throughout the year, Vale worked to close the gaps identified through the self-evaluation carried out in 2021. By December 2022, Vale achieved adherence of around 90% to the requirements of the standard, which gives us confidence in meeting the implementation deadlines for the industry, in line with the ICMM deadlines[33].
- To reduce dependence on the use of dams, Vale has implemented **4 tailings filtration plants** in Brucutu, Itabira (Cauê and Conceição) and Vargem Grande, with safer and more sustainable processing processes.

[30] For more information, visit: www.fundacaorenova.org.
[31] Consider the number of structures decharacterized and to be decharacterized.
[32] Downstream Containment Structure, ECJ, is a structure designed to retain tailings in the event of upstream dam breach.
[33] International Council on Mining and Metals (ICMM), whose deadline established with the industry is that all tailings' facilities with classification of "Extreme" and "Very High" consequences shall comply by Aug/23.

Innovation

- The Company uses **innovation as a lever to become a reference in creating and sharing value**. In this context, the highlights of the year are:

  - The launch of the Integrated Remote Operation Center[34] in the Energy Transition Material business, to increase safety and productivity through integrated planning and execution of remote operations.

  - The expansion of the innovation hubs, which totaled eight units and operate in a network for the development and experimentation, and which accelerated the outcome of the culture of innovation and the fluency of operations in this area.

  - Creation of Vale Ventures, a vehicle for investments in pioneering startups, aimed at developing business models and cutting-edge technologies for Vale's operations, with a focus on decarbonization in the mining process, mining without waste, energy transition metals, and other technologies.

[34] Integrated Remote Operation Center – IROC.

People management

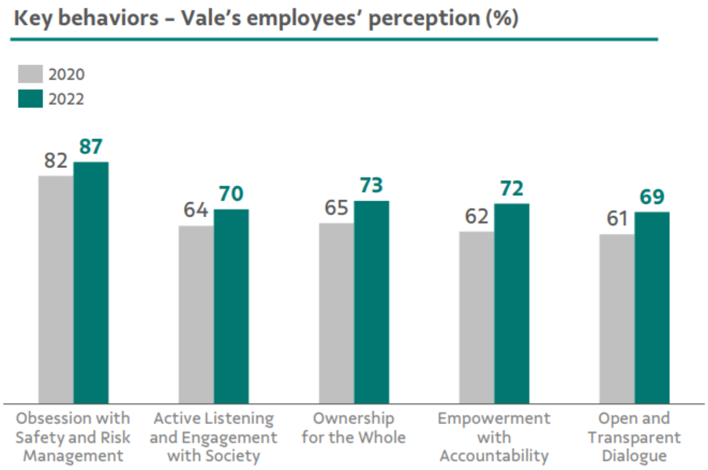
Vale works continuously to **be recognized as a company that seeks operational excellence, leads the transition to a low-carbon economy and generates social and economic progress**. The transformation of its organizational culture, the expansion of diversity, equity and inclusion in its staff, and its compensation strategy are essential to make the Company's aspirations feasible.

Cultural transformation

- The cultural transformation advanced with the full adherence of the strategy to the Company's purpose. The approach was centered on operations and around 1,740 leaders were trained (50% of the target audience).

- Digital actions on the main corporate platforms increased the opportunity to deepen the concepts of cultural transformation. The digital inclusion pilot project, for example, had more than 500 employees.

- Expansion of the network of influencers with groups of Culture Catalysts and Guardians of Purpose, from the operational technical level to executive leadership, which reinforce the transformation of culture in their daily interactions.



- Greater engagement in measuring the transformation – during the year, more than 24,000 employees gave their perception of the presence of key behaviors in their daily routine.

- Expansion of leadership development programs, with more than 2 thousand leaders of the first hierarchical levels trained.

- Vale management model, the VPS, is a culture put into practice. The model's maturity advanced by more than 25% in the company between 2020 and 2022, moving from an average indicator of 1.52 to 1.90, on a scale of 0 to 4.

Diversity and Inclusion

- Gender diversity is expanded, with the commitment to **double the representation of women in the workforce by 2025** (from 13% to 26%).
  - The participation of women in 2022 stood at 22.06%, an increase of 5,164 employees since 2019[35].
  - Hiring more than 1,200 women from the communities where Vale operates during the year through the Technical-Operational Vocational Training Program.

- In leadership[36], the goal of **increasing female participation from 12% to 26%** by 2025 is close to being achieved. The Company ended 2022 with 22.60% women in top management, a growth of 2.3 p.p compared to 2021[37].

- In terms of ethnic-racial equity, Vale is **committed to having at least 40% black leaders by 2026**, also promoting ethnic-racial equity at other hierarchical levels.

[35] When the commitment was made.
[36] Executive managers and above.
[37] When the goal was revised from 20% to 26%.

- In 2022, 32% of leadership was made up of black professionals, an increase of 3.2 p.p. compared to the previous year. To honor its commitment to the ethnic-racial agenda, Vale invests in career development programs for the community, employees, and market talents.

- The 2022 class of trainees in Brazil has 67% women and 71% self-declared blacks.

- Launch of the *Potencializando Talentos* programs, to promote the development of black and disabled employees, with the offer of 450 positions in the year, and professional qualification for 100 black women from communities in socially vulnerable situation.

- Adhesion to the *Mover – Movimento pela Equidade Racial*, a joint initiative with other 46 companies to promote opportunities for black people, reduce inequality e combat structural racism in the labor market.

- **Inclusion and ethics are intrinsic to the cultural transformation** of the Company. Among other initiatives, actions to combat harassment were intensified, such as the launch of the *Hub Contra o Assédio* and *Paradões* against harassment in operations around the world, with the participation of more than 19,000 employees.

Compensation

- Short-term compensation ("annual bonus") prioritizes strategic purposes to achieve the Company's ambitions. Through a model that benefits collective goals, the aim is to encourage mutual collaboration based on the key behavior "Owner's Feeling".
  - The panel of short-term goals for Chief Executive Officer and Executive Vice-Presidents was established with, respectively, 65%-75% of collective goals and 35%-25% of individual goals, according to the scope of each executive. In the collective block, 30%-40% are non-financial metrics and in ESG, and 35% are financial metrics.
  - The areas of Health, Safety, Geotechnics, Reparation, Compliance and Audit do not have financial and production metrics in their panels of short-term goals, preserving their independent performance.
- Long-term compensation is made up of the PAV[38] and Matching programs, which reinforce the culture of long-term performance, leverage the shareholding of executives, encourage a sense of ownership, and seek to align Management's priorities with the Shareholders' vision. The main changes to the programs in 2022 were:
  - Increase in the share of long-term compensation linked to ESG (environmental) from 20% to 25% as of 2022.
  - In the PAV, it was decided to include a "return on invested capital" metric with a weight of 25% starting in 2024. The measure encourages the value creation, in line with strategic objectives and shareholders' interests.
- There is a requirement of a minimum shareholding position for the Company's executives, through long-term programs.
- Malus and Clawback clauses are part of executive agreements. In view of exceptionally serious facts, the Board of Directors may suspend or request the return of short- or long-term compensation payments.

Workforce

The work of each employee is essential for Vale's success and growth. In December 2022, approximately 65 thousand own employees and 150 thousand third-party employees comprised the Company's staff.

Workforce by business unit

[38] Vale's Share Program.

Number of employees	Company employees 2022	Company employees 2021	Third-party employees 2022	Third-party employees 2021
Iron Solutions	41,816	44,235	59,373	60,921
Coal[39]	-	5,492	-	7,416
Energy Transition Materials[40]	13,318	12,903	18,901	18,778
Energy[2]	-	-	-	-
Corporate	9,382	9,636	72,557	101,199
Total	**64,516**	**72,266**	150,831	**188,314**

By geographical location

Number of employees	Company employees 2022	Company employees 2021	Third-party employees 2022	Third-party employees 2021
Brazil	53,341	55,067	136,467	161,924
South America (former Brazil)	41	153	173	113
North America	6,565	6,448	4,633	4,311
Europe	270	279	194	133
Asia	4,287	4,382	9,358	9,613
Oceania	12	10	6	6
Africa	0	5,927	-	12,214
Total	**64,516**	**72,266**	**150,831**	**188,314**

The number of third-party employees in 2021 was updated, from a total of 141,147 to 188,314 reflecting the expansion of the third-party concept in Brazil. Under revised and equalized criteria, the total number of third-party employees in 2022 suffered a reduction of approximately 20% compared to the total in 2021, mainly verified in support for corporate functions.

	2022	2021
Turnover rate	8.07%	7.97%

The turnover rate[41] is calculated based on data from Vale and its subsidiaries and reflects the termination rate for the year, i.e., a rate of 8.1% means that, for every 100 active employees in 2022, 8 employees had their employment contracts terminated.

[39] Sale of the Coal business.
[40] Refers to the number of Biopalma employees, which are no longer part of Vale's portfolio.
[41] The rate contemplates exclusively own employees.

Comments on operational and economic-financial performance

Iron Solutions[42]

Iron ore production totaled 308 Mt in 2022, 2% lower year-to-year, mainly due to (a) licensing delays at Serra Norte; and (b) jaspilite waste processing and operational performance at S11D. The decrease was partially offset by (a) the continued production ramp-up at Vargem Grande; (b) higher production via dry processing in Brucutu; and (c) higher third parties purchase.

The production of pellets totaled 32 Mt in 2022, in line with 2021, with an improvement mix of direct reduction pellets (49% of total production vs. 41% in 2021), leveraging on the higher-quality feed and taking advantage of better market premiums.

Energy Transition Materials[43]

Nickel production grew 6% in 2022 to 179 kt, mainly due to the stabilization of Sudbury operations following the 2021 workers' shutdown, as well as consistent and strong performance at Onça Puma. The increase was partially offset by lower feed availability due to the reconstruction of the PTVI furnace and the delay in the VBME ramp-up.

Copper production declined by 15%, to 253kt in 2022, due to extended maintenance at the Sossego mill during the first half of the year and additional maintenance required at Sossego and Salobo. The decline was partially offset by higher production in Canada due to the stabilization of the Sudbury mines and the recovery of copper from copper precipitates at Thompson, reducing waste as part of Vale's circular mining approach.

Portfolio optimization

Vale has simplified its flow of operations, allowing it to focus on its main assets and reducing cash drains, thus maintaining discipline in capital allocation. The year 2022 was marked by the responsible divestment of non-core assets, with emphasis on:

- Completion of (a) the sale of the 50% stake in California Steel Industries – CSI to Nucor Corporation; (b) the divestment of the Moatize coal mine and the Nacala Logistics Corridor to Vulcan Resources, after the materialization of all conditions precedent; and (c) the sale of the iron ore, manganese and logistics assets of the Midwest System to J&F Mineração Ltda., in addition to the transfer of obligations related to the take-or-pay logistics agreements.

- Execution, together with partners Posco and Dongkuk, of a binding agreement with ArcelorMittal for the sale of Companhia Siderúrgica do Pecém – CSP.

[42] The Company renamed its main operating segments starting from these financial statements. The operating segment previously named "Ferrous Minerals" is now disclosed as "Iron Solutions". There were no changes in the allocation criteria for these operating segments and, therefore, no adjustments were made to the comparative financial information.
[43] The Company renamed its main operating segments starting from these financial statements. The operating segment previously named "Base Metals" operating segment is now disclosed as "Energy Transition Materials". There were no changes in the allocation criteria for these operating segments and, therefore, no adjustments were made to the comparative financial information.

Economic-financial performance

Consolidated performance

Net operating income totaled R$ 226.5 billion in 2022, a fall of R$ 67.0 billion, when compared to 2021, reflecting more challenging market conditions and lower realized iron ore prices. The **costs and expenses**, including the repair of Brumadinho, totaled R$ 141.6 billion in 2022, in line with the 2021 total.

The **adjusted EBITDA from continuing operations** totaled R$ 102.1 billion in 2022, representing a fall of R$ 66.0 billion, as compared to R$ 168.1 billion recorded in 2021, mainly due to lower prices of iron ore.

Vale generated approximately US$ 5.7 billion in **free cash flow from operations** in 2022, US$ 14.3 billion lower than 2021, mainly due to lower proforma EBITDA. Vale carried out US$ 6.0 billion in share buyback in the year and distributed US$ 6.6 billion in dividends and interest on equity to its shareholders.

Vale ended the year with US$ 4.8 billion in cash and cash equivalents and short-term investments, gross debt, and leases of US$ 12.7 billion, therefore, with net debt of US$ 7.9 billion in 4Q22. Expanded net debt[44] was US$ 14.1 billion.

Iron Solutions

Adjusted EBITDA for the Iron Solutions segment was R$ 100.5 billion in 2022, R$ 68.7 billion lower than in 2021, mainly due to lower prices applied, due to the fall in the iron ore benchmark price.

Iron Solutions costs and expenses, without considering the effects of depreciation, totaled R$ 80.5 billion, R$ 2.1 billion higher than in 2021, mainly due to higher fuel costs, impacting the cost of freight and C1, being partially offset by the exchange rate.

The average realized price of iron ore fines, including CFR/FOB sales, was US$ 108.1/t in 2022, 23.5% below the value of US$ 141.4/t in 2021. The average price of pellets decreased from US$ 218.3/t in 2021 to US$ 188.6/t in 2022.

Energy Transition Materials

Adjusted EBITDA for Energy Transition Materials was R$ 12.9 billion in 2022, R$ 4.5 billion below the R$ 17.4 billion recorded in 2021, mainly due to (a) higher costs associated with Sossego maintenance shutdown; (b) costs of materials and services; and (c) fuel, which were partially offset by higher nickel prices in the year.

[44] On October 27, 2022, Vale revised the concept of Expanded Net Debt, seeking to be more in line with market practices and have an indicator that better informs management when making capital allocation decisions. The revised Expanded Net Debt represented an initial reduction of approximately US$ 6 billion and now considers: (a) net debt, leasing (IFRS 16) and currency swaps, and (b) provisions for reparation of Brumadinho and Mariana, whose annual cash commitments are more concentrated in the first years. Operational and regulatory commitments previously included, such as the Refis fiscal renegotiation program and the provision for de-characterization of upstream dams, are now excluded from the Expanded Net Debt concept. These commitments are expected to have a more stable and longer annual cash disbursement profile. The Expanded Net Debt target of $10 billion to $20 billion remains unchanged.

Accounting information

Consolidated Income Statement

R$ millions	2022	2021
Continuing operations		
Net operating revenue	226,508	293,524
Cost of goods sold and services rendered	(124,195)	(117,267)
Gross profit	**102,313**	**176,257**
Gross margin (%)	45.2%	60.1%
Selling and administrative expenses	(2,658)	(2,601)
Research and development expenses	(3,411)	(2,964)
Pre-operating and operational stoppage	(2,466)	(3,467)
Other operating expenses, net	(8,901)	(16,591)
Impairment reversal (impairment and disposals) of non-current assets, net	3,833	(2,352)
Operating income	**88,710**	**148,282**
Financial income	2,685	1,822
Financial expenses	(6,156)	(6,787)
Other financial items, net	14,849	22,777
Equity results and other results in associates and joint ventures	1,616	(6,947)
Income before income taxes	**101,704**	**159,147**
Income taxes	**(15,185)**	**(25,320)**
Net income from continuing operations	**86,519**	**133,827**
Net income attributable to noncontrolling interests	413	591
Net income from continuing operations attributable to Vale's shareholders	**86,106**	**133,236**
Discontinued operations		
Net income (loss) from discontinued operations	9,818	(12,484)
Loss attributable to noncontrolling interests	0	(476)
Net income (loss) from discontinued operations attributable to Vale's shareholders	**9,818**	**(12,008)**
Net income	**96,337**	**121,343**
Net income (loss) attributable to noncontrolling interests	413	115
Net income attributable to Vale's shareholders	**95,924**	**121,228**

Balance sheet – consolidate

R$ millions	2022	2021
Assets		
Current assets	81,009	119,332
Non-current assets held for sale	-	5,468
Non-current assets	75,104	80,275
Investments in associates and joint ventures	9,381	9,771
Intangibles	53,421	50,287
Property, plant, and equipment	234,472	233,995
Total	**453,387**	**499,128**
Liabilities	**258,493**	**302,070**
Current liabilities	72,478	82,836
Liabilities associated with non-current assets held for sale	-	1,978
Non-current liabilities	186,015	217,256
Equity	**194,894**	**197,058**
Equity attributable to Vale's shareholders	187,112	192,403
Equity attributable to noncontrolling interests	7,782	4,655
Total	**453,387**	**499,128**

Consolidated Statement of Cash Flows

R$ millions	2022	2021
Cash flow from operations	**95,793**	**178,815**
Interest on loans and borrowings paid	(4,067)	(3,820)
Cash paid on settlement of derivatives, net	(425)	(1,118)
Interest on participative shareholders' debentures paid	(1,835)	(2,317)
Payments related to Brumadinho event	(5,604)	(7,633)
Payments related to de-characterization of dams	(1,806)	(1,822)
Income taxes (including settlement program)	(24,068)	(23,607)
Net cash generated by operating activities from continuing operations	**57,988**	**138,498**
Net cash generated (used) in operating activities from discontinued operations	213	(1,732)
Net cash generated by operating activities	**58,201**	**136,766**
Cash flow from investing activities:		
Capital expenditures	(28,184)	(27,301)
Additions to investments	(1)	(237)
Proceeds from the sale of investments, net	3,062	3,835
Dividends received from associates and joint ventures	1,154	1,043
Short-term investment	1,309	2,671
Other investments activities, net	(982)	(2,823)
Net cash used in investing activities from continuing operations	**(23,642)**	**(22,812)**
Net cash used in investing activities from discontinued operations	(534)	(12,476)
Net cash used in investing activities	**(24,176)**	**(35,288)**
Cash flow from financing activities:		
Loans and borrowings from third-parties	6,764	5,165
Payments of loans and borrowings from third-parties	(11,764)	(10,759)

Payments of leasing	(1,154)	(1,152)
Dividends and interest on capital paid to shareholders	(34,092)	(73,112)
Dividends and interest on capital paid to noncontrolling interest	(65)	(175)
Shares buyback program	(30,640)	(29,121)
Net cash used in financing activities from continuing operations	**(70,951)**	**(109,154)**
Net cash used in financing activities from discontinued operations	(54)	(72)
Net cash used in financing activities	**(71,005)**	**(109,226)**
Increase (reduction) in cash and cash equivalents	**(36,980)**	**(7,748)**
Cash and cash equivalents in the beginning of the year	65,409	70,086
Effect of exchange rate changes on cash and cash equivalents	(3,657)	3,071
Cash and cash equivalents from subsidiaries sold, net	(61)	-
Cash and cash equivalents at end of the year	**24,711**	**65,409**
Cash flow from operating activities:		
Income before income taxes	101,704	159,147
Adjusted for:		
Equity results and other results in associates and joint ventures	(1,616)	6,947
Impairment and disposals (impairment reversal) of non-current assets, net	(3,833)	2,352
Provisions related to Brumadinho	2,078	1,140
Provision for de-characterization of dams	375	9,747
Depreciation, depletion and amortization	16,386	16,379
Financial results, net	(11,378)	(17,812)
Changes in assets and liabilities:		
Accounts receivable	(1,812)	4,604
Inventories	211	(2,572)
Suppliers and contractors	2,283	1,286
Other assets and liabilities, net	(8,605)	(2,403)
Cash flow from operations	**95,793**	**178,815**
Non-cash transactions:		
Additions to property, plant and equipment - capitalized loans and borrowing costs	240	318

Operating and economic-financial performance

Selected financial indicators

R$ millions	**2022**	**2021**
Net operating revenues	226,508	293,524
Total costs and expenses (ex-Brumadinho and de-characterization of dams)	(135,675)	(128,511)
Expenses related to Brumadinho event and de-characterization of dams	(5,956)	(14,379)
Adjusted EBIT from continuing operations	85,671	151,677
Adjusted EBIT margin (%)	37.8%	51.7%
Adjusted EBITDA from continuing operations	102,057	168,056
Net income from continuing operations attributable to Vale's shareholders	86,106	133,236

Information by business segment - 2022

R$ millions	Iron ore	Iron ore pellets	Other ferrous products and services	Iron Solutions	Nickel and other products	Copper	Energy Transition Materials	Other	Total of continuing operations	Discontinued operations - Coal	Total
Net operating revenue	145,714	32,251	2,425	**180,390**	34,226	9,235	**43,461**	2,657	**226,508**	2,308	**228,816**
Cost of goods sold and services rendered	(61,650)	(13,837)	(1,723)	**(77,210)**	(23,559)	(5,421)	**(28,980)**	(2,252)	**(108,442)**	(1,370)	**(109,812)**
Sales, administrative and other operating expenses	(266)	(7)	(20)	**(253)**	(197)	(101)	**(298)**	(10,797)	**(11,348)**	(57)	**(11,405)**
Research and development	(1,077)	(17)	(16)	**(1,110)**	(592)	(658)	**(1,250)**	(1,049)	**(3,409)**	(7)	**(3,416)**
Pre operating and operational stoppage	(1,763)	(109)	(94)	**(1,966)**	(2)	(65)	**(67)**	(13)	**(2,046)**	0	**(2,046)**
Dividends received and interest from associates and joint ventures	85	528	0	**613**	0	0	**0**	181	**794**	0	**794**
Adjusted EBITDA	**81,043**	**18,809**	**612**	**100,464**	**9,876**	**2,990**	**12,866**	**(11,273)**	**102,057**	**874**	**102,931**
Depreciation, depletion, and amortization	(6,939)	(2,303)	(507)	**(9,749)**	(4,704)	(1,698)	**(6,402)**	(235)	**(16,386)**	0	**(16,386)**
Equity results and other results in associates and joint ventures	(156)	711	(44)	**511**	1,505	0	**1,505**	(400)	**1,616**	0	**1,616**
Dividends received and interest from associates and joint ventures	(85)	(528)	0	**(613)**	0	0	**0**	(181)	**(794)**	0	**(794)**
Impairment reversal (impairment and disposals) of non-current assets, net	(775)	(71)	(71)	**(917)**	(92)	(78)	**(170)**	4,920	**3,833**	(2,867)	**966**
	73,088	**16,618**	**(10)**	**89,696**	**6,585**	**1,214**	**7,799**	**(7,169)**	**90,326**	**(1,993)**	**88,333**
Unallocated items:											
Financial results	0	0	0	**0**	0	0	**0**	0	**11,378**	14,603	**25,981**
Income taxes	0	0	0	**0**	0	0	**0**	0	**(15,185)**	(9)	**(15,194)**
Derecognition of noncontrolling interest	0	0	0	**0**	0	0	**0**	0	**0**	(2,783)	**(2,783)**
Net income	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**86,519**	**9,818**	**96,337**
Net income attributable to noncontrolling interests	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**413**	**0**	**413**
Net income attributable to Vale's shareholders	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**86,106**	**9,818**	**95,924**

VALE

Net income

Vale recorded a net income attributable to Vale's shareholders of R$ 95.9 billion in 2022, a negative variation of R$ 25.3 billion compared to the R$ 121.2 billion recorded in 2021, mainly due to lower EBITDA and the lower net financial result.

Financial result

Net financial results constituted a gain of R$ 11.4 billion, R$ 6.4 billion lower than in 2021. The result was mainly due to the reduction of gains with the reclassification of the cumulative translation adjustments to income statement. This effect was partially offset by the positive impact of participating debentures.

R$ millions	2022	2021
Financial income	**2,685**	**1,822**
Financial expenses	**(6,156)**	**(6,787)**
Loans and borrowings gross interest	(3,158)	(3,628)
Capitalized loans and borrowing costs	240	318
Others	(2,450)	(3,183)
Interest on REFIS	(788)	(294)
Other financial items, net	**14,849**	**22,777**
Derivative financial instruments	6,018	(153)
Currency and interest rate swaps	5,895	(891)
Others (commodities etc.)	123	738
Participative shareholders' debentures	3,285	(3,691)
Financial guarantees	2,488	1,536
Net foreign exchange gains (losses)	(2,195)	2,172
Reclassification of cumulative translation adjustments to the income statement	8,275	24,367
Indexation losses, net	(3,022)	(1,454)
Total	**11,378**	**17,812**

Income taxes

Vale recorded R$ 101.7 billion in income before income taxes. The application of income taxes (rate of 34%), tax benefits, and other effects recognized in the income, totaled R$ 15.2 billion in income taxation.

R$ millions	2022	2021
Income before income taxes	**101,704**	**159,147**
Income taxes at statutory rate (34%)	(34,579)	(54,110)
Adjustments that affect the taxes basis:		
Income tax benefit from interest on capital	2,828	1,400
Tax incentives	6,414	15,092
Equity results	431	896
Addition (reduction) of tax loss carryforward	(1,770)	1,408
Unrecognized tax losses of the year	4,718	3,629
Reclassification of cumulative translation adjustments to income statement	2,814	8,285
Other	3,203	110
Income taxes	**(15,185)**	**(25,320)**

Impairment reversal (impairment and disposals) of non-current assets

Asset impairments (excluding impairment on investments), disposals of non-current assets, and onerous contracts for continuing operations, all of which had no cash effect, totaled R$ 3.8 billion in 2022, mainly due to (a) the reversal of onerous contracts after Midwestern System sale; and (b) the usual write-offs of out-of-operation assets.

R$ millions	2022	2021
Impairment reversal (impairment) and disposals of non-current assets	**3,833**	**(2,352)**
Vale Nouvelle-Calédonie S.A.S. ("VNC")	0	(549)
Manganese	(56)	(192)
Midwestern System	1,066	(440)
Onerous contracts - Midwestern System	4,554	(100)
Result of disposals of non-current assets	(1,731)	(1,071)
Impairment reversal (impairment) and disposals of non-current assets from discontinued operations	**(2,867)**	**(17,178)**

Investments in affiliates, joint ventures, and subsidiaries[45]

Vale has investments in affiliates, joint ventures, and subsidiaries in important business areas. The value of the investments of the main portfolio companies shown in Vale's balance sheet is listed in the table below. Investments are restated using the equity method and may differ from the entities' individual financial statements as they are presented in accordance with Vale's accounting policies.

	Investments		Equity results in the Income Statement	
R$ millions	2022	2021	2022	2021
Associates and joint ventures				
Pelletizing plants	1,747	1,485	711	680
Aliança Geração de Energia	1,772	2,046	162	277
Aliança Norte Energia	553	586	(34)	(20)
California Steel Industries (CSI)	-	-	-	1,226
Companhia Siderúrgica do Pecém (CSP)	-	553	-	316
Mineração Rio do Norte (MRN)	-	-	-	(29)
MRS Logística (MRS)	2,656	2,334	421	394
VLI	2,234	2,278	(44)	(218)
Samarco S.A.	-	-	-	-
Others	419	489	51	27
Controlled				
Vale Holdings B.V	2,523	5,238	(504)	(153)
Vale International	57,877	75,923	33,484	10,007
Vale Canada	21,726	18,546	4,618	(611)
Salobo Metals	13,880	14,183	2,231	3,932
Minerações Brasileiras Reunidas (MBR)	2,086	2,425	167	1,314
Vale Malaysia Minerals	6,755	7,527	291	41
Others	8,345	10,027	2,315	(801)
Total	**122,573**	**143,640**	**43,869**	**16,382**

[45] The stand-alone financial statements of those entities may differ from the financial information reported herein, which is prepared considering Vale's accounting policies and using the most recent financial information available adjusted for the effects of significant transactions or events that occur between the date of the financial information and the date of the Company's financial statements.

Investments

In 2022, investments totaled US$ 5.4 billion, in line with the guidance, with US$ 1.6 billion invested in growth projects and US$ 3.8 billion in sustaining projects. Investments were 8.0% higher than in 2021, mainly due to increased investments in the Sol do Cerrado energy project and the iron ore projects, Serra Sul 120 Mtpy, Capanema and Briquettes Tubarão.

In 2023, Vale expects to invest US$ 6.0 billion, an increase of 10.2% compared to 2022, due to the capital contribution to the Morowali project in Indonesia and the advances in iron ore projects in Serra Sul 120 Mtpa and Capanema, in Brazil.

US$ millions	**2022**	**2021**
Growth projects	1,587	999
Sustaining projects	3,859	4,034
Total	**5,446**	**5,033**

Total investment per business area

US$ millions	**2022**	**2021**
Iron Solutions	3,102	3,012
Energy Transition Materials	1,859	1,862
Others[46]	485	159
Total	**5,446**	**5,033**

[46] Investments in maintaining operational capacity related to the Midwest System in the amount of US$ 5.0 million made in the year ended December 31, 2022 (2021: US$ 15.0 million), were reclassified from "Ferrous Minerals" to "Other".

Debt indicators

Gross debt totaled US$ 11.2 billion as of December 31, 2022, down by US$ 1.0 billion, when compared to December 31, 2021, US$ 12.2 billion. Expanded net debt increased to US$ 14.1 billion as of December 31, 2022, mainly due to lower EBITDA result by virtue of price and volume factors, which contributed to lower cash generation in 2022.

Debt indicators

US$ millions	2022	2021
Gross debt[47]	**11,181**	**12,180**
Lease (IFRS 16)	1,531	1,602
Gross debt and leases	**12,712**	**13,782**
Cash, cash equivalents and short-term investments	(4,797)	(11,905)
Net debt	**7,915**	**1,877**
Currency swaps[48]	(211)	724
Brumadinho provisions	3,312	3,537
Samarco & Renova Foundation provisions[49]	3,124	2,910
Expanded net debt[50]	**14,140**	**9,048**
Average debt maturity (years)	8.7	8.7
Cost of debt after hedge (% pa)	5.5	4.6
Total debt / adjusted LTM EBITDA (x)	0.6	0.4
Net debt / adjusted LTM EBITDA (x)	0.4	0.1
Adjusted LTM EBITDA / LTM gross interest (x)	32.3	46.7

Debt management

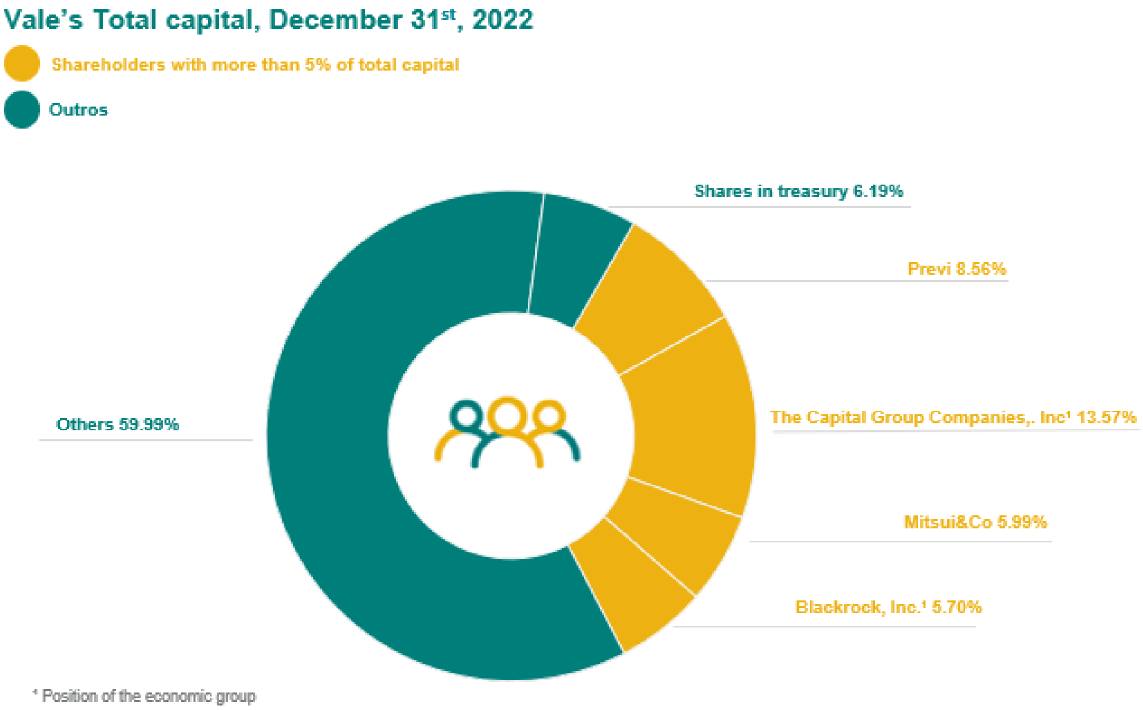
The debt management transactions below were carried out to optimize the Company's liabilities, reducing risks associated to liability management:

Month	Action
January	Withdrawal of R$ 2,361 million (US$ 425 million) from contracts with commercial bank, maturity in 2027, prepayment of US$ 200 million (R$ 993 million) of loan facility (maturity in 2023)
April	Loan facility amendment of R$ 1,903 million (US$ 400 million) with commercial bank (postponed maturity 2027).
May	Loan facility of R$ 967 million (US$ 200 million) with commercial bank (postponed maturity 2027).
June	Repurchase of bonds (tender offer), maturing in 2026, 2032, 2034, 2036, 2039 and 2042. A total of R$ 6.520 billion (US$ 1.291 billion) were repurchased.
July	Loan facility of R$ 805 million (US$ 150 million) with commercial bank (maturity 2027) and loan facility amendment of R$ 3.368 billion (US$ 1.000 billion) with commercial bank (delayed maturity 2029).
November	Loan facility of R$ 1.582 billion (US$ 300 million) with a Chinese development bank (maturity 2025) and withdrawal of R$ 1.055 billion (US$ 200 million) from a contract with a Japanese fostering bank.

[47] Does not include leases (IFRS 16).
[48] Includes interest rate swaps.
[49] Does not include provision for de-characterization of Germano dam in the amount of US$ 197 million in 2022.
[50] On October 27, 2022, Vale revised the concept of Expanded Net Debt, seeking to be more aligned with market practices and to have an indicator that better informs management in making capital allocation decisions. The revised Expanded Net Debt represented an initial reduction of approximately US$ 6 billion and now considers: (a) net debt, leasing (IFRS 16) and currency swaps, and (b) the provisions for Brumadinho and Mariana reparations, whose annual cash commitments are more concentrated in the first years. Operational and regulatory commitments previously included, such as the Refis tax renegotiation program and the provision for decommissioning upstream dams, are now excluded from the Expanded Net Debt concept. These commitments are expected to have a more stable and longer annual cash disbursement profile. The Expanded Net Debt target of $10 billion to $20 billion remains unchanged.

Shareholding structure and capital markets

As of December 31, 2022, the capital of Vale S.A. consisted of 4,778,889,251 common shares and 12 preferred shares of a special class (golden shares). In the year 2022, the Board of Directors approved the cancellation of 353,569,147 common shares of the company, considering 5,132,458,398 common shares on December 31, 2021.



Vale in the capital market

Shares issued by Vale are listed on B3 (ticker: VALE3), on NYSE (ticker: VALE, ADR Level 2) and on Latibex (ticker: XVALO). Vale's shares traded on B3 appreciated by 24.87% in 2022 when compared to 2021. Vale's market value (number of shares outstanding multiplied by the share price) was approximately R$ 368.3 billion at the end of 2022 fiscal year.

The average daily trading volume of shares was R$ 2,530 million in 2022, a reduction of 2.15% in relation to the volume traded in 2021. The shares issued by Vale are part of the main B3 indexes such as IBOV, IBRA, IBXL, IBXX, IGCT, IGCX, IGNM, IMAT, ITAG e MLCX.

Market information	2022	2021[51]
Closing price (R$/shares)	88.88	71.18
Volume average - VALE3 (R$ millions)	2,530	2,586
Price average - VALE3 (R$/share)	77.07	79.43
Market cap - VALE3 (R$ billions)	368.3	400.1
Book value (R$/share)	40.91	38.4
VALE3 Variation	24.87%	4.87%
Ibovespa Variation	4.69%	-11.93%

[51] Adjusted price after dividend distribution.

Shareholder remuneration

Distribution of earnings

The earnings with regards to the balance sheet for the 2022 fiscal year reached a total of R$ 5.69 per share, including interest on equity and dividends and were distributed as follows:

(a) On July 28, 2022, the Board of Directors approved dividends and interest on equity to its shareholders in the amount of US$ 3 billion (R$ 16,243 billion), the payment of which was made in full on September 1, 2022.

(b) On December 1, 2022, the Board of Directors approved the resolution of interest on equity to its shareholders in the amount of US$ 254 million (R$ 1,319 billion), the payment of which will be made in full on March 22, 2023[34].

(c) On February 16, 2023, the Board of Directors approved the distribution of compensation to shareholders on the form of dividends, in the amount of US$ 1.6 billion (R$ 8,130 billion), the payment of which will be made in full on March 22, 2023[52].

To access the Shareholder Compensation Policy and the history with information on the payment of dividends and interest on the stockholder's equity, access Vale's Investor Relations page at www.vale.com/investidores (section Shares, Dividends and Debt).

Share Buyback Program

- In May 2022, the Company reached the limit approved for the buyback program of up to 200 million shares. Of this total, 178,815,500 common shares and their respective ADRs were repurchased in 2022, corresponding to a total amount of US$ 3,251 billion (R$ 16,225 billion).

- In May 2022, the Company started a new buyback program of up to 500 million shares, which will be implemented over a period of 18 months. By December 31, 2022, the Company repurchased 178,627,077 common shares and their respective ADRs, corresponding to a total amount of US$ 2,786 billion (R$ 14.415 billion).

- As of December 31, 2022, the Company held 295,810,551 treasury shares through wholly owned subsidiaries and through the Controllership.

[52] March 29, 2023 is the estimated date for holders of American Depositary Receipts.

Business outlook for 2023[53]

Iron Solutions

Vale expects to produce 310-320 Mt of iron ore in 2023 and 36-40 Mt of iron ore agglomerates, which includes products such as pellets and briquettes. This guidance reflects Vale's strategy of optimizing value by increasing the production of high-quality products through the management of its extensive value chain. In 2026, Vale expects to increase its iron ore production to 340-360Mt and agglomerates to 50-55Mt, focusing on improving the quality of its portfolio and gradually returning to operations.

Energy Transition Materials

Nickel: Vale's nickel production guidance in 2023 is around 160-175 kt (reduction between 2% and 11% compared to 2022 production), especially due to the depletion of Ovoid, delay in the ramp-up of Voisey's Bay expansion project (Canada), and scheduled maintenance at Creighton and Onça Puma. Vale's strategy for its nickel business is to be a leader in providing nickel for a sustainable energy matrix transition. Class 1 nickel, Vale's main product, places the Company in a unique position with environmentally friendly operations in the North Atlantic, in line with the transition to a low carbon economy, besides supporting the ambition of promoting sustainable mining. In 2026, Vale's nickel production shall be between 230 - 245kta, reflecting replenishment projects in Canada, exposure to Pomalaa and Morowali, and the start-up of the second furnace at Onça Puma. As of 2030, nickel production shall be above 300kta, with input from projects such as Thompson Ultramafics, Sorowako HPAL, partnership projects and offtakes.

Copper: Vale's copper production guidance for 2023 is 335-370 kt (an increase between 32% and 46%, when compared to the 2022 production). Vale's strategy regarding this business is to seek outgrowth in an organic manner, leveraging its position in the Carajás mineral district, through competitive projects such as Salobo III and Alemão, which will increase its production capacity, and the development of the Cristalino project, which will make it possible to extend the life of the Sossego mill. In addition, Vale continues to develop studies of the Hu'u project in Indonesia, a world-class asset, and is investing in the exploration of assets in mining regions considered to be prolific, such as Andean America and Eastern Europe. In 2026, Vale's copper production is expected to be between 390-420 kta and above 900 kta as of 2030.

[53] The information disclosed in this item represents a mere estimate and in no way constitutes a promise by the Company and/or its managers with regards to performance. For more information, please consult Vale's Reference Form.

Policy for hiring independent auditors

Vale's Board of Directors approved the 'Policy for Hiring Independent Auditors' in 2020. This establishes guidelines and principles to be followed in the process of contracting external audit services of the Company and its subsidiaries.

This policy aims at avoiding the existence of conflicts of interest, or loss of independence or objectivity of its independent auditors. It prohibits the procurement of consultancy services that may threaten the independence of the Independent Auditors during the term of the audit agreement.

In line with the best practices of corporate governance, all services provided by our certifying accountants are supported by a letter of independence issued at least annually to the Company's Management, and that are approved by the Statutory Audit Committee.

The Company has an agreement in place for conducting an independent audit of its financial statements with the firm *PricewaterhouseCoopers Auditores Independentes* ("PwC"), which is effective for five years beginning with the audit of the financial statements for the fiscal year ended December 31, 2019 and that it is in compliance with this policy. In 2022, Vale's Board of Directors approved the renewal of the contract with PwC, which now includes audit services for the financial statements for the fiscal years 2024 to 2028.

The fees for the years ended December 31, 2022 and December 31, 2021, for Vale and its subsidiaries, were as follows:

Fees (R$ thousand)	2022	2021
Financial Audit	28,076	31,586
Audit Related Services*	359	453
Total External Audit Services	**28,434**	**32,039**

* These services are mostly procured for periods of less than one year.