



B3/B4 back-up dam, delivered in 4Q20

REPORT FROM ADMINISTRATION 2020

A Letter from the Chairman of the Board of Directors

Dear Fellow Shareholders

Vale moves forward in its commitments to its shareholders and to society by conducting an agile, fair, and dignified process of reparation in Minas Gerais, and by taking important steps to become a reference in safety.

In a year with unprecedented challenges in recent history, brought by the Covid-19 pandemic, the Company has engaged with issues that are so esteemed and of great regret to all of us, supporting employees, communities and public institutions. Concomitantly, it continued to drive significant changes in its practices and processes to transform itself into an even better Vale.

With open dialogue and collaboration, Vale's Board of Directors maintained oversight on the 32 occasions it met throughout 2020. Monitoring the reparation of Brumadinho, dam and people safety, especially in light of the Covid-19 pandemic, advances in the governance structure and long-term strategic planning were the themes that dominated the Board's discussions in 2020. We will continue to keep our activities close with executives, shareholders, authorities and society to make Vale one of the safest and most reliable mining companies in the world.

Guidelines towards excellence

The Board of Directors supports senior leadership in implementing behavioral models for a culture that prioritizes safety and risk management at Vale. In this sense, we established the Vale Management Model Policy - VPS, which aims to support and strengthen the Company's values and leverage results, on the path to continuous operational excellence.

We also established the Policy for Safety of Dams and Mining Geotechnical Structures, aimed at continuous improvement of the management of these critical assets. The policy was created with the Global Industry Standard on Tailings Management (GISTM) as a reference, evidence of Vale's commitment to best practices in the industry, and directs efforts to expand Vale's Dams and Tailings Management System. Along with those, 17 other policies were approved or reviewed by the Board, in order to contribute to broad guidelines for Vale's long-term objectives.

Risk and business supervision

To improve the supervision of Vale's adherence to legal, statutory and regulatory standards, the adequacy of risk management processes, and the quality and integrity of financial reporting, in March 2020 we installed the Audit Committee. In the same period, we also established the Chief Compliance Officer ("CCO"), directly linked to the Board of Directors, reinforcing Vale's risk management model in its third line of defense.

With the support of the advisory committees, the Board carried out periodic monitoring of Vale's Global Integrated Risk Map, with discussion of the company's critical and very critical risks, as well as the controls needed to mitigate them.

To promote increasingly safe, environmentally responsible operations that guarantee the integrity of Vale's assets, the Board of Directors approved operations that aim to reduce risks and enable a continuous focus on the main businesses. We highlight the search for a buyer and studies for the exit of Vale New Caledonia ("VNC") operation, and also the announcement of the intention to divest the coal operating segment, in Mozambique, in line with our strategy on the climate agenda.

The Board of Directors supports senior leadership in transforming Vale to a culture in which safety and risk management are at the heart of decision making.

ESG approach

The Board remains firmly committed to making Vale a reference in ESG practices. The action plan to address ESG gaps incorporates governance improvement actions that are essential for a better social and environmental performance of the Company, and a significant part of these actions were concluded in 2020.

At the Extraordinary General Meeting, to be held in March, the Company's shareholders will have the opportunity to directly address other ESG gaps of the Company, related to the structure of the Board of Directors itself, with an increased number of directors and independent members, more directors with mining and dam management experience, greater diversity, election of an independent chairman and an independent lead director.

We also followed the company's innovation strategy, especially in the promotion of sustainability and climate change adaptation, establishing guidelines for Vale to lead in the carbon-neutral mining.

In the relationship and social dialogue with communities, we highlight the continuity of the work started in 2019 of interaction with the Extraordinary Independent Advisory Committee for Support and Reparation, and through the Sustainability Committee, we maintained direct engagement with families and communities in the scope of the Brumadinho reparation and the Renova Foundation.

2021, a new stage in Vale's management

With the end of the Shareholders' Agreement in November 2020, Vale began its journey to become a true corporation. The Board of Directors has conducted this transition with order and balance, leading the internal changes necessary for the stability and good performance of the Company in this new context.

The installation of the Nomination Committee, in July 2020, with independent composition and performance, will guarantee the evolution of the Board, so that Vale will continue to benefit from the plurality of experiences and arguments, and from a process of decision-making with quality and security, in accordance with the law, ethics and best practices of corporate governance.

The 2021 Annual General Shareholders' Meeting will be a milestone in Vale's history due to the opportunity it brings to increase the independence and plurality of expertise in the Company's management, expanding the voices of our shareholders and the active listening of

the Company. I take this opportunity to invite our shareholders to assess and decide on the important evolution aspects proposed for Vale's governance.

On behalf of Vale's Board of Directors, I would like to thank you for your support. As we change and advance in strategy, governance, security, reparation and cultural transformation, we will continue to take steps to build a better Vale.

José Maurício Pereira Coelho

Chairman of the Board of Directors

A message from Vale's CEO

Dear Vale shareholders,

First of all, I would like to thank our employees, the communities where we operate, our partners, suppliers and customers, for the support and partnership this past year. 2020 will go down in memory as one of the most challenging years in recent history. As we made progress with the reparation of Brumadinho and the resumption of our iron ore operations, we have seen the Covid-19 pandemic changing lives around the world. With our New Pact with Society as a guide, Vale quickly adapted to the scenario and responded with significant contributions to Society.

In our decisions, we have prioritized the safety of our people, adapting our workday and continuing the essential role that Vale plays in the locations where we operate. We started 2021 with the hope brought by vaccines and on the way to position Vale as a reference in its business, in its safety practices and in its commitments to society.

The Global Settlement for Integral Reparation, entered into in February 2021, is a milestone that brings greater transparency, legitimacy and legal certainty to the reparation actions, for the benefit of Brumadinho, the municipalities along the Paraopeba riverbed and all the people of Minas Gerais. It is the result of an open dialogue with the authorities and of Vale's active listening for socioeconomic and socio-environmental reparation, in a swift and fair way. We will remain committed to entering into individual indemnification agreements, which already reach 9 thousand people.

We continue to prioritize safety and people's lives. Our process safety program is supported by HIRA (Hazard Identification and Risk Assessment), which identifies the most critical risks in each process, as well as their respective controls. To date, HIRA has helped to identify around 600 critical risks and nearly 7,000 critical controls. Monitoring the integrity of these controls has become part of our daily maintenance routine. Vale has become more proactive and the various operations that were halted during 2020 reflect our chronic unease about risks in our operations.

In tailings and dam management, we have been working on the evolution of our Tailings and Dam Management System. We are well positioned for a high adherence to the Global Industry Standard for Tailings Management, by the end of 2021. Our de-characterization plan is underway, with the completion of two back-up dams, the de-characterization of two other geotechnical structures and the beginning of works to de-characterize the B3/B4 dam.

Our approach is conservative in dam management, carrying out actions to improve safety and stability conditions for structures at emergency level and monitoring our portfolio with high technical rigor.

We also seek to reduce our dependence on dams, in line with the goal of reaching 70% of dry processing by 2024. We are investing in a dry stacking and filtering system for tailings treatment, which will require approximately US\$ 2.3 billion by 2025. This innovative system is being implemented in the Vargem Grande, Itabira and Brucutu operational complexes.

We are taking important steps to build a better Vale. Our values have not changed, but our culture is changing, so that we can achieve our purpose as an organization. We believe that mining is essential for the development of the world and that it only serves society by generating prosperity for all and taking care of the planet. Therefore, we exist to improve life and transform the future. Together.

In this sense, we expanded our commitment to the climate agenda and set a goal to reduce scope 3 emissions by 15% by 2035. We know that this is not an easy task, but I believe that Vale is in a unique position to induce our value chain and help it to innovate and decarbonize.

We move forward with an action plan to close ESG gaps. In a process of continuous improvement, we identified 11 more opportunities to make progress in our practices and the plan now has 63 gaps, of which we have already addressed 37. We have also evolved in the communication of our sustainability information through frequent updates on the ESG Portal, a channel launched in 2019. We released the Tax Transparency Report for the first time and, as of 2021, our Sustainability Report will follow the Integrated Reporting model.

In resuming and stabilizing our operations, we have made significant progress in the face of adversity. We ended 2020 with the partial resumption of all iron ore operations that were halted in 2019. We are on track to safely reach a capacity of 400 million tons per year by the end of 2022. In the long-term strategy, we announced the Serra Sul 120 and Capanema projects, which are important for the creation of capacity buffers and for Vale's production stability.

The early extension of the concession agreements for the Carajás and Vitória a Minas railways was an important step, which eliminates a great deal of uncertainty about the continuity of a relevant part of our integrated logistics chain. The extension is also good for society, bringing a series of benefits to the communities close to our concessions and to the economic development of Brazil.

Our discipline in capital allocation remains unchanged. We maintain our investments at healthy levels, to capture the value of optionalities and support our strategic agenda. To simplify the flow of operations, we are solving our cash drains and taking advantage of growth opportunities for a solid future in our core businesses.

Our ambitions are challenging. With discipline, we are going a long way to transform Vale into one of the safest and most reliable companies in the sector and a reference in creating and sharing value for the whole society.

We will never forget Brumadinho!

Eduardo Bartolomeo
CEO

Report from the Administration 2020

The adoption of measures to **combat the Covid-19 pandemic** and the continuation of the full reparation of **Brumadinho** were Vale's priorities in 2020. In this year of great challenges for society, Vale quickly promoted operational adjustments and executed actions with positive impact in the regions where it operates, while advancing in the stabilization of its operations. So many learnings have enhanced our **cultural transformation**. We have a new pact with society, with a commitment to positively impact the regions where we operate and to repair the negative impacts caused by our operations, through active listening and stakeholder engagement. This is how Vale will become a **safer and more sustainable** mining industry.

Covid-19 Global Pandemic Preparedness and Response Plan

Vale set up a Committee in January 2020 to monitor the impacts of the pandemic on its operations and its main stakeholders, which defined the first prevention actions, such as the suspension of non-essential travel. In March, the Covid-19 Global Pandemic Preparedness and Response Plan was launched, as the results of local risk monitoring were made available. The Company has adopted measures to prevent and combat the new coronavirus in order to preserve the safety and health of society, the community of Brumadinho and the locations of its operations, its employees, suppliers, and on its sites.

Measures adopted in operations

The pandemic has accelerated important changes in our work model, including standards of collaboration and use of physical spaces. To protect our people, in March 2020, a home office scheme was successfully established for all eligible roles (administrative and operational support). From this experience, Vale has maintained remote work on a large scale.

Safety in the Company's units was intensified with the adoption of conservative measures by the teams, such as daily self-diagnosis, health screening at the entrances, recurrent serological and molecular and large-scale testing in the operational areas, constant hygiene measures in the environments and preventive quarantines.

Humanitarian support

In support of Brazilian society, Vale allocated more than R\$ 500 million to local governments, representing the second largest volume of donations from a corporation to combat Covid-19 in the country. Resources were also dedicated to governments and institutions in Canada, Indonesia and other countries where we operate.

In addition to financial support, the company supported health protection in all countries where it operates. In Mozambique, for its contribution to solutions for the fight against the Covid-19, Vale received a certificate of merit from local authorities.

In Brazil, Vale contributed to the construction of three field hospitals¹, health units reforms and purchasing supplies and equipment, such as fans, hospital beds and monitors. In Minas Gerais, the company supported two hospitals² with resources of R\$ 10 million to expand the hospital ward. We donated 924 thousand protective equipment³ and 55 thousand rapid test kits to ten other hospitals in Minas Gerais, in addition to ambulances.

The logistics structure of Vale's operation in China was dedicated to the purchase and transport of 30 million PPE (personal protective equipment) and 5 million rapid tests for the detection of the new coronavirus for public health institutions in Brazil.

For more information on Covid-19 prevention and combat actions and Vale's humanitarian support initiatives, please visit: vale.com/coronavirus.

Brumadinho

With safety and open dialogue with affected people and communities, we continue our commitment to repair the damage caused, quickly and fairly. The general socioeconomic difficulties imposed by the pandemic reinforced the importance of reparation. Therefore, following all the protocols of the health agencies, the employees continued in the field so that emergency works and other essential activities were not interrupted. During the pandemic, free assistance was maintained for people who are parties in indemnification agreements, carried out remotely, via videoconferences.

Reparation in Brumadinho

The advance of the Brumadinho's reparation is Vale's priority. By February 2020, we allocated over R\$ 13 billion to pay compensation to people affected by the Dam I rupture, at the Córrego do Feijão mine, to infrastructure works, and to environmental and socioeconomic reparation actions.

The environmental reparation activities extend over 22 municipalities located along the Paraoapeba River Basin. They involve sediment containment and removal, monitoring of water quality and preservation of fauna and flora. The priorities for social investment are defined based on dialogue with the community and local authorities.

¹ In Rio de Janeiro, Parauapebas and Açailândia.

² Eduardo de Menezes and Baleia hospitals, in Belo Horizonte

³ Masks, gloves and aprons.

We continue to work to repair, in a fair and agile manner, the damage caused and to restore dignity and livelihoods to the families of victims and those impacted.

Brumadinho Comprehensive Reparation Program

With measures to recover the damage caused by the Dam I rupture and to support local development, the Integral Reparation Program, presented in September 2020, contains 166 initiatives and projects, structured into 34 programs per macro strategy.

The definition of its scope and strategy was carried out by listening to stakeholders, with the support of specialized institutions, and presented to the city hall.

Its drivers are intelligent governance, social innovation, promotion of quality of life, integration and territorial planning, transition to a mining-independent economy and water resources management.

Among the planned actions is the installation of 700 km of fiber optic cabling, with wireless access points, increasing availability of internet network in the region. In this way, it will expand access to information and communication channels in the locality, enhancing the positive impact, for example, of actions in education and professional qualification projects. The Program also promotes alternative sources of energy, the development of industry and trade in Brumadinho.

Extraordinary Independent Advisory Committee for Support and Reparation

The Committee concluded its work in February 2020 and issued a report with 84 recommendations for Vale. By January 2021, 69 were completed and 13 remained in execution⁴ – monitored on a monthly basis by the Sustainability Committee – with completion planned for the end of the year. A specialized consulting firm conducted an annual, external and independent assessment of the progress of the reparation and identified opportunities for improvement in the fulfillment of six recommendations, which will be adopted by Vale.

Global Settlement for Brumadinho Integral Reparation

On February 4, 2021, Vale, the State of Minas Gerais, the Public Defender's Office of the State of Minas Gerais and the Federal and State Public Prosecutors' Offices entered into the Global Settlement for Integral Reparation of Brumadinho ("Global Settlement"). With an economic value of approximately R\$ 37.7 billion, it includes socioeconomic and socio-environmental reparation projects. As a result of the Settlement, the company recognized an additional expense of R\$ 19.9 billion in the result for the year ended December 31, 2020 (see Section "Comments on operational and economic-financial performance").

⁴ Two recommendations were not considered by Vale.

The socioeconomic commitment of the Global Settlement includes (i) projects demanded by the affected communities; (ii) a program of income transfer to the affected population, replacing the current payment of emergency aid; (iii) projects for Brumadinho and for the other municipalities of the Paraopeba River Basin; in addition to (iv) resources for the implementation of the Urban Mobility Program and the Public Service Strengthening Program, to be conducted by the Government of the State of Minas Gerais.

Among the commitments of social and environmental reparation, the Global Settlement establishes the guidelines and governance, to Vale, for the execution of the Reparation Plan; projects to be implemented to compensate for environmental damage already known; and projects aimed at the water security of the impacted region.

The Global Settlement definitively terminates public civil actions on social and environmental damages caused by the breach of Dam I, Córrego do Feijão, as well as on socioeconomic reparation⁵. The institutions engaged with the construction of the Global Settlement ensured swift, fair and effective solutions in a process conducted with transparency, legitimacy and legal certainty.

The Global Settlement is the exception of compensation for divisible individual damages. Vale reinforces its commitment to fair, swift, and equitable reparation through individual settlements based on the Term of Commitment entered into with the Public Defender's Office of the State of Minas Gerais on April 5th, 2019.

Resumption of searches

In August 2020, after five months of suspension of the operation, due to the risks associated with the pandemic of Covid-19, the Fire Department of Minas Gerais resumed the search for the 11 victims still missing. Vale provides full support to the process and, during the shutdown period, made improvements in the facilities and accesses, as well as drainage of the impacted areas to provide safety to Firefighters. The resumption of the operation was preceded by a new assessment of risks of contagion by local authorities, released after verification of safety and health aspects at the site.

Main deliveries of the reparation plan in 2020

Indemnification

- 9.1 thousand people⁶, approximately, have entered into indemnification agreements;
- Family members of all employees who were victims of the rupture have already received labor indemnification;

⁵ Regarding the *lato sensu* collective damages and homogeneous non-divisible individuals.

⁶ Civil and labor indemnification agreements entered into until February 25th, 2021.

- More than 100,000 people in Brumadinho and along the Paraopeba River trough have received emergency compensation since 2019.

Environment

- Advances in containment, removal, and disposal of tailings⁷. In removal, 3.2⁸ million cubic meters of tailings have already been handled, about 32% of the total;
- Restoring flora of impacted areas with native vegetation, based on the authorization of the Minas Gerais Fire Department. Currently, 64,6 ha⁹ of the 370 ha impacted were recovered;
- Dredging of the most impacted area of the Paraopeba River;
- Implementation of containment structures along the Ferro-Carvão stream to reduce, to the maximum, the tailings carryover to the Paraopeba River;
- Completion of the Marco Zero Project, the first impacted area to be recovered. A stretch of the Ferro-Carvão stream had its original conditions restored in Brumadinho, from the bridge in the Alberto Flores region to the confluence with the Paraopeba River.

Infrastructure

- Delivery of a new pipeline for the normalization of water supply in the municipality of Pará de Minas, with approximately 93,000 inhabitants;
- Delivery of a new water collection system on the Paraopeba River, to ensure the water supply of the Metropolitan Region of Belo Horizonte, with about 6 million inhabitants;
- Delivery of two Water Treatment Stations in Brumadinho, with a return of 18.7 billion liters of clean water¹⁰ to the Paraopeba River;
- Delivery of the Family Health Unit and the municipal daycare center to the community of Parque da Cachoeira, in Brumadinho (MG);
- Delivery of the municipal daycare center of the Cohab district, in Brumadinho (MG);
- Delivery of the renovation in the Multisport Complex Gymnasium, in Brumadinho (MG);
- Delivery of the Escola Municipal Rubem Costa Lima to the community of Macacos, in Nova Lima (MG);
- Financial support for the construction of the Memorial in honor of the victims, in Córrego do Feijão, an initiative motivated by the desire of family members¹¹.

Socioeconomics

- Investments in 30 social projects selected to strengthen social organizations in Brumadinho, stimulating the voluntary sector, with the training of 52 social organizations;

⁷ The removed tailings (sieved and authorized) is deposited in the pit of the Córrego do Feijão mine

⁸Data updated up to January 20th,2021.

⁹ Data updated up to January 2021.

¹⁰ With low turbidity of 100 NTUs (legal standards determined by the National Council of the Environment).

¹¹ Expressed through the association of family members and victims of the collapse, created to represent them.

- Assistance to 300 farmers from Brumadinho and Mário Campos through the Agriculture Promotion Program;
- Contribution to the resumption of agricultural activity in Mário Campos, through the Cultivar Project.

To monitor the progress of repair actions, visit the [Reparation Section](#) on Vale's ESG Portal.

Dam safety management

Vale's dam management practices continue to evolve, with major improvements implemented in 2020.

Dam and tailings management system

- Implementation of the RPR system, for routine, performance and risk management, which covers all strategic aspects of dam safety and tailings deposit;
- Adoption of the Engineer of Record (EoR)¹² model in 100% of the dams that serve the Ferrous Minerals business in Brazil. By 2021, all business units will have the EoR model implemented;
- Start of implementation of Hazard Identification and Risk Assessment (HIRA) for the dam portfolio, with full integration with Enterprise Risk Management (ERM), and completion scheduled for the end of 2022;
- Inauguration of the third geotechnical monitoring center. The three centers operate redundantly and oversee more than 100 geotechnical structures.

Global Industry Standard on Tailings Management (GISTM)

- Vale is well positioned to be adhering to GISTM by the end of 2021;
- On August 5, 2020, the company and all ICMM members committed to implement GISTM;
- Conducting the first internal assessment, based on the GISTM requirements, to be followed by in-depth assessment, based on detailed compliance requirements to be provided by the Global Tailings Review Initiative in early 2021. After this evaluation, Vale's senior management will perform a critical analysis with definition of an action plan to ensure that all GISTM principles and recommendations are implemented;
- Approval of the Dam and Geotechnical Mining Structures Safety Policy by the Board of Directors, which has the GISTM as one of its references.

¹² The EoR is recommended by the Mining Association of Canada (MAC), the Canadian Dam Association (CDA) and the Extraordinary Independent Consulting Committee for Investigation, and aims to give greater reliability and quality to the dam safety monitoring and review process.

Emergency management

- Simulations of the Emergency Action Plan for Mining Dams (PAEBM) for dams at Emergency Level 2 and 3, respecting the restrictions imposed by the Covid-19 pandemic;
- Disclosure of the PAEBMs on Vale's [website](#).

Reduction of emergency levels

- Vale works to ensure that all 32 structures currently at emergency level will be in satisfactory safety conditions by 2025;
- Withdrawal of the emergency level of the VI dams, in Brumadinho (MG), and Water Collection – Bahia Igarapé, in Parauapebas (PA), in 2020, after works to improve the stability condition. The structures already have positive Stability Condition Statements (DCE).

De-characterization plan

- Completion of the decharacterization of 5 geotechnical structures, out of the total of 29 geotechnical structures provided for in the plan, with deadline for execution until 2029;¹³
- Completion of 2¹⁴ out of 7 containment structures in the plan¹⁵;
- Delivery of phase 1 construction of the containment structures of the Forquilha and Grupo, with an estimated completion in 2Q21;
- Conclusion of the decharacterization of the Fernandinho dam, scheduled for 2Q21;
- Start of the decharacterization of the Sul Superior dam in 3Q20.

Vale Management Model (VPS)

To leverage the cultural transformation process, we began a large-scale implementation of our Vale Management System (VPS). Through the development of people, the standardization of processes and operational discipline, the VPS inserts and reinforces, in the operational routine, the key behaviors and protocols in strategic themes for Vale. The first advances towards operational excellence are already noticeable:

- 23 p.p. increase in adherence to Vale's maintenance plans;
- Logbook, an implemented tool that helps the organization of critical leadership routines and that drives operational discipline;
- Conducting kinesthetic training for better understanding and execution of operational procedures;

¹³ 2 Kalunga, 3 Kalunga (Parauapebas, PA) and 8B (Nova Lima, MG), in 2019, Rio do Peixe dike (Itabira, MG) and Pondes de Rejeitos (Parauapebas, PA), in 2020.

¹⁴ Related to the Sul Superior and B3/B4 dams in 2020.

¹⁵ As proposed for the de-characterization plan.

- 93% of preventive maintenance activities carried out with a Safe Permit to Work¹⁶ in Brazil;
- 95% adherence to Vale's systematic maintenance for critical assets;
- Approximately 65,000 projects developed by employees for continuous improvement.

¹⁶ Operational safety process that provides guidance for a broad risk analysis, considering issues such as the conditions of the environment to perform a given task, risks involved, general procedures, among others.

Environmental, Social, and Governance at Vale

Vale remains committed to integrating sustainability into its business through the construction of a social, environmental and economic legacy.

Throughout 2020, Vale advanced with its new pact with the society, signed in 2019, through actions to fight the Covid-19 pandemic. It made the second largest volume of donations to combat Covid-19 in Brazil, with R\$ 500 million directly disbursed.

Brumadinho's reparation remained a priority for Vale. The work progressed in 2020, following all recommended safety and health protocols.

In 2020, we advanced the ESG gaps action plan and closed 11 more gaps, totaling 37 closed gaps, out of 52 mapped, with special emphasis on the creation of the Audit Committee and the Nomination Committee, in addition to conducting climate change scenarios. Additionally, Vale continues to seek to improve its practices and, therefore, at the end of 2020, revised its gap expansion list, adding 11 new gaps, in addition to the 52 previously mapped. The complete updated list is available on the ESG Portal.

For 2021, aligned with its action plan to close the mapped gaps, Vale aims to structure social indicators with the short, medium- and long-term goals, aligned with its commitment to the development of local communities in territories where it operates.

Vale continues to evolve in transparency practices, being adherent to the Task Force on Climate-Related Financial Disclosures (TCFD), Carbon Disclosure Project (CDP) and through frequent updates in the ESG Portal, a channel launched in 2019, in order to promote transparency in its sustainability practices. In 2020, the Company released, in a new format, the Proxy Statement for the Shareholders General Meeting, and also the first Tax Transparency Report. From 2021, its Sustainability Report will follow the Integrated Reporting model of the International Integrated Reporting Council (IIRC), also prepared in accordance with the Global Reporting Initiative (GRI) Protocol and with response to indicators of the Sustainability Accounting Standards Board (SASB).

In 2020, there were R\$ 3.5 billion¹⁷ in expenditures, 63% of which were environmental and 37% social.

¹⁷ Estimated amount in reais, using the average exchange rate for 2020 of BRL / USD 5.16 and, the amount does not include Brumadinho.

Commitments 2030

Vale's sustainability goals were aligned with the United Nations' 2030 Agenda Sustainable Development Goals. In 2019, we reviewed our commitments to make them even more ambitious. In 2020, we continue to work to achieve the expected results.

Commitment 2030	Baseline (2017)	Goal	Result by Dec/2019	Result by Dec/2020
Climate Changes	14.1 MtCO ₂ e	Reduce absolute greenhouse gas (GEE) emissions from Scopes 1 and 2 by at least 33%, aligned with the Paris Agreement, and be carbon neutral by 2050	Reduction of 11% of absolute GHG emissions, Scope 1 and 2, compared to the base year 2017	It will be disclosed in Vale's Integrated Report in April 2021
Energy¹⁸	-Global: 69% of estimated consumption for 2030 Brazil: 40% of estimated consumption for 2025	Global: 100% consumption of renewable electricity Brazil: 100% self-production of renewable electricity by 2025	Global: 83% of the estimated consumption for 2030 Brazil: 49% of the estimated consumption for 2025, 181 MW of installed capacity	Global: 2020 results will be disclosed in Vale's Integrated Report in April 2021 Brazil: 62% ¹⁹ of the estimated consumption for 2025, 947 MW of installed capacity
Water	0,350 m ³ /t FeEq	Reduce new water collection by at least 10%	8.4%	8.7%
Forests	-	Recover and protect at least 500,000 ha	106 ha (pilot project)	53,899.8 ha
Socioeconomic Contribution²⁰	-	Health, education, and income generation	Health: 77 Basic Health Units with expanded services and 955 families served with social methodologies / technologies for access to water and / or sanitation Education: 1,599 education professionals trained Income Generation: 461 supported entrepreneurs	Health: 496 Basic Health Units with expanded services and 955 families served with social methodologies / technologies for access to water and / or sanitation Education: 3,308 education professionals trained Income Generation: 1,860 entrepreneurs supported
Gaps ESG	-	Eliminate 63 mapped gaps	26	37

¹⁸ For the Global target, the information may vary due to changes in the volume and source of electricity consumption projected for 2030, as well as energy declarations. For the Brazil target, Information may vary due to changes in electricity consumption projected for 2025 and the projection of hydroelectric generation according to hydrological conditions.

¹⁹ Estimated self-generation in Brazil in 2025 considering additional energy from wind projects to be supplied to Vale and energy from the Sol do Cerrado project. The wind and solar projects add 16 p.p. to the baseline. The remaining 6 p.p. increase is due to the variation of hydroelectric generation in the current portfolio due to hydrological conditions.

²⁰ Throughout 2020, Vale revised its social positioning with a focus on becoming an inducer of social capacity in governments, communities and the private sector, with the aim of directing the company's various investments to meet the real needs for the development of territories. Thus, for 2021 onwards, new indicators may be defined for better monitoring by theme, in order to increasingly contribute to Vale's commitments to sustainable development and the construction of a New Pact with Society.

Environmental

Climate change

In 2020, Vale also advanced its climate agenda through announcements of a minimum of **33% reduction in Scope 1 and 2 emissions by 2030**, based on 2017 data, and the commitment to be carbon neutral by 2050. To achieve this ambition, in addition to the **US\$2 billion of investments to be made by 2030**, about US\$77 million was invested in energy efficiency and renewable energy projects, biofuels and electrification and breakthrough technologies in 2020.

In December 2020, Vale announced its goal of **reducing at least 15% of scope 3 net emissions by 2035**, another significant advance in the Company's climate agenda and its commitment to leading the transition to low-carbon mining. To meet this goal, Vale understands that 15% to 25% of the reduction will be achieved through the Company's own initiatives, from its portfolio of premium products, which allows reduction of emissions in the steel industry. Added to it is its HBI technology – with the use of natural gas – and its production of pig iron, from biomass. To deliver the remaining 75% to 85%, Vale will foster partnerships and engagements with its value chain in the search for new solutions aimed at decarbonization.

Vale's current strategy already provides for a portfolio of high quality and low carbon products, representing 90% of its production by 2024. To strengthen our positioning and offer additional solutions to the steel industry, we are focused on increasing the supply of our high quality sinter feed of the Northern System, offering products of higher content and less impurities, from New Steel technology, leading the pellet production and other agglomerated products worldwide and, finally, **providing clean metal solutions from technological partnerships and own content**. Our Class 1 nickel assets also put us in a unique position with competitive operations.

In addition, in line with the TCFD recommendations, Vale performed the resilience of its portfolio regarding the climate change scenarios, as well as assessment for climate risks, important steps for the management of its climate agenda. The studies are available on the ESG Portal in the Climate Change Section.

Energy

As part of its climate change strategy, Vale has a 100% consumption target of renewable electric energy globally by 2030 and self-production from renewable sources in Brazil by 2025.

For the global target, in December 2019, Vale had approximately 83% of the estimated consumption for 2030, from renewable sources, represented by 7.0 TWh of energy declarations attesting the renewable origin of consumption in Brazil. The 2020 data will be disclosed in Vale's Integrated Report in April 2021.

For the Brazil target, Vale ended the year with 62% of the estimated consumption for 2025, that is, 947 MW of installed capacity. This capacity includes the announcement of the acquisition of a 766-megawatt peak solar project, Sol do Cerrado, which is scheduled to start operations in the fourth quarter of 2022. Production will be approximately 193 megawatts of average energy (MWh) for Vale's operations per year, corresponding to 13% of the energy demand estimated in 2025, when the Company expects to reach its goal in Brazil.

Water

Vale is committed to reducing its water collection by 10%. To this end, it continues to work on initiatives to optimize the use of the resource. In 2020, the Company has already reduced its water collection by 8.7%²¹, of the 10% reduction expected by 2030. In addition, it published its Water and Water Resources Policy, aligned with international best practices and with the standards of the International Council on Mining and Metals (ICMM). Vale continues to work in the risk management of this resource, through water risk sensitivity assessments. The Policy is available on the ESG Portal.

Forests

Globally, Vale already helps to protect more than 1 million hectares of forest, of which 800 thousand hectares of forest in the Amazon, which we have preserved for over 30 years. By 2030, we will recover and protect at least an additional of 500,000 hectares. In this sense, in 2020 Vale added 54 thousand hectares of protected forests in conservation units.

Among the initiatives, the *Horizontes* (Horizons) project stands out, a partnership that aims to contribute to the recovery and sustainable use of areas surrounding protected areas in Pará, forming important corridors. The project foresees the implementation of agroforestry systems, in which the planting of trees and shrubs is intercropped with agricultural crops or animal husbandry that, in addition to generating income for communities, form ecological corridors that favor the protection of biodiversity. The project combines conservation with income generation and river preservation, in addition to contributing to the mitigation of greenhouse gas emissions through carbon "sequestration".

Waste

In 2020, the Waste Policy was approved to encourage the transition from waste management to a **circular economy** perspective, to be made possible from innovation. It also seeks to prioritize dry processing, in line with Vale's goal of achieving **70% dry processing by 2024**. It is important to note that of the remaining 30% of wet production, 16 p.p. will use **filtering and dry stacking system** for the treatment of tailings, which will require approximately **US\$ 2.3**

²¹ Based on 2017 data.

billion by 2025. The system is in implementation in the Vargem Grande, Itabira and Brucutu complexes, contributing to lower the dependence on tailings dams.

Among the sustainable solutions to transform the tailings generated in our operations into products for other production chains, we have more than 20 research and development projects, covering 15 market niches, including road paving, precast concrete, cement, sand, and others.

- Start of the block plant in the Pico mine with a production capacity of 3.2 million precast. The plant will operate on an experimental basis during its first two years for technical and environmental performance analysis of manufactured parts, to then adjust its production to reach maximum capacity;
- Obtaining environmental licensing and adding mining rights for exploration of sand by-products in the Brucutu Mine.
- Three green²² patents granted.

Social

Human Rights

Vale is committed to the UN Guiding Principles on Business and Human Rights. In 2020, the Company integrated human rights issues into its processes, ensuring that the Global Human Rights Policy (2019) was referenced in more than nine other policies and procedures. Human Rights were formally inserted in the processes of risk, supplies, business security, human resources, among others.

Since 2019, the risk of Human Rights violations has been included in Vale's Integrated Global Risk Map. In 2020, the methodology was revised to be integrated into Vale's risk management model, managed through the *BWise* platform, and in 2021, the risks will be systematically monitored through this platform.

In partnership with the Procurement area, the human rights management process in Vale's supply chain has also advanced, ranging from registration to the identification of contracts from critical suppliers, with the application of a **maturity questionnaire in Human Rights management**, to the performance of documentary and due diligence.

In addition to the **risk assessments on Human Rights**, in 2020, it was performed:

- 3 operational due diligences;

²² Program of the National Institute of Industrial Property (INPI) for technological inventions and innovations aimed at alternative energies, transportation, conservation, waste management, and agriculture

- 1 *due diligence* of the Brumadinho Reparation process, which is still ongoing;
- 15 *due diligences* on critical suppliers;
- 128 Vale accommodations in three states in Brazil.

For any deviation identified in due diligences, action plans are prepared periodically monitored. Vale's online Human Rights course and Human Rights Guide, available in the Portuguese and English versions, updated in 2020, address important concepts of the Global Human Rights Policy.

Relationship with Communities

Relationship with Communities is a strategic process for Vale's social action and is based on the achievement of trust, the practice of active listening, a transparent posture and engagement with stakeholders.

In 2020, we interacted with 1,726 communities in different countries. In Brazil, 411 communities were considered priorities for **engagement**. Of these, about 57% implemented the **relationship and social investment plans**. In 2021, this coverage will reach 62%.

In addition, Vale recognizes the importance of keeping listening channels open and accessible to communities. In 2020, we registered 15,554 community manifestations, where 99.01% were responded and 72.6% were attended. Through this **Grievance Mechanism**, we seek to anticipate risks, identify negative impacts, potential conflicts and human rights violations.

Social investments

In 2020, R\$ 1,303 million²³ were dedicated to social initiatives²⁴:

- ✓ **68% are voluntary and mitigating investments (R\$ 884.3 million)**
- ✓ **12% are mandatory investments (R\$ 156.5 million)**
- ✓ **20% are investments with Incentive Funds (R\$ 262.5 million)**

Through its voluntary investments, Vale reaffirms its commitment to society by carrying out actions in the social, cultural, environmental and scientific research areas. The main voluntary social investment vehicles are: Vale Foundation, Vale Fund, Vale Institute of Technology, Vale Cultural Institute, and Vale Volunteer Network. The largest voluntary and mitigating social investments with own resources were made in the areas of health (R\$ 590 million), education (R\$ 49 million), indigenous peoples and traditional communities (R\$ 45 million), community safety (R\$ 40 million), and generation of work and income (R\$ 30 million).

²³ Estimated Value in Reais, using the average exchange rate for 2020 of BRL/USD 5.16.

²⁴ Amounts do not contemplate Brumadinho.

The Vale Foundation

Highlight to the projects of **Vale Foundation**, whose mission is to contribute to the development of the territories where Vale operates, from structuring activities in the areas of Education, Basic Health, Productive Inclusion and Social Protection.

In 2020, Vale Foundation invested R\$ 57.7 million in social initiatives that impacted more than 2 million people in 52 municipalities in 6 Brazilian states.

- ✓ Training of 2,630 professionals in education
- ✓ Training of 520 health professionals
- ✓ Support for 2,540 entrepreneurs
- ✓ Initiatives that reached 164,000 students from 645 education units

In Maranhão, Vale Foundation has established a partnership with the state government and other institutions, which **seeks to promote the quality literacy of 70,000 children, in 23 municipalities of** Maranhão along the Carajás Railway (EFC) and in more than 1,000 schools.

The Ciclo Saúde (Health Cycle) project, **a program for strengthening primary care in municipalities**, was adequate to meet the urgencies of the Covid-19 pandemic and supported 419 Basic Health Units in 29 municipalities through technical assistance and the donation of more than 460,000 supplies, benefiting more than 1.8 million people. The consolidated results of Vale Foundation's initiatives are published annually on its [website](#).

Other initiatives

Vale believes that investments in infrastructure and education enable socioeconomic development. This is the case of the Territórios da Paz project in Pará, expected in the second half of 2021. The project **aims to combat violence through 92 initiatives** in public service, sports, leisure, benefiting 370,000 people from 6 community centers.

Renova Foundation

Responsible for repairing the damage caused by the Fundão tailings dam rupture, in Mariana (MG), the Renova Foundation is an organization without economic purpose, constituted from the Transaction and Conduct Adjustment Agreement (TTAC), legal commitment that defines the scope of its operation, which is the total of 42 programs and their long-term actions that unfold in the projects that have been implemented in the 670 km of impacted area along the Doce river and affluents.

Since the Foundation's creation in November 2015, Vale and BHP have been financing the Renova Foundation and providing funds directly to Samarco in order to preserve its operations. Approximately **R\$ 11.3 billion were invested by Vale, BHP and Samarco in reparation and compensation initiatives for the affected parties**, totaling more than 324,000 people. In

2020, R\$ 3.5 billion was driven to the programs. For 2021, the budget of the Renova Foundation is R\$ 5.9 billion.

During 2020, the Renova Foundation updated the premises of the estimated costs necessary for the execution of reparation and compensation programs, resulting in the complement of the provision recognized by the Company in R\$ 5.5 billion. For further information on the Renova Foundation, visit: <https://www.fundacaorenova.org/>

Governance

The year 2020 was a transition period in Vale, especially due to the termination of the Shareholders' Agreement, which expired in November.

In the year, Vale continued to evolve in its governance, seeking references in national and international best practices, and deepening the understanding of the perspective of investors, as well as adapting to the new requirements of the Novo Mercado regulation and preparing to be a dispersed capital company.

Board of Directors

Vale's Board of Directors has also undergone an evolution and is currently composed of more members with experience in mining or related industry, with expertise in sustainability and governance, and has three independent members. With the termination of the Shareholders' Agreement, three other members are eligible for independent members, as they have no ties to the former signatories of the Shareholders' Agreement and meet the requirements of B3's Novo Mercado Regulation.

Nomination Committee

To allow for Vale's appropriate and orderly transition to a dispersed capital company, but still with major reference shareholders, in July 2020, Vale announced the formation of its Nomination Committee. The committee should propose improvements related to the structure, size and skills of the Board of Directors. In September 2020, the Board of Directors approved Vale's Nomination Policy, which establishes the minimum qualifications to occupy the position of member of the Board and its Advisory Committees, and of the Executive Board. As an assignment of the Committee, it must point out the list of candidates to Vale's Board of Directors, to be voted on at the Annual Shareholders' Meeting in April 2021.

Risk governance

To strengthen its risk governance, in March 2020, Vale established the **Audit Committee** to fully reflect the requirements of regulatory bodies, composed of three independent members who directly assist the Board of Directors in supervising internal audit activities, the internal controls area and Vale's financial statements, among other functions. The Audit Committee issued its annual activity report, which can be found [here](#).

It is also noteworthy the appointment of *the* **Chief Compliance Officer** (CCO) in July 2020, directly linked to the Board of Directors, with continuous interaction with the Audit Committee, conferring a degree of autonomy and independence of the other executive structures of the company. The Compliance Officer is responsible for overseeing the Whistleblower Channel, Internal Audit and Corporate Integrity. In the year, among other activities, the Compliance Officer worked **on the revision of Vale's Code of Conduct and the Global Anti-Corruption Policy**, normatives approved by the Board of Directors, which will be part of Vale's new Ethics and Compliance Program, to be launched in the first quarter of 2021.

Additionally, after the statutory changes that took place at the 2020 Annual General Meeting, the Compliance and Risk Committee became the Operational Excellence and Risk Committee, strengthening its competencies to absorb the functions associated with **monitoring of operational risks**, including geotechnical risks and the responsibilities related to compliance.

Among the Independent Extraordinary Advisory Committees (CIAE), established by the Board of Directors shortly after the breach of Dam I, Córrego do Feijão, in Brumadinho (MG), **CIAE Dam Security remained active throughout 2020**, with a mandate until April 2021, while the other two CIAEs, Support and Reparation, and Investigations, **delivered their final reports in February 2020**. The summary of the reports is public, available on vale's ESG Portal.

People Management

Vale believes in the human potential and variety of individual profiles that, together for a common purpose, complement each other. The Company seeks to develop skills and encourage talents, with educational actions and remuneration compatible with the complexity of functions, the performance of employees and the job market.

The People department works continuously on the organizational cultural evolution, in line with the strategic values and behaviors for Vale. People management at Vale is based on engagement, continuous learning, leadership training and the promotion of a work environment that motivates the experience with safety and health.

Workforce

The work of each of Vale's employees is essential to the success and growth of the company. In December 2020, approximately 74,300 own employees and 111,900 outsourced employees constituted the Company's team.

Per business unit – Own employees

<i>Number of employees</i>	2020	2019
Ferrous Metals	44,342	42,077
Coal	3,320	2,927
Base metals	13,762	13,738
Fertilizers	-	-
Energy	3,954	3,809
Corporate	8,938	8,598
Total	74,316	71,149

Per geographical location – Own employees

<i>Number of employees</i>	2020	2019
Brazil	58,249	55,439
South America (former Brazil)	190	202
North America	6,169	6,082
Europe	293	308
Asia	4,454	4,455
Oceania	1,263	1,384
Africa	3,698	3,279
Total	74,316	71,149

Per business unit – Outsourced employees

<i>Number of outsourced employees</i>	2020	2019
Ferrous Metals	34,042	27,749
Coal	6,076	5,900
Base metals	10,395	10,828
Energy	-	496
Projects	61,408	33,170
Total	111,921	78,143

Per geographical location – Outsourced employees

<i>Number of outsourced employees</i>	2020	2019
Brazil	90,877	57,388
South America (ex-Brazil)	140	89
North America	4,617	3,892
Europe	109	106
Asia	7,964	6,855
Oceania	198	1,082
Africa	8,016	8,731
Total	111,921	78,143

In 2020, there was a 43% increase in the total of outsourced employees, as a result: of the Repair works; the increase in the portfolio of current projects; the resumption of works in 2020 after a shutdown caused by the Covid-19 pandemic; and the inclusion of third parties associated with contracting by service level - "outsourcing"²⁵.

²⁵ Not disclosed in previous years.

The turnover rate is calculated based on data from Vale and its subsidiaries²⁶ The turnover rate is equal to the termination rate in the year, i.g. a rate of 7.48% means that for 100 active employees in 2020, almost 8 employees were terminated.

	2020	2019
Turnover rate	7.48%	6.44%

Cultural Transformation

To transform Vale into one of the safest and most reliable companies in the mining sector in the world and to promote the full reparation in Brumadinho (MG), Vale remains committed to transforming its culture. This process seeks to promote culture as a facilitator of strategy, influencing and shaping systems, integrating initiatives, in addition to positioning leadership as a driver of change.

The key behaviors for the company were defined, based on the company's essential values: **obsession for safety and risk management; open and transparent dialogue; empowerment with accountability; responsibility for the whole; active listening and engagement with society.**

A cultural diagnosis was carried out in 2020 and pointed out the need to build a culture of learning together, with humility, discipline, a sense of collectivity, and, mainly, with the presence of chronic unease regarding safety. At this moment, scalability of behaviors is underway, with the measurement of progress.

In this context, Vale's ambitions for the next five years have been defined: to be a large company recognized by society as a reference in safety; the best and most reliable operator; talent driven; leader in low-carbon mining; and reference in creating and sharing value. Five levers are highlighted in this construction: Safety, the Vale management model (VPS), People, Innovation and ESG.

In addition, the purpose of Vale was built, involving the participation of 40 leaders who recovered the history and essence of the Company. In 2021, we formalized our purpose as an organization: "we exist to improve life and transform the future. Together."

The purpose is a clear north for actions and intentions, being supported by four pillars: to serve society, returning to all; do together; use Vale's mobilizing capacity to do something extraordinary; and transform the future, taking care of the present.

²⁶ In in the following countries: Brazil, Canada, Indonesia, New Caledonia, Australia, United States of America, China, Mozambique, Peru, Colombia, Chile, Argentina, Austria, Dubai, India, Japan, Korea, Malaysia, Oman, Paraguay, Philippines, Singapore, Switzerland, United Kingdom and Uruguay.

Diversity and Inclusion

Becoming an increasingly inclusive company is part of Vale's cultural transformation movement.

In 2019, we signed a public position with the Diversity and Inclusion agenda during Vale Day, with clear commitments so that the work environment can attract, develop and retain the full spectrum of profile profiles that the market offers.

These commitments are in line with our Global Diversity and Inclusion Policy, Global Human Rights Policy and our Code of Conduct.

- promote a safe environment and respect for the singularities of each person;
- ensure transparent, fair and prejudice-free processes for hiring, evaluating, promoting and involving a diverse workforce;
- not tolerate any type of harassment, discrimination or prejudice; and
- stimulate debate and increase awareness of diversity.

We are at the beginning of a long journey. We aim to create conditions and opportunities so that all talents can reach their maximum potential and, thus, contribute to results for all stakeholders. Thus, Vale adopted the goal of doubling the number of women working in the company by 2030, from 13% to 26%, and to increase the presence of this public in the leadership, from 12% to 20%. In 2020:

- ✓ We achieved 16.3% of women's representation, compared to 13.5% in 2019, representing a 26% increase in the total number of women in Vale
- ✓ We closed 2020 with 11,443 women working in our company.
- ✓ We achieved 15.9% of women in senior leadership (executive manager positions and above) compared to 12.4% in 2019, a 28% increase in the representation of women in senior leadership positions.
- ✓ We reduced the voluntary termination rate of women by 33.5%.

The Diversity and Inclusion agenda, which started in 2020, has structural and organic actions:

- ✓ We created learning opportunities on topics such as gender, racism, sexual orientation and disability, with a whole of more than 15,000 participants;
- ✓ We trained more than 2,200 leaders in unconscious biases, inclusive leadership and gender intelligence, among other topics;
- ✓ We launched the Global Diversity and Inclusion Policy;
- ✓ We support the formation of affinity groups represented by the Women's Network, ethnic-racial equity group and LGBTQIA+ Group.
- ✓ We implemented the Trainee Program with a blind selection process. We hired 61% of women, with the goal of increasing our pipeline of future leaders.

- ✓ We created the Vocational Training Program in the operations of Brazil and Canada, exclusively for women, hiring approximately 500 women.

For Vale's Global Diversity and Inclusion Policy, visit Vale's [ESG Portal](#).

Compensation

Vale's Remuneration is designed to be competitive in the markets where it operates and to allow the company to be able to attract and retain talents compatible with its needs. The practice of remuneration favors the improvement and reinforcement of health and safety and the advancement of the social and environmental agenda, in addition to being directly impacted by the economic and financial results and by the company's market value in the short and long term.

The Crisis Management target, initiated in 2019, remained on the 2020 targets panel to strengthen remediation and risk management. In this sense, Vale also removed from the short-term variable remuneration in the areas of Health, Safety, Geotechnics and Repair and Compliance goals linked to the company's financial and production results.

The performance targets for the CEO and other executive officers were established in the following proportion:

- 70% of the result is based on Collective Goals, being 40% Economic/Financial (EBTDA), 10% Health and Safety, 10% Risk Management, 10% Low Carbon.
- 30% of individual goals, according to the scope of action.

The two long-term variable compensation programs (the PAV - Virtual Actions Program, and Matching) make up an important portion of executive compensation and aim to align the interests of the Management with those of the Shareholders. These programs also improve Vale's ability to attract and retain talent and reinforce the culture of long-term sustainable performance.

From 2020, in addition to performance conditions based on the Total Shareholder Return (TSR), sustainable development indicators have also been linked to the PAV.

The performance condition of the PAV, which establishes the value of the award to be paid in the program, is defined by indicators from three distinct areas, with the following composition:

- 80% of Financial Indicator - TSR, which is calculated by comparing the TSRs generated by Vale and peers in the cycle duration (3 years);
- 10% Health and Safety – High Potential Recordable Injuries (N2);
- 10% Sustainability – indicators related to long-term goals according to Vale's 2030 strategy, considering the pillars of Climate Change, Energy, Water, *Forest* and ESG gaps (Environment, Social, and Governance).

In the Matching program, executives with a performance in line or higher than expected can opt to invest part of their bonus for the acquisition of shares in the company. At the end of the cycle, if the executive is still in the company and has not traded his shares, Vale will award an equal number of shares acquired by the executive.

Innovation

Through the adaptation of existing technologies in new forms or the development of new technologies and processes, in research and development (R&D) initiatives, Vale seeks to transform its business.

We use technology to redesign our way of working, eliminating risk scenarios and thereby positioning ourselves as a leader in safety and risk management. We are increasing the use of robotics and automation, increasing the reliability of our operations and **increasingly decreasing the number of people exposed to risky conditions.**

Digital workforce

The Covid-19 pandemic has accelerated the use of digital technologies to enable our employees to work remotely, creating a more accessible and attractive work environment for a more diverse workforce.

In 2020, we launched a new program, **Jornada Vale**, to accelerate the use of flexible ways of working, increase productivity, reduce the travel time of our employees and provide more accessibility. **In 2020, more than 15 thousand employees²⁷ worked remotely, reducing their exposure to risk scenarios.**

We will continue to use digital technologies to enable people to work remotely efficiently and to enable a future in which **only essential functions are performed on operational sites**, with other functions in home office or in collaborative hubs of low carbon footprint.

Advanced Analytics/Artificial Intelligence (AI)

We have expanded the *use of Advanced Analytics* in our value chain to, for example, optimize the use of **ship fleets**, proactively identify risks by achieving production goals at each stage of our chain, and **optimize the reliability of critical assets.**

Currently, 19% of Vale's critical assets use AI to ensure reliability. It is expected that, in five years, this technology will be used for 100% of critical assets.

²⁷ About 21% of our workforce.

Geotechnics

We've increased the use of drones, added an orbital radar, and implemented image and video analysis to **monitor the conditions of Vale's dams**. The resources allow an integrated view of the Geotechnical Monitoring Centers, the latter including Base Metals South Atlantic and Iron Ore North Corridor, launched in November 2020. We also automate sirens by providing mobile alerts through digital technologies.

Automation

In 2020, we focused on the use of robotics and automation to enable people to perform activities remotely in order to increase safety and reliability in the day-to-day of our activities and reduce the risks of operations.

At the Brucutu Mine, for example, the entire fleet is autonomous and, recently, we reached a record of physical use of that fleet. The autonomous operation test for trucks at the Carajás mine in Pará has already begun and implementation is planned for the second quarter of 2021.

We have expanded **the use of 25 to 40 autonomous trucks** at major underground mines in Sudbury and are preparing the infrastructure to enable autonomous underground operation in the Voisey's Bay and Thompson expansion. The use of underground freelancers allows greater productivity by enabling mining during shift crossings or by allowing it to occur continuously during the drilling and detonation cycle.

Open Innovation

Vale has been working in collaboration with the open innovation ecosystem seeking partnerships with several universities, startups, government and other corporations to accelerate the execution of the innovation initiatives. In 2020, we launched several open innovation challenges, primarily in solutions to reduce the impact of Covid-19 on communities close to our operations – about 600,000 people from local communities in Brazil and Canada have been impacted. In 2020, **we collaborated with almost 100 startups** in the areas of advanced maintenance, logistics management solutions and iron ore quality management.

Another example of open innovation was the launch of the second edition of the MINE program, in February 2021, by Vale and in partnership with MIT Professional Education and MIT Environmental Solutions Initiative, which aims to recruit professionals to seek innovative and sustainable solutions for the Company and the mining sector.

The first edition of the MINE Program was held from November 2019 to June 2020. Ten challenges have been solved in the themes of digital transformation and decarbonization. Solutions that prove viable in the second edition may be implemented in Vale's operations.

New technologies to reduce reliance on tailings dams

Vale started the projects for dry **filtering and stacking systems** at the Vargem Grande, Conceição and Brucutu sites. Over the next few years, it is planned to deploy this system in other units that still use wet processing technologies, such as Itabira. It will be invested **US\$ 2.3 billion by 2025**.

With a pioneering dry iron ore processing technology, through *New Steel*, we are also developing a process route for **fine iron ore concentration, through magnetic concentration**. The process has the potential to obtain an ultra-fine product with iron content between 60% and 67%, from ores with low iron content. We're investing US\$125 million in a plant with 1.5 Mtpy capacity.

Select financial information

Income statement

<i>R\$ million</i>	2020	2019
Net operating revenue	208,529	148,640
Cost of goods sold and services rendered	(98,567)	(83,836)
Gross profit	109,962	64,804
Gross margin (%)	52.7%	43.6%
Selling and administrative expenses	(2,857)	(1,924)
Research and evaluation expenses	(2,293)	(1,765)
Pre-operating and operational stoppage	(4,517)	(4,559)
Other operational expenses, net	(3,956)	(2,052)
Impairment and disposal of non-current assets	(11,819)	(20,762)
Brumadinho event	(27,016)	(28,818)
Operating income	57,504	4,924
Financial income	1,922	2,092
Financial expenses	(17,141)	(14,738)
Other financial items, net	(8,921)	(800)
Equity results and other results in associates and joint ventures	(5,436)	(2,684)
Income (loss) before income taxes	27,928	(11,206)
Current tax	(17,828)	(5,985)
Deferred tax	14,803	8,494
Total Tax	(3,025)	2,509
Net income (loss)	24,903	(8,697)
Loss attributable to noncontrolling interests	(1,810)	(2,025)
Net income (loss) attributable to Vale's stockholders	26,713	(6,672)

Balance sheet – consolidated

<i>R\$ million</i>	2020	2019
Assets		
Current	126,805	68,698
Non-current	78,623	67,705
Investments	10,557	11,278
Intangibles	48,309	34,257
Property, plant and equipment	213,836	187,733
Total	478,130	369,671
Liabilities		
Current	75,838	55,806
Non-current liabilities	221,306	156,716
Stockholders' equity	180,986	157,149
Equity attributable to Vale's stockholders	185,785	161,480
Equity attributable to non-controlling interests	(4,799)	(4,331)
Total	478,130	369,671

Cash flow

<i>R\$ million</i>	2020	2019
Cash flow from operations	89,537	61,224
Interest on loans and borrowings paid	(3,911)	(4,760)
Derivatives received (paid), net	(280)	(1,287)
Interest on participative stockholders' debentures paid	(1,000)	(776)
Income taxes (including settlement program)	(9,138)	(7,119)
Net cash provided by operating activities from continuing operations	75,208	47,282
Cash flow from investing activities:		
Capital expenditures	(22,726)	(14,774)
Additions to investments	(657)	(287)
Acquisition of subsidiary, net of cash	-	(3,513)
Proceeds from disposal of assets and investments	2,229	546
Dividends received from associates and joint ventures	904	1,423
Judicial deposits and restricted cash related to Brumadinho event	(50)	(6,169)
Short-term investment	3,318	(3,408)
Investment fund applications	(4,565)	-
Other investments activities, net	(2,687)	(358)
Net cash used in investing activities	(24,234)	(26,540)
Cash flows from financing activities:		
Loans and borrowings from third parties	34,023	11,886
Payments of loans and borrowings from third parties	(33,207)	(21,874)
Payments of leasing	(1,129)	(891)
Dividends and interest on capital paid to stockholders	(18,637)	-
Dividends and interest on capital paid to noncontrolling interest	(72)	(695)
Transactions with noncontrolling stockholders	981	(3,310)
Net cash used in financing activities	(18,041)	(14,884)
Increase in cash and cash equivalents	32,933	5,858
Cash and cash equivalents in the beginning of the year	29,627	22,413
Effect of exchange rate changes on cash and cash equivalents	7,605	1,356
Effects of disposals of subsidiaries, net of cash and cash equivalents	(79)	-
Cash and cash equivalents at end of the year	70,086	29,627
Non-cash transactions:		
Additions to property, plant and equipment - capitalized loans and borrowing costs	345	551
Cash flow from operating activities:		
Income (loss) before income taxes	27,928	(11,206)
Adjusted for:		
Provisions related to Brumadinho	24,430	25,447
Equity results and other results in associates and joint ventures	5,436	2,684
Impairment and disposal of non-current assets	11,819	20,762
Depreciation, amortization and depletion	16,679	14,751
Financial results, net	24,140	13,446
Changes in assets and liabilities:		
Accounts receivable	(14,136)	(41)
Inventories	(724)	669
Suppliers and contractors	(932)	2,836
Provision - Payroll, related charges and other remunerations	1,447	(318)
Payments related to Brumadinho	(4,169)	(3,982)
Other assets and liabilities, net	(2,381)	(3,824)
Cash flow from operations	89,537	61,224

Operational and economic-financial performance

Selected financial indicators

R\$ million	2020	2019
Net operating revenue	208,529	148,640
Costs and expenses	(112,190)	(94,136)
Expenses related to Brumadinho	(27,016)	(28,818)
Adjusted EBIT (LAJIR)	70,661	27,556
Adjusted EBIT margin (%)	33.9%	18.5%
Adjusted EBITDA (LAJIDA)	87,340	42,307
Net income (loss) attributable to Vale's stockholders	26,713	(6,672)

Reconciliation of EBITDA

R\$ million	2020	2019
Net income (loss) attributable to Vale's stockholders	26,713	(6,672)
Net income (loss) attributable to noncontrolling interests	(1,810)	(2,025)
Net income (loss)	24,903	(8,697)
Depreciation, depletion and amortization	16,679	14,751
Income taxes	3,025	(2,509)
Financial result	24,140	13,446
EBITDA	68,747	16,991
Items for reconciliation of adjusted EBITDA		
Impairment and disposal of non-current assets	11,819	20,762
Equity results and other results in associates and joint ventures	5,436	2,684
Dividends received and interest from associates and joint ventures	1,338	1,870
Adjusted EBITDA	87,340	42,307

Segment information - 2020

R\$ million	Net operating revenue	Cost of goods sold and services rendered ¹	Expenses			Dividends received and interest from associates and JVs	Adjusted LAJIDA (EBITDA)
			Sales, administrative and other operating expense ¹	Research and evaluation ¹	Pre operating and operational stoppage ¹		
Ferrous minerals	167,365	(53,169)	(892)	(707)	(3,257)	733	110,073
Iron ore	142,478	(42,391)	(958)	(663)	(2,708)	117	95,875
Iron ore pellets	22,043	(8,562)	52	(25)	(390)	608	13,726
Ferroalloys and manganese	1,177	(915)	-	(11)	(159)	-	92
Others	1,667	(1,301)	14	(8)	-	8	380
Base Metals	37,233	(20,800)	(169)	(599)	(160)	-	15,505
Nickel ²	25,877	(16,713)	(134)	(248)	(156)	-	8,626
Copper ³	11,356	(4,087)	(35)	(351)	(4)	-	6,879
Coal	2,431	(7,536)	(83)	(142)	-	434	(4,896)
Brumadinho event	-	-	(27,016)	-	-	-	(27,016)
Covid-19	-	-	(592)	-	-	-	(592)
Others	1,500	(1,675)	(4,826)	(844)	(60)	171	(5,734)
Total	208,529	(83,180)	(33,578)	(2,292)	(3,477)	1,338	87,340

¹ Excluding depreciation, amortization and depletion.

² Including copper and by-products from nickel operations

³ Including by-products from our copper operations.

Comments on the economic and business environment

Iron Ore

Iron ore 62% Fe reference price averaged US\$ 108.9/dmt in 2020, 17% higher than 2019. The combination of a tighter seaborne iron ore market together with a significant upward adjustment to hot metal production in China, at a time when the country's domestic iron ore production is running close to its capacity, feeds through to stronger demand for seaborne iron ore and higher prices.

MB65% index averaged US\$ 122.3/dmt in 2020, 17% higher than 2019. The high coal prices in China, following the country's import restriction over Australia together with high levels of steel margins and the decrease of iron ore pellets and concentrate stocks at Chinese ports supported the high-grade premiums.

In China, crude steel production was record, achieving 1,053 Mt in 2020, 5% above previous year, closing the year at a very strong pace, producing 91.25 Mt in December (+7.7% YoY). The economic recovery over the second half of the year, boosted by economic stimulus led China's GDP to exceed 100 trillion yuan by the end of 2020, with annual GDP growth reaching 2.3% YoY.

Ex-China, lockdown measures impacted steel demand, leading steel production to decrease 8%, totaling 776 Mt in 2020, as demand slumped and the entire manufacturing supply chain got interrupted. Developed economies were the hardest hit with crude steel production having contracted 11% in 2020 compared to -4% observed in ex-China developing countries.

According to World Steel Association, in 2020 steel production growth was -17% in the USA, -16% in Japan, and -12% in the EU28, compared to 2019.

Stimulus packages announced in major economies are expected to provide support for continued recovery into 2021. Funds are being distributed in the forms of grants and loans to the sectors most impacted by the COVID-19 pandemic which are supportive for the recovery of economic activity and reestablishing the normality throughout the supply chain. For 2021, the expectation is a continued steel production recovery in line with International Monetary Fund economic outlook from January 2021, where the institution projects economic yearly growth of 5.5% as vaccinations are rolled-out and economies receive additional policy support.

Coal

Coking coal: The onset of a soft ban on Australia coal by China from October 2020 resulted in the benchmark index PLV FOB Australia falling to a low of US\$97.3/t for the first time since 2016.

Thermal coal: In the thermal coal market, Richards Bay 6000 NAR price averaged US\$ 72.8/t for the quarter, 32% higher than in 3Q20. China's soft ban on Australian coal altered trade flows as China buyers purchased coal from afield, including South Africa and Colombia, making use of additional import quotas released in November.

The thermal coal market is likely to stay robust in early 1Q21 bolstered by strong restocking demand amid a colder winter, especially from China as domestic supply is expected to remain tight, and the imminent threat of La Niña wet weather supply disruptions.

Nickel

LME nickel prices averaged US\$ 13,789/t in 2020, 1% lower than in 2019. Sales of electric vehicles accelerated in 2020 and are now expected to be around 3.1 million units, a year-on-year increase of 45%.

Global stainless-steel production is expected to finish the year ~5% lower than 2019. The year decline was greatly limited by the production strength from China, which makes up ~60% of global output.

At the start of the COVID-19 outbreak, several nickel operations were impacted globally, however, downtimes were short lived and nearly all quickly returned to normal production. Inventory of ore and concentrates meant there was limited impact on refined nickel.

Our near-term view for nickel improved, as we continue to see the market at surplus in 2021 albeit less than the surplus seen in 2020. COVID-19 has impacted demand, particularly in the high-value markets, such as aerospace, automotive and oil & gas sectors. However, positive signs have emerged such as strength in Chinese stainless-steel production and a rebound in automotive sales. The pandemic has sped up the green electrification of economies, which in turn has led to a significant increase in electric vehicle sales. The market is now recognizing the growth potential, especially as battery chemistry continues to favor higher nickel content due to lower cost and higher energy density.

Our long-term outlook for nickel continues to remain positive. Depending on the speed and success of COVID-19 vaccines distributions, depressed markets, such as Aerospace and Oil & Gas, could either remain challenged or return rather quickly. Also, we see prolonged support driven by record stimulus provided by governments globally.

Additionally, growth in electric vehicles and the infrastructure needed to support them is crucial if decarbonization goals, set by an increasing number of major economies, are to be achieved. The long-term outlook for EVs remains bright as fundamental costs continue to decline, and technology continues to advance.

Copper

LME Copper prices averaged US\$ 6,181/t in 2020, 3% higher than in 2019. Global refined copper demand finished the year 3% lower compared to 2019. The concentrate market finished strong as well, and full year demand increased, by 0.5% compared to 2019. Chinese demand quickly returned after COVID-19 was contained within the country, and then further expanded. Chinese consumption increased 2% compared to 2019.

COVID-19 impacted several operations globally, producing and developing. Most supply concerns surrounded the countries of Chile and Peru, which combined, account for roughly 40% of global mine production. While Chile was able to impressively maintain output levels with a reduced workforce, Peru's national lockdown greatly impacted production.

With continued strength in Chinese demand and persisting supply issues, we continue to have a positive near-term view on copper. For 2021, we see the market relatively balanced, leaning towards a minor deficit. However, the concentrate market, which Vale mainly participates in, appears much tighter, with deficits forecasted for several years. This is reflected in the current spot treatment and refining charges (TC/RC's), which are at record lows. While COVID-19 effects remain a near-term risk, the market backdrop looks constructive. Along with strong Chinese demand, we see added support from additional fiscal and monetary stimulus, mounting ESG pressures, and an accelerated transition towards sustainable energy (which is copper intensive).

Our long-term outlook for copper remains positive as well. Copper demand is expected to continue to grow, driven by building, construction and electrical network infrastructures. Additionally, targeted green economy investments by governments globally have increased the demand forecast for copper in the electric vehicles and renewable energy markets. Future supply growth continues to be challenged given declining ore grades and the lack of major discoveries. While in the short term, there are enough quality assets being developed to meet demand, additional assets will be required in the medium-term to replace existing operation ramp downs and closures.

Comments on operational and economic-financial performance

Main events

Portfolio optimization

Vale seeks to simplify its flow of operations, enabling a continuous focus on its main assets, to reduce risks and honor its new pact with society. In this sense, the following operations stand out:

- Closure of ferroalloy operations at the Simões Filho plant (BA);
- Conclusion of the sale of Biopalma (PA), a palm oil company;
- Sale of our minority stake in the Zhuhai pelletizing plant and the Henan Longyu coal mine and Vale received R\$ 843 million as part of the consideration for the transaction;
- Transfer of the shares of Potasio Rio Colorado to the Province of Mendoza, in Argentina;
- Signing of a binding put option agreement with Prony Resources, a consortium led by the current management and employees of VNC with Trafigura as a non-controlling shareholder, for the sale of our stake in Vale New Caledonia - VNC. The deal is supported by the governments of Caledonia and France and has been approved by the VNC workers council. Since December 10, 2020, mine and plant production has been halted.
- Signature of a Heads of Agreement (“HoA”) with Mitsui & Co., for the sale of the Moatize Mine and the Nacala Logistics Corridor, as a first step towards the divestment of Vale in the coal business.

Early extension of railroad concession

In December 2020, Vale agreed with the Brazilian Federal Government to extend its concessions to operate the Estrada de Ferro Carajás and Estrada de Ferro Vitória a Minas railways for 30 years, from 2027 to 2057. Construction on this extension began in 2015 and it is a significant milestone in eliminating risks to our business. In order to guarantee the extensions, Vale made commitments with a Net Present Value of R\$ 12.016 billion, the most significant of which was the construction of the 383 km FICO - Central West Integration Railway - on behalf of the Federal Government.

Stabilization of production

The year 2020 had the partial resumption of all iron ore fines operations, paralyzed in 2019, which became even more challenging amid the Covid-19 pandemic and the need to adopt

measures to protect employees and support communities. Vale ended 2020 with 322 Mt of iron ore production capacity and expects to reach 350 Mt capacity by the end of 2021.

Iron Ore

Vale's iron ore fine production totaled 300.4 Mt in 2020, in line with 2019, mainly due to the (a) resumption of paralyzed operations, such as Vargem Grande, Timbopeba, Fábrica and Serra Leste (+12.3Mt); (b) ramp up of the S11D (+9.5Mt) and (c) operation of the Alegria site (+6.7Mt). The gains were fully offset by (a) restrictions on the disposal of tailings in Itabira and Brucutu (-20.7Mt); (b) delays in the opening of new mining fronts in the Serra Norte (-3.7 Mt); (c) impacts of Covid-19 (-3.5 Mt); and (d) four-month shutdown of the Fazendão mine (-2.9 Mt).

Vale's pellet production totaled 29.7 Mt in 2020, 29% lower than in 2019, as a result of lower pellet feed availability and production adjustments following market conditions.

Base Metals

In Base Metals operations, nickel production (ex-VNC) was 183.7 kt in 2020, in line with 2019, with positive emphasis for the fourth quarter, in which Onça Puma operated at nameplate capacity during the full quarter, after extensive furnace maintenance work. Copper production reached 360.1 kt in 2020, 5.5% lower than 2019, mainly due to the impacts of Covid-19.

Coal

Coal production totaled 5.9 Mt in 2020, down 33% from the previous year, reflecting the impacts of the Covid-19 pandemic on demand and the postponement of the plant's revamp project from March to November 2020.

For more details, see our [2020 Production and Sales Report](#).

Economic and financial performance

Consolidated

Net operating revenue totaled R\$ 208.5 billion in 2020, representing an increase of R\$ 59.9 billion compared to 2019, reflecting the positive effect of the devaluation of the real against the dollar by 30.7% in the year²⁸ and higher realized iron ore prices and higher revenues from base metal by-products

Costs and expenses, including Brumadinho, totaled R\$ 151 billion in 2020, R\$ 7.3 billion above 2019, due to the negative effect of the devaluation of the real against the dollar and higher costs of acquiring iron ore from third parties.

Adjusted EBITDA totaled R\$ 87.3 billion in 2020, representing an increase of R\$ 45 billion compared to the R\$ 42.3 billion recorded in 2019, mainly due:

- Positive effect of the devaluation of the real against the dollar on net operating revenue.
- Higher iron ore sales prices by 23%;

These effects were partially offset by other effects, such as:

- Lower sales volumes of iron ore and pellets;
- Higher iron ore acquisition costs from third parties.
- Recognition of provisions for the Global Settlement for Brumadinho (R\$ 19.9 billion) and new estimates for mischaracterization, detailed in the following table:

²⁸ The US dollar amounts were recorded for EBITDA impact and payments with the average exchange rate in 2020 of R\$5.1578/US\$. The average exchange rate for 2019 was R\$ 3,9461/US\$.

Impact of Brumadinho's provisions and expenses in 2020

R\$ million	Provisions in Dec/19	Impact on EBITDA	Payments	AVP	Provisions in Dec/20
Decharacterization ¹	10,034	3,175	(1,521)	209	11,897
Global Settlement for Brumadinho	7,722	19,924	(6,877) ¹	(43)	20,726
Other reparations provisions ²	4,300	1,331	(2,674)	91	3,048
Total provisions	22,056	24,430	(11,072)	257	35,671
Incurred expense ³		2,586	(2,586)		
Total		27,016	(13,658)		

¹ In 2020, as a consequence of the periodic revision of the estimates for the decharacterization of dam structures, built using the upstream raising method, and already considered in the recorded provision, the Company recognized R\$ 1.900 billion in addition to the recorded provision, mainly due to the evolution of the engineering projects and changes to the expected containment structures. The Company also identified other structures that meet the criteria to be equally decharacterized, resulting in a supplement of this provision in the amount of R\$ 1.275 billion, recognized in the income statement for the year ended December 31, 2020.

² Disbursements include releases of judicial deposits in the amount of R\$ 6.900 billion, of which R\$ 1.500 billion of deposits released in the second quarter of 2020 and R\$ 5.400 which will be released as provided for in the Global Settlement. In 2019, the Company disbursed R\$ 6.885 billion in relation to the Brumadinho event. Of the total amount disbursed by the Company in the years 2019 and 2020, R\$ 7.777 billion were considered as part of the total economic value of the Global Settlement.

³ Includes individual and labor indemnifications and onsite containment works.

⁴ The Company incurred in expenses that were directly recognized in the result, such as: communication services, accommodation and humanitarian assistance, equipment, legal services, water, food aid, taxes, among others. Expenses incurred in 2019 were of R\$ 2.903 billion.

Vale generated US\$ 9.2 billion in Free Cash Flow from Operations in 2020, US\$ 1.1 billion higher than 2019, driven by an even stronger proforma EBITDA (US\$ 4.2 billion), lower interest on loans (R\$ 431 million), but negatively impacted by greater investments (US\$ 726 million), greater variation in working capital (US\$ 3.2 billion). The solid generation of operating cash allowed Vale to distribute US\$ 3.4 billion to shareholders and increase cash and cash equivalents by US\$ 7.2 billion.

We ended the year with US\$ 13.5 billion in cash and cash equivalents, above our Gross Debt of US\$ 13.4 billion, and therefore with net cash of US\$ 898 million in 4Q20. The expanded net debt, which is now mainly composed of other relevant obligations and commitments from Vale, decreased from US\$ 14.5 billion in 3Q20 to US\$ 13.3 billion, despite the US\$ 3.7 billion in additional obligations related to Brumadinho Global Settlement. The expanded net debt is expected to continue to decline to \$ 10 billion, a long-term target level, as the company continues to generate cash and pay its obligations to *Refis*, Brumadinho, Renova and Samarco

Ferrous Minerals

Adjusted EBITDA in the Ferrous Minerals segment was R\$ 110.1 billion in 2020, with R\$ 42.8 billion above 2019, due to higher realized prices (R\$ 24.9 billion), the positive impact of exchange variations mainly on our revenues (R\$ 29.5 billion) and lower freight costs (R\$ 2.9 billion), partially offset by lower sales volumes (R\$ 9.9 billion) and higher costs and expenses (R\$ 4.2 billion).

The costs and expenses of Ferrous Minerals totaled R\$ 58.0 billion, R\$ 5.3 billion higher than in 2019, due to the negative impact of exchange variations, mainly on the costs of sea freight and acquisition of third-party iron ore that are linked to dollars (R\$ 8.4 billion), higher costs of acquisitions of third-party iron ore fines (R\$ 957 million), partially offset by lower sales volumes (R\$ 4.4 billion).

The average realized price of iron ore fines, covering CFR/FOB sales, was US\$ 107.4/t in 2020, up 23.3% from US\$ 87.01/t in 2019. The average pellet price decreased from \$137.7/t in 2019 to \$135.9/t in 2020.

Base Metals

The adjusted EBITDA of Base Metals was R\$ 15.5 billion in 2020, R\$ 6.9 billion above the amount of R\$ 8.6 billion recorded in 2019, mainly due to the positive effect: (i) the devaluation of the Real against the U.S. dollar, (ii) of the higher and higher revenues from by-products and (iii) of the nickel hedge positions that Vale liquidated in March 2020.

Coal

Adjusted EBITDA was negative at R\$ 4.9 billion in 2020, with R\$ 2.8 billion lower than in 2019, mainly due to the fall in production and sales.

Net income (loss)

Vale recorded a profit of R\$ 26.7 billion in 2020, a positive variation of R\$ 33.4 billion in relation to the loss of R\$ 6.7 billion in 2019.

The best result was mainly due to:

- Effect on EBITDA R\$ 45 billion higher than in 2019;
- Increased impairments of assets and onerous contracts recorded in 2019, mainly in the Nickel (VNC) and Coal businesses.

The positive effects were partially offset by the negative financial result R\$ 10.8 billion to 2019, as highlighted in the following section.

The year's result was also negatively impacted by the updating of the assumptions used in the preparation of the estimated costs necessary for the execution of the repair and compensation programs by Renova Foundation, resulting in the complement of R\$ 5.5 billion to the provision recognized by the Company.

Financial result

The net financial result represented a loss of R\$ 24.14 billion, with R\$ 10.69 billion below 2019. The result was mainly due to the devaluation of the Brazilian real against the dollar of 29%²⁹, leading to expenses R\$ 6.5 billion higher with currency derivatives and interest rates and the exchange variation of R\$ 2.8 billion. Additionally, the financial result was impacted by the mark-to-market of shareholders' debentures in R\$ 2.6 billion, which reflect the expectations with higher iron ore prices.

Financial results <i>R\$ million</i>	2020	2019
Financial expenses	(17,141)	(14,738)
Gross interest	(4,210)	(3,894)
Capitalization of interest	345	551
Shareholder debentures	(8,250)	(5,687)
Others	(4,751)	(5,103)
Financial expenses (REFIS)	(275)	(605)
Financial income	1,922	2,092
Derivatives²	(5,526)	926
Currency and interest rate swaps	(5,373)	154
Others (commodities, etc.)	(153)	772
Foreign Exchange	(2,606)	144
Monetary variation	(789)	(1,870)
Financial result, net	(24,140)	(13,446)

²⁹ Financial assets and liabilities denominated in US dollars are exchanged in 2020 at the final rate of R\$ 5.1967/US\$. The final exchange rate for 2019 was R\$ 4.0307/US\$.

Income taxes

Vale recorded R\$ 27.9 billion in profit before taxes on profit. The application of taxes on profit (rate of 34%), tax benefits and other effects recognized in the result, totaled R\$ 3.0 billion in taxation on profit.

<i>R\$ million</i>	2020	2019
Income (loss) before income taxes	27,928	(11,206)
Income taxes at statutory rate - 34%	(9,496)	3,810
Adjustments that affect the basis of taxes:		
Income tax benefit from interest on stockholders' equity	1,660	2,470
Tax incentives	1,184	736
Equity results	(190)	296
Addition (reversal) of tax loss carryforward	3,984	99
Unrecognized tax losses of the year	(1,096)	(4,218)
Others	929	(684)
Income taxes	(3,025)	2,509

Impairments and onerous contracts

Impairments in assets (excluding impairment in investments) of continued operations, write-offs of non-current assets and onerous contracts, all without cash effect, totaled R\$ 11.8 billion in 2020 mainly due to the revision in the projected cash flow of the coal segment and the reflections of the disinvestment decision in VNC.

<i>Impairment and onerous contracts of assets</i> <i>R\$ million</i>	2020	2019
Base Metals – Nickel – VNC	4,728	10,319
Coal	4,851	6,949
Other assets impairments and write-off	2,240	2,507
Onerous contracts	-	987
Total	11,819	20,762

Investments in affiliated companies, joint ventures and controlled companies

Vale has investments in affiliates, joint ventures and controlled companies in important business areas such as iron ore, pelletizing, nickel, coal, copper, energy and others. The value of the investments of the main companies in the portfolio disclosed in Vale's balance sheet is listed in the table below. Investments are updated by the equity method, and may differ from the individual financial statements of the entities, as they are demonstrated in accordance with Vale's accounting policies.

R\$ million	Investments		Equity results in the Income Statement	
	2020	2019	2020	2019
Associates and joint ventures				
Pelletizing plants	1,327	1,505	186	777
Aliança Geração de Energia	1,909	1,894	140	122
Aliança Norte Energia	606	646	(40)	17
California Steel Industries (CSI)	1,218	975	(31)	88
Companhia Siderúrgica do Pecém (CSP)	-	-	(655)	(282)
Mineração do Rio Norte (MRN)	367	393	(7)	58
MRS Logística (MRS)	2,069	1,999	185	196
Nacala Logistic Corridor	-	-	-	-
VLI	2,495	3,273	(88)	1
Samarco S.A.	-	-	-	-
Others	566	593	(245)	(106)
Controlled				
Vale Holdings B,V	10,722	10,448	(2,163)	68
Vale International	105,036	71,797	14,769	4,901
Vale Canada	11,383	11,236	(4,407)	(11,515)
Salobo Metais	12,989	11,213	3,616	2,186
Minerações Brasileiras Reunidas (MBR)	10,960	8,302	1,875	1,112
Vale Malaysia	7,228	5,476	181	174
Others	12,444	14,844	(2,202)	(3,695)
Total	181,319	144,594	11,114	(5,799)

Investments

In 2020, investments totaled US\$ 4.430 billion, of which US\$ 522 million in project execution and US\$ 3.908 billion in the maintenance of operations, 20% higher than 2019, mainly due to (i) higher equipment replacement and acquisition; and (ii) tailings filtration plants investments, which were partially offset by (i) the positive effect of Brazilian real depreciation and (ii) a slow pace in equipment acquisition and implementation of non-essential work fronts in the Brazilian operations due to Covid-19.

In 2021, Vale expects to invest US\$ 5.8 billion, an increase of 31% compared to 2020, mainly due to (i) higher intensity of iron ore tailings filtration plants investments, which aims to reduce Vale's dependence on tailings dams (US\$ 350 million); (ii) higher intensity in Northern System 240 Mtpy investments and construction start-up of Serra Sul 120 Mtpy project (US\$ 286 million); and (iii) investments in solar energy projects, as Sol do Cerrado project, which will reduce Vale's average energy cost (US\$ 143 million); and (iv) postponements from 2020's investment program due to COVID-19 pandemic.

<i>US\$ million</i>	2020	2019
Projects	522	544
Maintenance of existing operations	3,908	3,160
Total	4,430	3,704

<i>US\$ million</i>	2020	2019
Ferrous Minerals	2,392	2,070
Coal	203	240
Base Metals	1,805	1,376
Others	30	18
Total	4,430	3,704

¹ Excluding R&D.

Execution of Projects

Project execution investments totaled US\$522 million in 2020, a 4% decrease from 2019. The Northern System 240 Mtpy project aims to expand the S11D mine and plant capacity and logistics of the Northern System. Salobo III project is a brownfield expansion of copper production capacity at the Salobo site. Over the year, the projects underwent a wide replanning in order to mitigate the impacts of Covid-19.

The Northern System 240 Mtpy Project achieved substantial evolution on mine-plant project front, starting the construction works of transportation lines and stockyards. The Serra Sul 120 Mtpy project, approved in August 2020, is in its initial phase of equipment and services procurement activities and engineering plan improvements. Salobo III Project concluded the construction of the metallic structures for the conveyor belt transfer houses.

The total expected investment for Salobo III was reviewed to US\$ 816 million (vs. US\$ 1,128 million) mainly due to positive exchange rate effect.

In October, Vale approved the incorporation of a joint venture to build and operate an expansion project for the Shulanguh Port facilities, located in China. The project secures strategic port capacity in China to further improve Vale's shipping and distribution costs optimization. Vale's capital contribution to the project is estimated to range from US\$ 110 million to US\$ 160 million. The construction of the project, which is expected to take up to three years, will start after both parties obtain the anti-trust and other regulatory approvals in China.

In December, Vale received the required licenses to start the construction of the Capanema Project. The project includes investments in the Capanema mine to resume facilities and acquire new equipment, implement a long-distance conveyor belt and adjustments in the Timbopeba stockyards.

Projects	Capacity (tons per year)	Expected start-up ¹	Actual Capex (US\$ million)		Estimated Capex (US\$ million)		Physical progress (%)
			4Q20	Total	2020	Total	
Ferrous Minerals Projects							
Northern System 240 Mtpy	10 Mt	2H22	36	181	224	772	59%
Capanema	18 Mt ²	2H23	-	-	-	495	0%
Serra Sul 120 Mtpy	20 Mt	1H24	-	-	-	1,502	0%
Base Metals Projects							
Salobo III	30-40 kt	1H22	50	346	323	816	68%

¹ Updates may be required in the future, depending on developments of the Covid-19 pandemic.

² The Capanema Project adds 14 Mtpy capacity to the expedition of the Timbopeba site in its early years.

³ Salobo's total capacity will reach 36 ktpy on average after project completion.

Investment in maintenance of operations

In 2020, investments in maintenance of operations totaled US\$ 3.908 billion, an increase of 24% compared to 2019, mainly due to higher investments in tailings filtration plants and dry stacking, which will allow the use of wet processing and reduce the need for the use of tailings dam, and Moatize plant revamp.

Among the main replacement projects are the Gelado project, in Brazil, which aims to recover approximately 10 Mtpy of pellet feed from the Gelado dam in the Carajás Complex, in order to feed the São Luís pelletizing plant, and the Voisey's Bay Mine Extension project (VBME) in Canada, which will extend the life of the mine and replace existing mine production at Voisey's Bay.

Investment by type – 4Q20

US\$ million	Ferrous Minerals	Base Metals	Coal	Energy and others	TOTAL
Operation enhancements	385	267	58	1	711

Replacement projects	42	192	-	-	234
Dam management	24	16	1	-	41
Other investments in dams and waste dumps	54	13	-	-	67
Health & Safety	91	21	1	-	113
Social investments and environmental protection	35	11	1	-	47
Administrative & others	64	20	3	-	87
Total	695	540	64	1	1,300

On the Gelado project, the construction of the tailing pipeline for the magnetic concentration plant was concluded and backfilling adjustments were carried out in thickener facilities. As next steps, the works will advance in the assembly of the first dredge structure.

The Voisey's Bay underground mine extension works are ongoing in underground development in Reid Brook deposit development under strict geotechnical control and paste and booster plant has commenced.

Replacement projects progress

Projects	Capacity (per year)	Estimated start-up	Executed capex (US\$ million)		Estimated capex (US\$ million)		Physical progress (%)
			4Q20	Total	2020	Total	
Gelado	9.7 Mt	1H22	29	175	121	428	73%
Voisey's Bay Mine Extension	45 kt	1H21	184	909	499	1,694	59%

Debt indicators

Gross debt totaled US\$ 13.4 billion on December 31, 2020, in line with the value of US\$ 13.1 billion on December 31, 2019. Despite presenting a stable annual position in the annual comparison, relevant movements in the debt portfolio in 2019, including the drawdown and payment of the revolving loan facility and the return to the international capital market. Such operations are described in the "Debt Management" Section.

Net debt was negative at US\$ 898 million on December 31, 2020, a decrease of US\$ 5.8 billion compared to US\$ 4.9 billion on December 31, 2019. The reduction in net debt was mainly due to the net effect of free cash flow generation of US\$ 9.2 billion offset by the payment of Interest on Equity of US\$ 3.4 billion in 2020.

The expanded net debt, which is composed only by other relevant obligations and commitments of Vale reached US\$ 13.3 billion as of December 31, 2020, tending to the long-term reference level of US\$ 10 billion.

The average debt term was 8.4 years on December 31, 2020, in line with the 8.5 years on December 31, 2019. The average cost of debt, after foreign exchange and interest swaps, decreased to 4.50% per year at December 31, 2020, compared to 4.87 % per year on December 31, 2019, mainly due to lower interest rates in the international capital markets.

The interest coverage ratio, measured by the LTM adjusted EBITDA/LTM gross interest indicator, increased to 20.3x on December 31, 2020, against 10.7x on December 31, 2019, mainly due to the 106% Adjusted EBITDA higher in 2020 compared to 2019.

US\$ million	2020	2019
Gross debt ¹	13,360	13,056
Net debt ¹	(898)	4,880
Leases (IFRS 16)	1,667	1,791
Exchange rate and interest rate derivatives	883	16
Refis	2,744	3,907
Brumadinho provisions	6,864	5,472
Samarco & Renova Foundation provisions	2,074	1,700
Expanded net debt	13,334	17,766
Gross debt / LTM EBITDA adjusted (x)	0.8	1.2
LTM EBITDA adjusted / gross interest expenses (x)	20.3	10.7

¹ Does not include leases (IFRS 16, equivalent to the Brazilian regulation CPC 06 (R2)),

Liability management

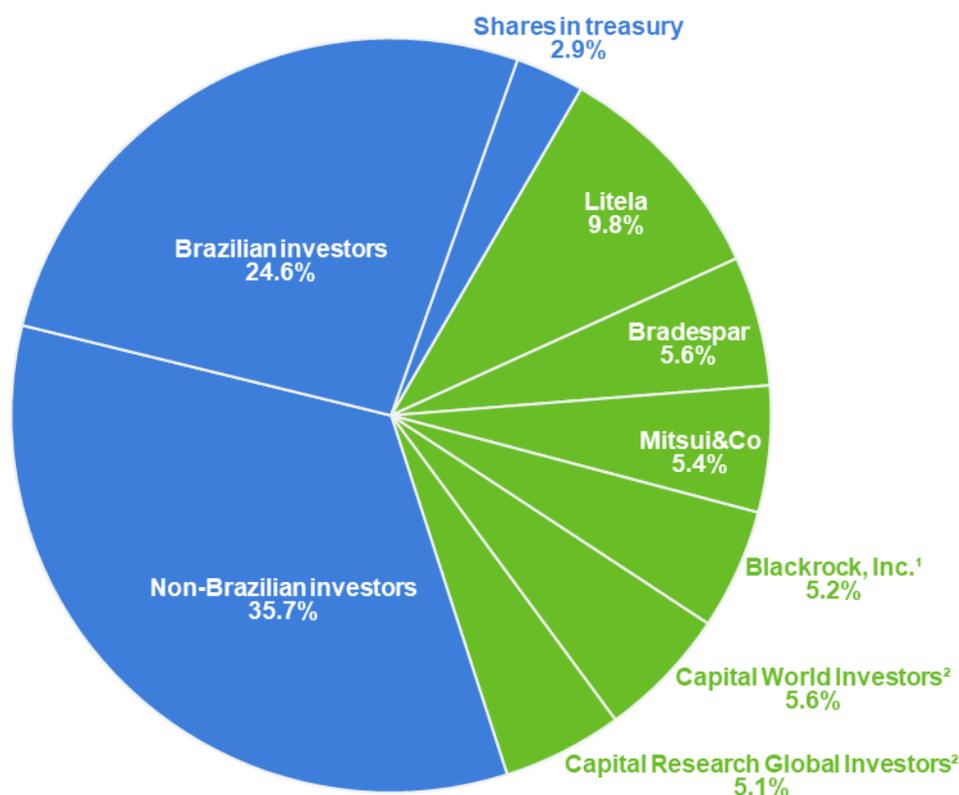
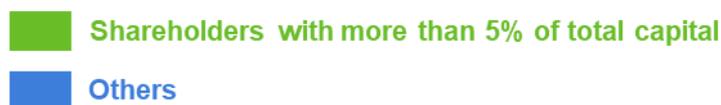
The main liability management transactions in 2020 were:

- (i) In March, the US\$5 billion revolving credit facilities (RCF) was disbursed due to potential negative impacts that could be imposed by Covid-19 on the company's cash generation. The US\$ 2 billion of the line that expires in 2022 and the US\$3 billion of the line due in 2024 were requested. These amounts were fully liquidated at the end of the third quarter;
- (ii) Vale issued 10-year bonds in early July in the amount of US\$ 1.5 billion with a coupon of 3.75% p.a. and yield of 3.85% p.a.;
- (iii) In August, a US\$300 million loan was done by The *Export-Import Bank of China* ("CEXIM") related to charter agreements signed between Vale International and Chinese-controlled companies, either directly/indirectly;
- (iv) Another transaction contracted with an official agency was the US\$300 million loan offered by the *New Development Bank* ("NDB," the BRICS bank), but the funds will be disbursed in 2021. The line is linked to investments in the expansion of the logistics capacity of the North Corridor;
- (v) With regard to debt repurchase for portfolio optimization, there was an advance payment of the remaining balance of the loan granted by Export Development Canada - EDC to Vale Canada, in the amount of US\$ 10.3 million;
- (vi) On December 30, 2020, the early settlement of the Loan of Euros 200 million granted by the French government to Vale Canada, which was destined to the investments made by Vale New Caledonia.

These transactions were carried out aiming to optimize the company's liabilities and, thus, reducing risks associated with liability management

Shareholding structure and capital markets

As of December 31, 2020, Vale S.A.'s share capital consisted of 5,284,474,770 common shares and 12 special class preferred shares (golden shares).



Note: Previ holds a direct stake of 2.90% and an indirect stake of 9.07% in Vale through its 80.622% stake in Litel and Litela.

¹ Updated position as of 02/06/2020.

² Updated position as of 11/05/2020.

It is important to note that, on November 9, 2020, Vale's Shareholders' Agreement among Litela Participações S.A., Litel Participações S.A., Bradespar S.A., Mitsui & Co., Ltd., and BNDES Participações S.A. - BNDESPAR expired. As of November 10, 2020, the shares and therefore the votes belonging to the shareholders mentioned above are no longer bound by the agreement and can be freely traded.

Vale in the capital market

The shares issued by Vale are listed on B3 (ticker: VALE3), on the NYSE (ticker: VALE, ADR Level 2) and Latibex (ticker XVALO).

On B3, Vale's shares appreciated 71% in 2020 compared to 2019. Vale's stock was quoted at R\$ 87.45, compared to R\$ 51.16³⁰ on December 31, 2019. Vale's market value (number of shares x share price) was approximately R\$ 462 billion at the end of the 2020 fiscal year. The average daily trading volume of the shares was R\$ 1,665 million in 2020, an increase of 69.4% compared to the volume traded in 2019. The shares issued by Vale make up the main B3 indices, such as IBOV, IBRA, IBXL, IBXX, IGCT, IGCX, IGM, IMAT, ITAG and MLCX.

Market information	2020	2019
Closing price (R\$/share)	87.45	51.16 ¹
Volume average - VALE3 (R\$ billion)	1,665	983
Price average - VALE3 (R\$/share)	55.7	47.9
Market cap - VALE3 (R\$ billion)	462	282
Book value (R\$/share)	34.2	29.7
VALE3 variation	70.93%	7.80%
Ibovespa variation	2.92%	32.50%

* Adjusted price after distribution of earnings.

Shareholders' rights

Since December 2017, Vale's shares have been part of Novo Mercado, B3's highest level of governance. By joining Novo Mercado, Vale migrated its shares so that its capital was composed exclusively of common shares with voting rights and new rights were conferred on the Company's shareholders. As provided for in the Company's Articles of Incorporation, and in accordance with the requirements of the Novo Mercado regulations, any direct or indirect sale of control of Vale must be contracted on the condition that the acquirer undertakes to make a Public Offering of Shares ("OPA"), having as object the shares issued by the company owned by the other common shareholders, in order to ensure them equal treatment to that given to the alienating shareholder (100% tag along).

³⁰ Price adjusted for the distribution of earnings.

Shareholders remuneration

In July 2020, the Board of Directors decided to reinstate the suspended Shareholder Remuneration Policy in January 2019, which was resumed without changes.

Also, in July 2020, the Board of Directors approved the payment of interest on equity deliberated in December 2019, considering the calendar year 2019. Interest on equity was paid in August 2020.

The distributions of earnings for the balance sheet for the year 2020 total R\$ 6.67 per share, between interest on capital and dividends and were decided as follows:

- (i) The Board of Directors approved the payment of the remuneration to the shareholder in the total gross amount of R\$ 2.407510720 per share, being R\$ 1.410166173 per share in the form of dividends and R\$ 0.997344547 per share in the form of interest on equity, based on the Company's profit reserves. The payment of interest on equity was made on September 30, 2020 for holders of shares in B3 and from the day October 7, 2020 for ADR holders.
- (ii) On the basis of the balance sheet of September 30, 2020, the Board of Directors approved the payment of the remuneration to the shareholder in in the total gross amount of R\$ 4,262386983 per share, being R\$ 3,426505027 per share in the form of dividends and R\$ 0,835881956 per share in the form of interest on equity, calculated based on the balance sheet of September 30, 2020.³¹

To access Vale's Shareholder Remuneration Policy and history with information on dividend payments and interest on equity please refer to Vale's website www.vale.com/investors (Shares, Dividends and Debts Section).

³¹ The amount of dividends per share may change slightly due to an eventual change in the number of treasury shares given the payment of long-term remuneration ("Matching") to its executives. In this case, the Company will issue a new Notice to Shareholders informing the final amount per share.

2021 business perspectives³²

Ferrous Minerals

Vale's iron ore fine production guidance in 2021 is 315-335 Mt. Production volumes will depend mostly on the granting of external permits to resume halted production, request for new operational licenses and the start-up of new dams and filtering plants.

Vale reinforces its margin-over-volume strategy, managing its extensive logistics chain and prioritizing blended products in its portfolio. Vale's product portfolio aims to capture industry trends, improving quality and productivity, controlling costs, strengthening the logistics infrastructure of railways, ports and distribution centers and also committed to a safe, green and efficient portfolio, strengthening customer relationships.

Base Metals

Nickel

Vale's ex-VNC nickel production guidance in 2021 is around 200 kt. Vale's strategy for its nickel business is to be a leader in providing nickel for a sustainable energy transition, going beyond and improving the sustainable way of operating. The main product, Class 1 nickel, puts Vale in a unique position with environmentally friendly operations in the North Atlantic, in line with the low-carbon agenda. By the end of 2021, Vale will complete two replacement projects in Canada: Voisey's Bay and Copper Cliff I Mine extensions, which have high nickel content and a significant volume of by-products.

Copper

Copper production guidance in 2021 is 360-380 kt. Vale's strategy for its copper business is to grow organically, developing a multi-year plan to expand assets such as Salobo III, Alemão and Cristalino, competitive projects located in the Carajás region, which will increase Vale's production capacity.

Coal

Keeping focus on its core business and its ESG agenda, committed to becoming carbon neutral by 2050 and reducing 33% of its emissions from scopes 1 and 2 by 2030, Vale has taken a first step towards the divestment of the coal business. In January 2021, the Company signed a Heads of Agreement ("HoA") with Mitsui & Co., Ltd ("Mitsui"), which sets out the main terms for

³² The information disclosed in this Section represents a mere data estimate and, under no circumstances, constitute a promise of performance by the Company and/or its directors. For more information, see Vale's Reference Form.

Vale's acquisition of all Mitsui's holdings, and for the structuring of Mitsui's exit from the Moatize coal mine and the Nacala Logistics Corridor ("NLC"), with expected completion in 2021.

With the agreement for the acquisition of Mitsui's holdings and, consequently, the simplification of governance and asset management, Vale will begin the process of divestment from the coal business, which will be based on the preservation of the operational continuity of Moatize and NLC, with the search for a third party interested in these assets.

While seeking to conduct a responsible process of searching for stakeholders in the coal business, Vale will continue to support the ramp-up of the project and maintain all its commitments to society and stakeholders, including obligations already assumed regarding labor rights and resettlements. Vale revised its business plan in 2019 and has been implementing two initiatives, which are expected to produce sustainable results from the second half of 2021, a new mining plan and a new operational strategy for processing plants, both previously disclosed. As a result, we expect that from the second half of 2021 production will reach an annual run-rate of about 15 million tons.

The full statement released by Vale about the operation with Mitsui is available on [Vale's website](#).

Policy regarding independent auditors

In 2020, Vale's Board of Directors approved Vale's "Policy for Provision of Audit Services by Independent Auditors", which is in line with the internal procedures previously in force, and establishes guidelines and principles to be followed in the process of contracting external audit services of the Company and its subsidiaries. This policy aims to avoid the existence of conflicts of interest, loss of independence or objectivity of its independent auditors.

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

The Company has a contract for conducting an independent audit of its financial statements with *PricewaterhouseCoppers Auditores Independentes* ("PwC"), which is valid for five years, as of the audit of the financial statements for the fiscal year ended December 31, 2019. The fees for the fiscal year ended December 31, 2020, for Vale and its subsidiaries, were as follows:

Fees in R\$ thousand	Vale and subsidiaries	% ¹
Financial Audit	27,179	89.1%
Auditing - Sarbanes Oxley Act	2,724	8.9%
Audit Related Services ²	612	2.0%
Total External Audit Services	30,515	100.0%

¹ Percentage relating to total fees of external audit services,

² Those services are mostly contracted for periods of less than one year,